



# CONFIGURABLE LARGE-ENVELOPE CT SYSTEMS



# CT | VERSATILITY

# CONFIGURABLE SYSTEMS LINE-UP

# SUCCESS IS THE SUM OF DETAILS

## 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

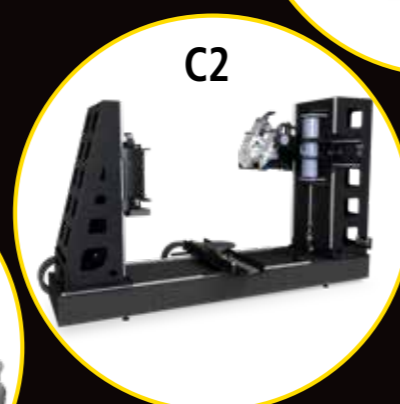
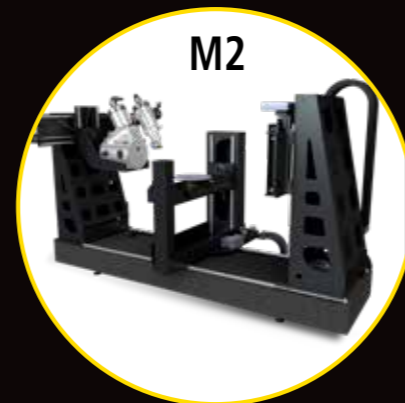
Single-Source / Single-Detector with a great range of motion

## 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

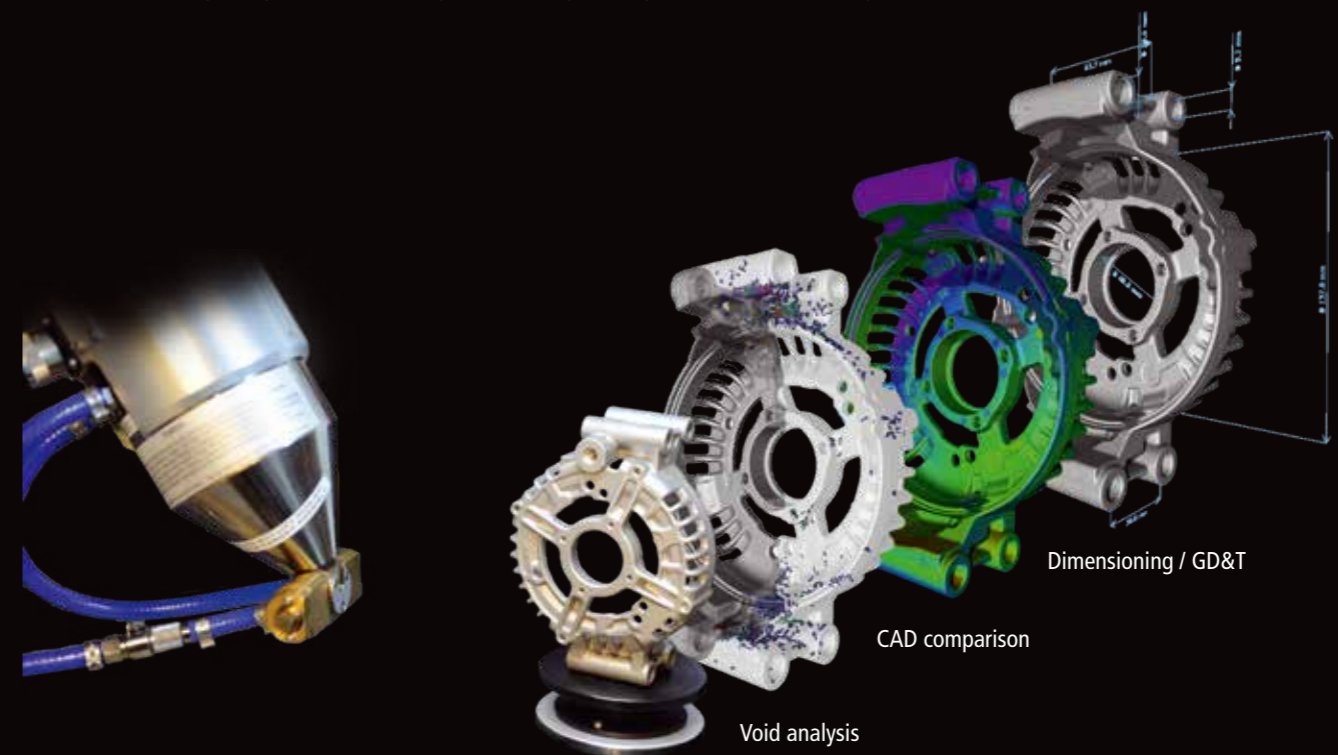
Custom-sized but not custom-built, standardized manufacturing method to meet all radiation-safety regulations



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

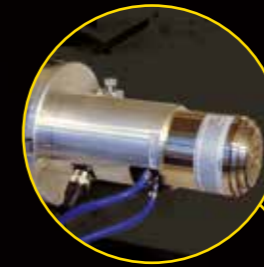
The 450 kV microfocus source combines continuous power with stunning resolution. This source features an 80  $\mu\text{m}$  spot size and incredible spatial resolution for faster CT scanning, faster data collection and the highest accuracy and precision available. Critical for higher density, additive manufactured parts – never miss a detail with this 450 kV microfocus source.



