v\textit{tome|x m} microfocus CT

Uniting premium 3D metrology and inspection with quality and speed.
Inspect with precision, power, and productivity.

As manufacturing becomes more complex and automation becomes the norm, it’s more important than ever to inspect with both precision and efficiency. We are revolutionizing 3D inspection for non-destructive testing (NDT) and dimensional control to make these goals a reality.

By adapting CT technology for industrial needs and combining it with powerful X-ray technology, robotic manipulators, automated software, and proprietary CT technologies, we have created a family of high-precision CT products that reduce overall inspection times from hours to just minutes, at an extremely high quality level.

The new phoenix v|tome|x m pushes this innovation one step further to give you the most versatile and precise X-ray microfocus CT system for NDT and 3D metrology and analysis. This highly productive scanner delivers improved accuracy at unprecedented speeds—helping you dramatically optimize your lab processes to meet today’s increasing demands.

Reduce scanning time without compromising quality.

The v|tome|x m is the first microCT system to harness the breakthrough scatter|correct technology, dynamic 41 digital detector, 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 new additions like the ruby|plate and true|position for improved measurement, workflows, and precision, as well as the helix|CT for improved image quality, you can increase probability of detection (POD) with efficiency and ease.

1. scatter|correct technology
   Get unprecedented low artifact precision up to 100 times faster than with a comparable quality fan beam CT. Drops scan time from 60 minutes to just 6.

2. dynamic 41 digital detector
   Double CT resolution at the same speed, or double throughput at the same quality level as 200 μm pitch DXR detectors. Drops 6 minute scan time down to 3.

3. high-flux|target
   Improve efficiency with faster microCT scans or doubled resolution with higher power on a smaller focal spot. Cuts the 3 minutes down to 1.5.

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

5. offset|CT
   Scan even larger parts with up to 100% larger scanning volume.

6. Fully automated robot
   Maximize speed, accuracy, and reduce operational costs.

7. phoenix datos|x CT software
   Fully automate your data acquisition, volume processing, and evaluation with ease.

*typical small high density object
Meet your specific microCT needs.

Whether you need to increase speed, detection detail, or do both, the phoenix v|tome|x m can be formatted for any 3D industrial or scientific microCT task. The first CT system worldwide, this versatile high-resolution scanner works with a variety of optional features to meet your high-quality inspection needs with up to two times faster inspections or scanning volume with up to 300kV/500W—all to help you make the most out of your inspections.

Industrial 3D NDT
Beyond high-resolution 3D analysis in R&D and failure analysis labs, this machine allows 3D production control with a powerful 300 kV tube and high dynamic detector technology for fast CT acquisition, fast velo|CT volume reconstruction, and a fully automated robot option. 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 innovation
With its high-resolution 180 kV nanoCT® option, the phoenix v|tome|x m opens a non-destructive third dimension for research & development down to the submicron scale—with no required preparation, slicing, coating or vacuum treatment.

Metrology 2.0

Reproducible precision 3D metrology with CT
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. New true|position and ruby|plate technologies bring metrology workflows and precision to a new performance level. These allow improved VDI 2630 conform accuracy specification and three times faster performance verification of multiple positions. This is possible due to fully automated workflows, new ruby|plate calibration phantom (patent pending), and compensation of thermal drift effects by using temperature sensors.

- Nominal-actual CAD comparison
- Dimensional measurements / wall thickness analysis
- Reverse engineering / tool compensation
- 3.8 µm + L/100 referring to VDI 2630 guideline

Our true|position expands the measurement positions with specified accuracy to all positions which can be verified with ruby|plate which allows a faster setup of CT scans with the extremely high measurement accuracy 3.8 µm + L/100 referring to both VDI 2630 guideline and remarkable 5.8 µm + L/50 for all other positions.
Automate your entire CT process chain.

From loading, to scanning, to analysis, your entire inspection and measurement process can now be automated to increase efficiency and reproducibility.

The production/edition
With the optional production/edition configuration, you can fully automate your inspection. With a collaborative robot for automated sample loading, one operator can run several systems at once with less training. So you can quadruple operator productivity and save operational costs with less training. So you can quadruple operator productivity and save operational costs.

