CONFIGURABLE LARGE-ENVELOPE CT SYSTEMS

CT | VERSATILITY

NIKON METROLOGY | VISION BEYOND PRECISION
M2 5 OR 6-AXIS HIGH-VERSATILITY CT SYSTEM
Our “Flagship” system available in over 130 different configurations. Most versatile CT system in the world.

C1 COMPACT “TALL” 5 AXIS CT SYSTEM
Compact footprint with a tall vertical envelope and available in a 1-piece radiation shielded cabinet

C2 LARGE-FORMAT HEAVY-DUTY 5-AXIS CT SYSTEM
Available with multiple sources and detectors along with high capacity stage and a scanning envelope to match

C3 ULTRA LARGE-FORMAT 5-AXIS CT SYSTEM
Exceptional load capacity and a scanning envelope beyond any other standard system on the market

E1 6-AXIS “ENTRY-LEVEL” CT & DR SYSTEM
Single-Source / Single-Detector with a great range of motion

1-PIECE RADIATION-SHIELDED ENCLOSURES UP TO 450 kV
Meets all international regulations. Available for E1, M2 and C1 systems.

PANELIZED RADIATION-SHIELDED ENCLOSURES UP TO 750 kV
Custom-sized but not custom-built, standardized manufacturing method to meet all radiation-safety regulations
Whether you are in a high-production environment where speed is the key, or an additive manufacturer where detecting small defects is critical, the Nikon line of large-envelope X-ray CT systems has a solution to meet your requirements. By utilizing a modular approach, our systems can be configured with a variety of X-ray sources, detectors, and other options - without the need for customization. From our entry-level E1 to our 2.5 meters tall C3, we have a solution to meet even the most demanding inspection requirements. And...it all starts with our cutting-edge microfocus X-ray sources that provide highly-focused spot sizes for unmatched geometric magnification and image fidelity. With microfocus energy ranging from 180 kV up to 450 kV, we have a source to meet nearly every application and the ability to produce images that no other manufacturer in the world can match.

NON-STOP NIKON QUALITY

When you invest in Nikon Metrology, you are investing in unparalleled longevity and minimal maintenance. With a legacy of superior machinery and innovative design since 1987, our X-ray systems run smoothly and continuously in even the most demanding environments. Nikon Metrology is synonymous with higher quality and greater productivity.
EVERYTHING STARTS AT THE SOURCE

MULTIPLE SOURCES, INFINITE POSSIBILITIES

Nikon Metrology microfocus sources offer unmatched versatility for objects big and small. Featuring a wide range of spot sizes and power ratings, these open-tube sources are fully configurable and interchangeable to accommodate a wide range of density and material requirements. Expect precise measurements and stunning spatial resolution with every scan.

THE WORLD’S ONLY 450 kV ROTATING TARGET HIGH BRILLIANCE MICROFOCUS SOURCE

The 450 kV microfocus source combines continuous power with stunning resolution. This source features an 80 μm spot size and incredible spatial resolution for faster CT scanning, faster data collection and the highest accuracy and precision available. Critical for higher density, additive manufactured parts – never miss a detail with this 450 kV microfocus source.
EVERYTHING STARTS AT THE SOURCE

180 kV TRANSMISSION TARGET
The 180 kV transmission target features a minimum spot size of 1 μm for precise results and incredible geometric magnification, ideal for electronics and other minuscule samples.

225 kV ULTRAFOCUS REFLECTION TARGET
The 225 kV UltraFocus reflection target has a 3 μm spot size that offers seamless adjustments for sharp and highly-focused images. The most versatile X-ray source on the market can be perfectly primed for each inspection.

225 kV ROTATING TARGET
Featuring a microfocus spot size at high powers and geometric magnification of 150x and above for highly effective defect monitoring, the rotating target offers high-power, high-resolution continuous operation.

320 kV REFLECTION TARGET
The 320 kV reflection target features a 30 μm spot size and geometric magnification of 150x and above, providing precise measurements and exceptional resolution for large and small castings, and other larger-sized or high-density objects.