## ONE X-RAY SOURCE, FIVE TARGETS

### 180 kV TRANSMISSION TARGET

The 180 kV transmission target features a minimum spot size of 1  $\mu\text{m}$  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  $\mu\text{m}$  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  $\mu\text{m}$  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).



# M2

# ULTRA-VERSATILE / ULTRA-PRECISE CT SCANNING SYSTEM

EXCEPTIONAL CONFIGURABILITY – THE MOST VERSATILE STANDARD CT SYSTEM IN THE WORLD.

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!

## Technical Specs

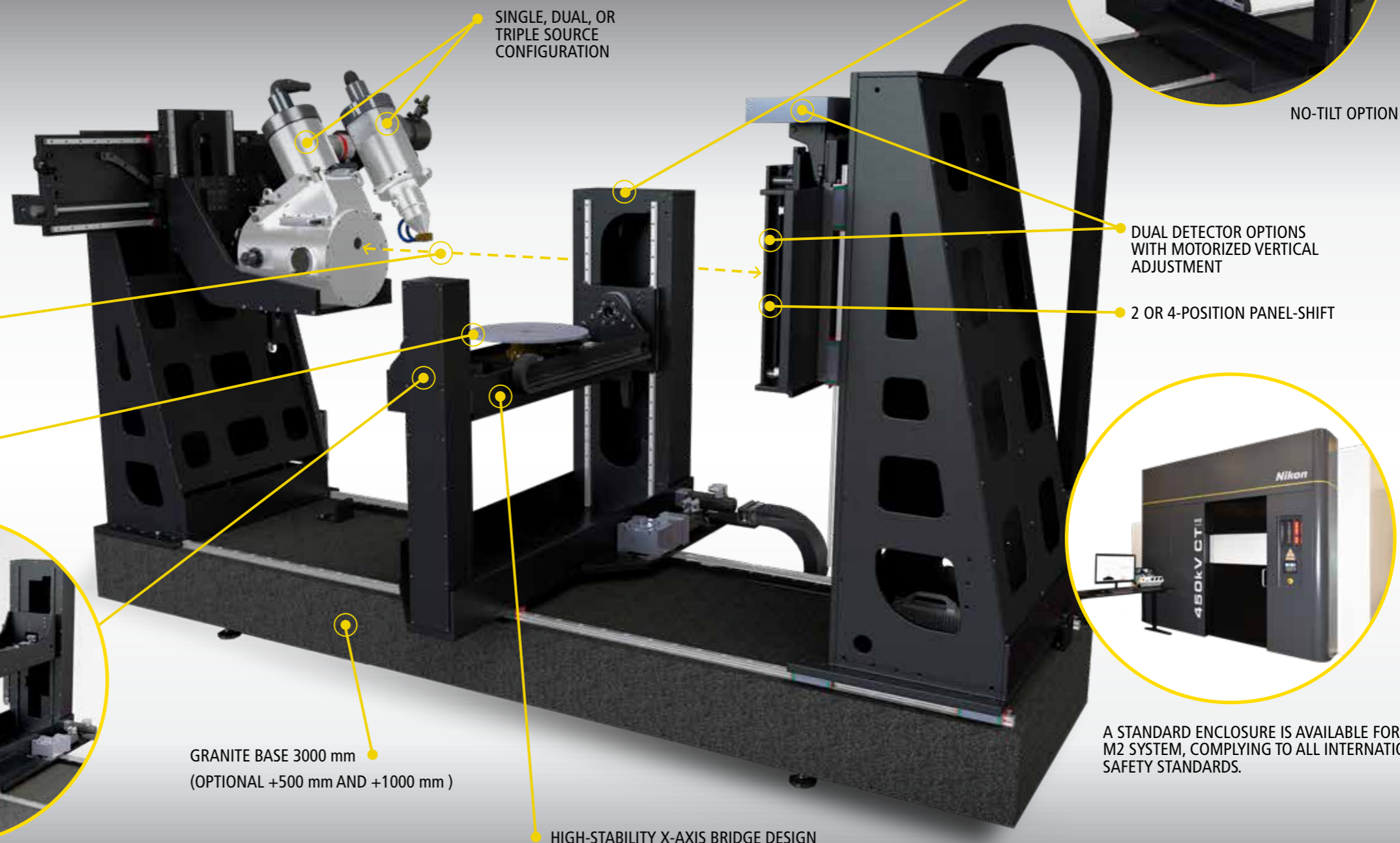
- Weight Capacity: 180 kg
- X-Axis Turntable Travel: 500 mm
- Y-Axis Turntable Travel: 750 mm
- Z-Axis Bridge Travel: up to 2000 mm  
(with +1000 mm option)