Fully automated CT
Our CT datos|x automation software and its speed|ADR algorithms implemented in VGInline for makes metrology and failure analysis faster and easier than ever before. It allows you to fully automate data acquisition, volume processing, and evaluations like inspection reports, as well as to complete reproducible high-precision 3D metrology and failure analysis tasks with minimal operator training.

Improve reliability with real results
We are always working to provide smarter inspections with the peace of mind of knowing you’ll meet high accuracy and security standards. All main hardware and system software components are made with proprietary technology—combining durable hardware with high-quality results.

The v|tome|x m is designed for reproducibility with a temperature-stabilized X-ray tube and digital detector array and cabinet, as well as security with data integrity and long-term DICONDE data management.

General specifications

<table>
<thead>
<tr>
<th>X-ray tube type</th>
<th>Open directional high-power microfocus. X-ray tube, closed cooling water circuit. Optional additional (open) transmission high-power nanofocus X-ray tube.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. voltage / power</td>
<td>240 kV / 320 W. Alternatively available with 240 kV / 320 W microfocus X-ray tube.</td>
</tr>
<tr>
<td>Dual-tube option for nanofocus: additional 180 kV / 15 kV high-power nanofocus tube with diamond window.</td>
<td></td>
</tr>
<tr>
<td>Geometrical magnification (1D)</td>
<td>1.44 x to 100 x; up to 200 x with nanofocus tube.</td>
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<tr>
<td>Details: 1 x 100 x, up to 200 x with nanofocus tube.</td>
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</tr>
<tr>
<td>Detail detectability</td>
<td>Down to &lt; 0.2 μm (microfocus tube); optional down to 0.15 μm (nanofocus tube).</td>
</tr>
<tr>
<td>Min. voxel size</td>
<td>20 μm (microfocus tube); optional down to 15 μm (nanofocus tube).</td>
</tr>
<tr>
<td>Max. sample size</td>
<td>200 x 200 x 200 μm.</td>
</tr>
<tr>
<td>Max. focus object distance</td>
<td>545 mm (microfocus tube); 600 mm (microfocus tube).</td>
</tr>
<tr>
<td>System dimensions W x H x D</td>
<td>2,170 mm x 1,690 mm x 1,500 mm (85.4&quot; x 66.5&quot; x 59&quot;).</td>
</tr>
<tr>
<td>Max. sample weight</td>
<td>5 kg (11 lbs.).</td>
</tr>
<tr>
<td>Max. focus object distance</td>
<td>545 mm (microfocus tube).</td>
</tr>
<tr>
<td>Focal-detector-distance</td>
<td>800 mm (8&quot; detector) / 930 mm (16&quot; detector).</td>
</tr>
<tr>
<td>Stationary detectors</td>
<td>Temperature stabilized digital DXR detector array.</td>
</tr>
<tr>
<td>Dynamic detectors</td>
<td>Temperature stabilized detector, dynamic 41/200 large area detector with superior image and result quality.</td>
</tr>
<tr>
<td>Min. voxel size</td>
<td>Down to 5 μm (microfocus tube).</td>
</tr>
<tr>
<td>Max. sample weight</td>
<td>10 kg (22 lbs.).</td>
</tr>
<tr>
<td>Max. focus object distance</td>
<td>454 mm (microfocus tube).</td>
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<tr>
<td>Measurement accuracy</td>
<td>Not specified according to VDI 2630-1.3 guideline.</td>
</tr>
</tbody>
</table>

** phoenix v|tome|x m metrology/edition only available in specific countries at present, more information on request **

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* Measured in accordance of VDI 2630-1.3 guideline. ** Measured in accordance of VDI 2430-1.3 guideline. *** Measured in accordance of VDI 2430-1.3 guideline. **** Measured in accordance of VDI 2430-1.3 guideline.
A partnership for improved performance.

The premium CT performance of the v|tome|x m is just one example of how we are revolutionizing CT inspection to make manufacturing processes more efficient. With our entire x|series precision CT line, a variety of optional innovations, and expert service, we are committed to enhancing precision, automation, and productivity for your operations through our global service network.