MULTI-METAL TARGET
Often, using a lower energy X-ray emission is beneficial in material analysis and that can be achieved with the multi-metal target. Beside the standard tungsten (W) target, the operator can easily select from three other target materials: silver (Ag), molybdenum (Mo) and copper (Cu).
The superior design of our “flagship” M2 completely redefines industrial CT scanning. Its configurable with single, dual, or triple X-ray sources, single or dual detectors, and 2-position or 4-position fast panel-shift scanning. This system accurately scans the widest range of shapes and sizes of any standard system on the market today. The patented M2 bridge design is available with tilt, without tilt, or in an extended load configuration. The high-precision granite base is available in the standard 3-meter length, or the optional +500 mm or +1000 mm lengths. When fully-equipped with the 225 kV microfocus, 450 kV microfocus, and 450 kV minifocus sources, the M2 is, without question, the most versatile standard CT system in the world!

<table>
<thead>
<tr>
<th>Technical Specs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight Capacity: 180 kg</td>
</tr>
<tr>
<td>X-Axis Turntable Travel: 500 mm</td>
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<tr>
<td>Y-Axis Turntable Travel: 750 mm</td>
</tr>
<tr>
<td>Z-Axis Bridge Travel: up to 2000 mm (with +1000 mm option)</td>
</tr>
</tbody>
</table>

400 mm to 2200 mm VARIABLE SOURCE-TO-DETECTOR DISTANCE (WITH +1000 mm OPTION)

+/- 30° TILT
360° CONTINUOUS ROTATION

GRANITE BASE 3000 mm (OPTIONAL +500 mm AND +1000 mm)

EXTENDED LOAD OPTION
PRECISE CT SCANNING SYSTEM
VERSATILE STANDARD CT SYSTEM IN THE WORLD.

- SINGLE, DUAL, OR TRIPLE SOURCE CONFIGURATION
- NO-TILT OPTION
- DUAL DETECTOR OPTIONS WITH MOTORIZED VERTICAL ADJUSTMENT
- 2 OR 4-POSITION PANEL-SHIFT
- HIGH-STABILITY X-AXIS BRIDGE DESIGN

A STANDARD ENCLOSURE IS AVAILABLE FOR THE M2 SYSTEM, COMPLYING TO ALL INTERNATIONAL SAFETY STANDARDS.
The C1 system is a smaller version of our immense large-envelope C2. Designed to incorporate the same high-precision characteristics, but on a smaller platform, the C1 provides customers with an unrivaled vertical (Y-Axis) scanning envelope of 1166 mm and a variable source-to-detector distance of 310 mm – 1450 mm, all with a smaller footprint for customers with facility space constraints.

Based on the same granite base and modular design concept of our other systems, the C1 delivers superior accuracy and repeatability for taller objects, while still housed in a more compact enclosure. And when paired with our industry-leading X.Tend helical scanning software, even tall samples can be scanned in a single pass.

### Technical Specs

- Weight Capacity: 180 kg
- X-Axis Travel: 1000 mm
- Y-Axis Travel: 1165 mm
- Z-Axis Travel: 1140 mm

SINGLE X-RAY SOURCE FROM FULL NIKON PRODUCT RANGE 180 kV up to 450 kV OR MINIFOCUS 450 kV

Z-AXIS TRAVEL 1140 mm

1166 mm VERTICAL SCAN ENVELOPE
ANNING SYSTEM KAGE.

- 310 mm to 1450 mm VARIABLE SOURCE-TO-DETECTOR DISTANCE
- SINGLE DETECTOR AVAILABLE WITH 2-POSITION OR 4-POSITION PANEL-SHIFT
- 180 kg WEIGHT CAPACITY
- GRANITE BASE
Dense and unwieldy objects are no problem for the Nikon C2 CT scanning system. Configurable with single, dual, or triple sources, single or dual detectors, and multi-positional panel-shift, this system can accurately scan objects up to 275 kg in weight and 1500 mm tall. The C2 delivers an unrivaled inspection envelope via synchronized vertical X-ray source and detector motion.