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

+/- 30° TILT  
360° CONTINUOUS ROTATION



EXTENDED LOAD OPTION



SINGLE, DUAL, OR  
TRIPLE SOURCE  
CONFIGURATION

NO-TILT OPTION

DUAL DETECTOR OPTIONS  
WITH MOTORIZED VERTICAL  
ADJUSTMENT

2 OR 4-POSITION PANEL-SHIFT



A STANDARD ENCLOSURE IS AVAILABLE FOR THE  
M2 SYSTEM, COMPLYING TO ALL INTERNATIONAL  
SAFETY STANDARDS.

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

HIGH-STABILITY X-AXIS BRIDGE DESIGN

# C1

## COMPACT PRECISION CT SCANNING SYSTEM

TALL SCANNING ENVELOPE IN A COMPACT PACKAGE.

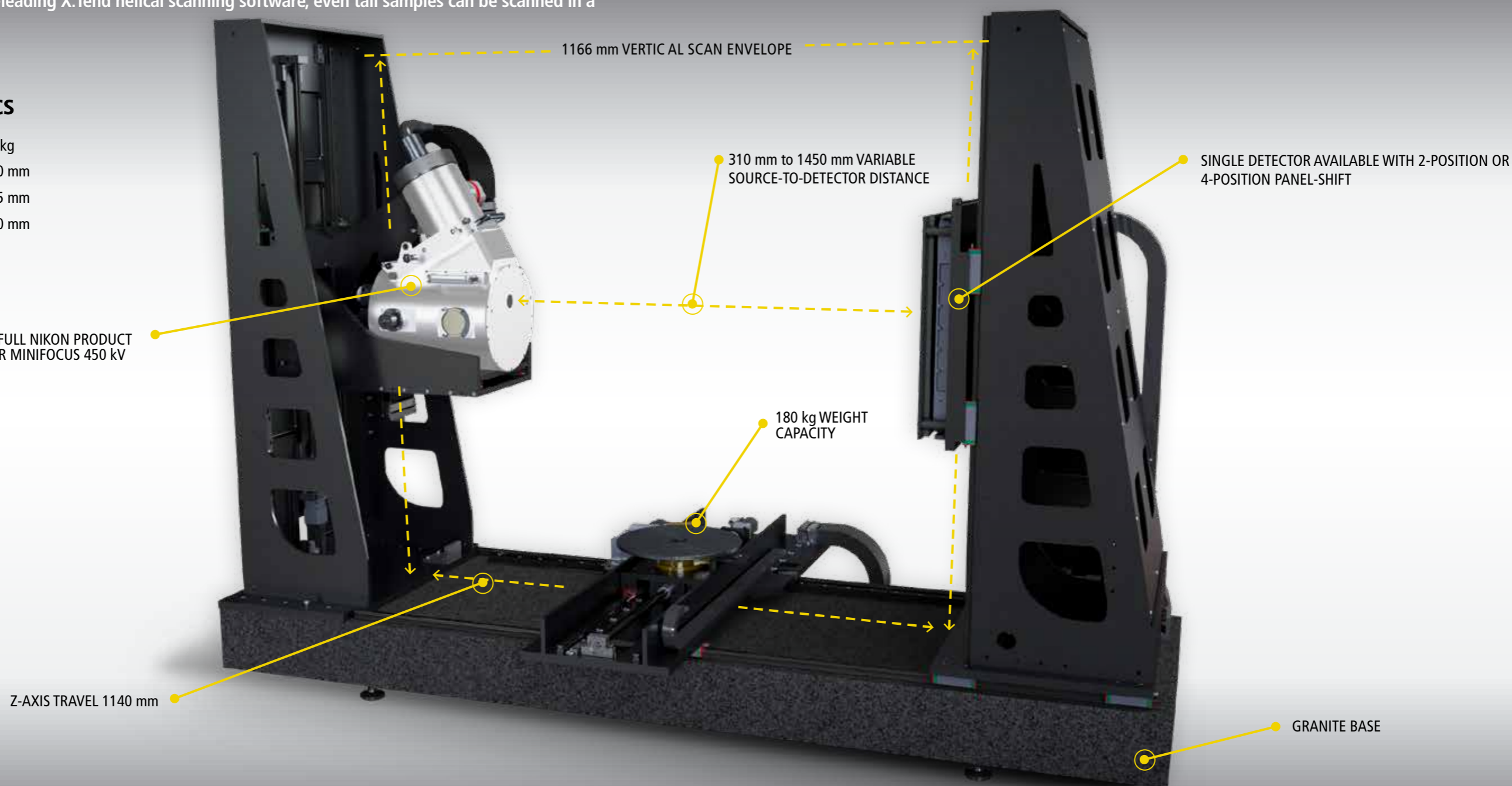
The C1 system is a smaller version of our immense large-envelope C2. Designed to incorporate the same high-precision characteristics, but on a smaller platform, the C1 provides customers with an unrivaled vertical (Y-Axis) scanning envelope of 1166 mm and a variable source-to-detector distance of 310 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