Everything about the C2 is versatile and robust. The system provides exceptional precision thanks to its 4.3-meter long granite foundation and is configurable with a digital detector array (DDA) and Nikon’s Curved Linear Diode Array (CLDA) to reduce scatter and dramatically improve image definition. With quick assembly and incredible longevity, the C2 will exponentially increase the quality and productivity of your CT scans.

### Technical Specs

- **Weight Capacity:** 275 kg
- **X-Axis Travel:** 1000 mm
- **Y-Axis Travel:** 1440 mm
- **Z-Axis Travel:** up to 1700 mm
PANELIZED RADIATION-SHIELDED ENCLOSURES
Custom-sized enclosures are built according to standardized manufacturing methods to meet all radiation-safety regulations.

Walk-in room based on C2 system.

Triple source combination with 225 kV rotating target, 450 kV high-brilliance and minifocus source.
Our C3 CT system takes “large-format” to a whole new level - LITERALLY! With a vertical travel of nearly 2.3 meters, and a field-of-view extending 2.5 meters above the turntable, C3 is capable of scanning objects that previously were impossible to X-ray due to their size. Its high-precision granite base and extremely tight engineering tolerances - combined with the pioneering range of Nikon X-ray sources and the latest in digital X-ray detectors - produce CT scans of the highest fidelity and precision in the industry today. Absolutely no other standard CT System in the world can come close to the C3 in range of motion, versatility, precision, and accuracy.

Technical Specs

- Weight Capacity: 400 kg
- X-Axis Travel: 1300 mm (+/- 650 mm)
- Y-Axis Travel: 100 mm to 2380 mm above turntable
- Z-Axis Travel: 1630 mm
- FID: Up to 1800 mm

SINGLE OR DUAL SOURCES FROM FULL NIKON PRODUCT RANGE 180 kv up to 450 kv AND MINIFOCUS 450 kV
CANNING SYSTEM

VARIABLE SOURCE TO DETECTOR
RANGE FROM 180 mm to 1800 mm

100 mm to 2380 mm
Y-AXIS TRAVEL

400 kg
WEIGHT CAPACITY

GRANITE BASE

Z-AXIS TRAVEL 1160 mm
The E1 system is a versatile tool for either 2D digital radiography or 3D CT scanning. It is available to retrofit into your existing X-ray enclosure, new shielded enclosure, or a self-contained standalone cabinet. Equipped with a single X-ray source and a single detector, the E1’s wide range of motion and tilting turntable provide skilled users with everything they need to meet even the most demanding X-ray applications. This robust and economical system can fit into virtually any space and is configured for quick and convenient assembly. The M1’s superior design allows for rapid install to scan capability.

### Technical Specs

- **Weight Capacity:** 75 kg
- **X-Axis Travel:** 600 mm
- **Y-Axis Travel:** 795 mm
- **Z-Axis Travel:** 965 mm

160 kV to 450 kV MICROFOCUS AND MINIFOCUS SOURCES

550 mm to 1625 mm MOTORIZED ADJUSTABLE SOURCE-TO-DETECTOR DISTANCE
CISION CT SCANNING SYSTEM PACKAGES.

+/- 30° TILT
360° CONTINUOUS ROTATION
CONFIGURE YOUR SYSTEM

Specifications

<table>
<thead>
<tr>
<th>Microfocus source</th>
<th>Max. kV</th>
<th>Max. power</th>
<th>Focal spot size</th>
</tr>
</thead>
<tbody>
<tr>
<td>180 kV Transmission target</td>
<td>180 kV</td>
<td>20 W</td>
<td>1 µm up to 3 W</td>
</tr>
<tr>
<td>225 kV Reflection target</td>
<td>225 kV</td>
<td>225 W</td>
<td>3 µm up to 7 W</td>
</tr>
<tr>
<td>225 kV Rotating target option</td>
<td>225 kV</td>
<td>450 W</td>
<td>10 µm up to 30 W</td>
</tr>
<tr>
<td>320 kV Reflection target</td>
<td>320 kV</td>
<td>320 W</td>
<td>30 µm up to 30 W</td>
</tr>
<tr>
<td>450 kV Reflection target</td>
<td>450 kV</td>
<td>450 W</td>
<td>80 µm up to 50 W</td>
</tr>
<tr>
<td>450 kV Rotating target</td>
<td>450 kV</td>
<td>450 W</td>
<td>80 µm up to 100 W</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Minifocus source</th>
<th>Max. kV</th>
<th>Max. power</th>
<th>Focal spot size</th>
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<tbody>
<tr>
<td>Varex HPX-450-11</td>
<td>450 kV</td>
<td>700 W/1500 W</td>
<td>0.4 mm up to 700 W</td>
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Pick Your Detector(s)

<table>
<thead>
<tr>
<th>Detectors</th>
<th># Bits</th>
<th>Active pixels</th>
<th>Pixel size</th>
<th>Max. frame rate at 1x1 binning</th>
<th>Max. frame rate at 2x2 binning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varex 2520Dx</td>
<td>16-bit</td>
<td>1900 x 1500</td>
<td>127 µm</td>
<td>12.5 fps</td>
<td>30.3 fps</td>
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<tr>
<td>Varex 4343 CT</td>
<td>16-bit</td>
<td>2850 x 2850</td>
<td>150 µm</td>
<td>14.9 fps</td>
<td>29.4 fps</td>
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<tr>
<td>Varex 1620</td>
<td>16-bit</td>
<td>2000 x 2000</td>
<td>200 µm</td>
<td>3.75 fps</td>
<td>7.46 fps</td>
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<tr>
<td>Varex 1621 EHS</td>
<td>16-bit</td>
<td>2000 x 2000</td>
<td>200 µm</td>
<td>14.9 fps</td>
<td>29.4 fps</td>
</tr>
<tr>
<td>Varex 1611</td>
<td>16-bit</td>
<td>4000 x 4000</td>
<td>100 µm</td>
<td>3.75 fps</td>
<td>7.46 fps</td>
</tr>
<tr>
<td>Nikon Metrology CLDA</td>
<td>16-bit</td>
<td>2000</td>
<td>400 µm</td>
<td>50 fps</td>
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Pick Your Platform

<table>
<thead>
<tr>
<th>Manipulator</th>
<th>E1</th>
<th>M2</th>
<th>C1</th>
<th>C2</th>
<th>C3</th>
</tr>
</thead>
<tbody>
<tr>
<td># Axes</td>
<td>6</td>
<td>5-6</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Axes travel</td>
<td>(X) 600 mm</td>
<td>(Y) 795 mm</td>
<td>(X) 500 mm</td>
<td>(Y) 750 mm</td>
<td>(X) 1000 mm</td>
</tr>
<tr>
<td></td>
<td>(Tilt) +/- 30°</td>
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</tr>
<tr>
<td>Max. sample weight</td>
<td>75 kg</td>
<td>100-180 kg</td>
<td>180 kg</td>
<td>275 kg</td>
<td>400 kg</td>
</tr>
</tbody>
</table>

General specifications

| Minimum Internal Enclosure Dimensions (LxWxH) | 2.5 m x 1.6 m x 2.0 m | 3.0 m x 1.8 m x 2.2 m | 3.4 m x 1.9 m x 2.8 m | 4.5 m x 2.0 m x 3.0 m | 4.8 m x 2.4 m x 4.5 m |
| Control software | All systems are controlled by Nikon Metrology’s in-house Inspect-X software |

ISO 14001 Certified for NIKON CORPORATION
ISO 9001 Certified for NIKON CORPORATION

Industrial Metrology Business Unit