# C2

# LARGE-ENVELOPE PRECISION CT SCANNING SYSTEM

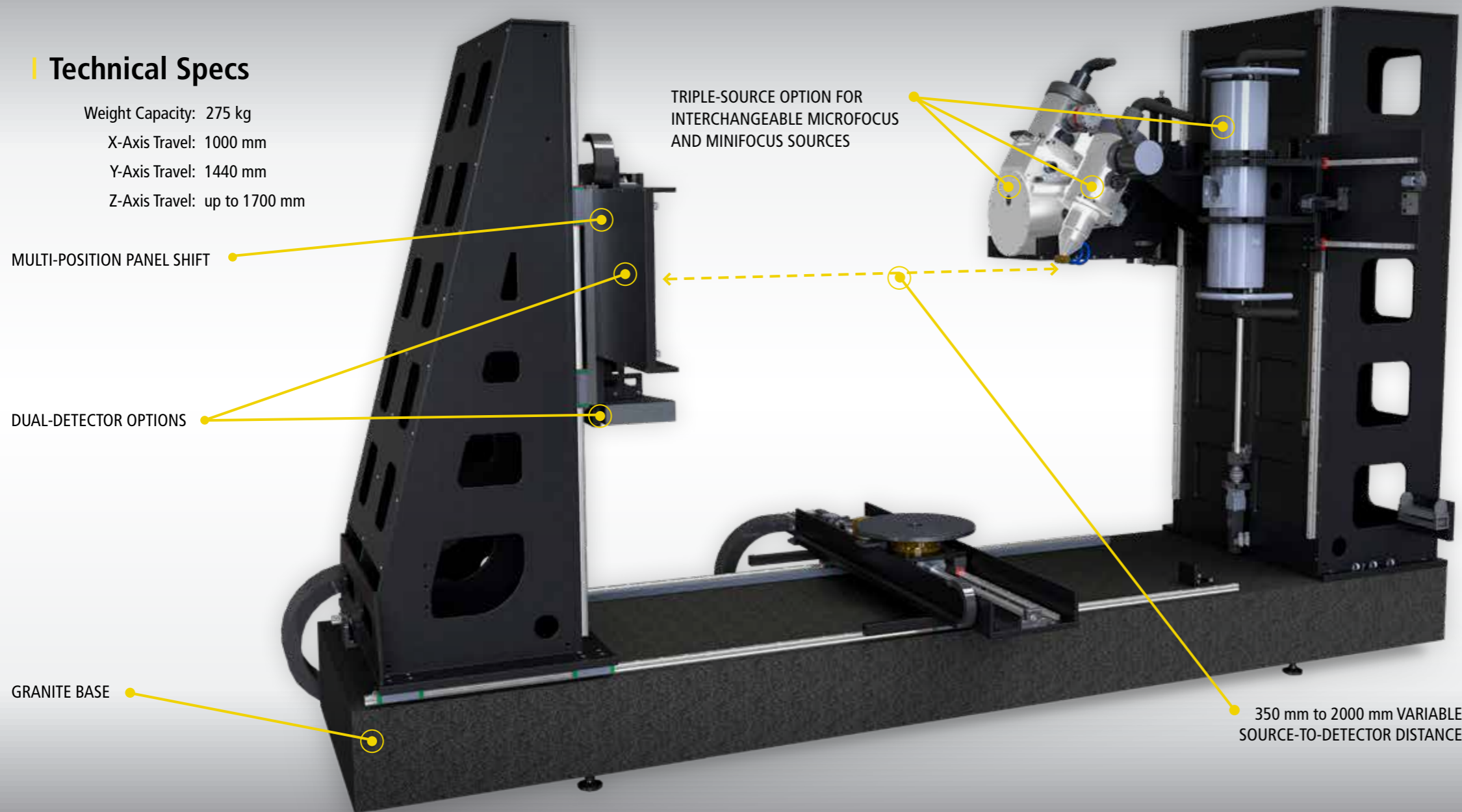
LIMITLESS CONFIGURATIONS. FLAWLESS SCANS.

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.

# C3

# ULTRA LARGE FORMAT CT SCANNING SYSTEM

THE TALLEST STANDARD CT SYSTEM IN THE WORLD.

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

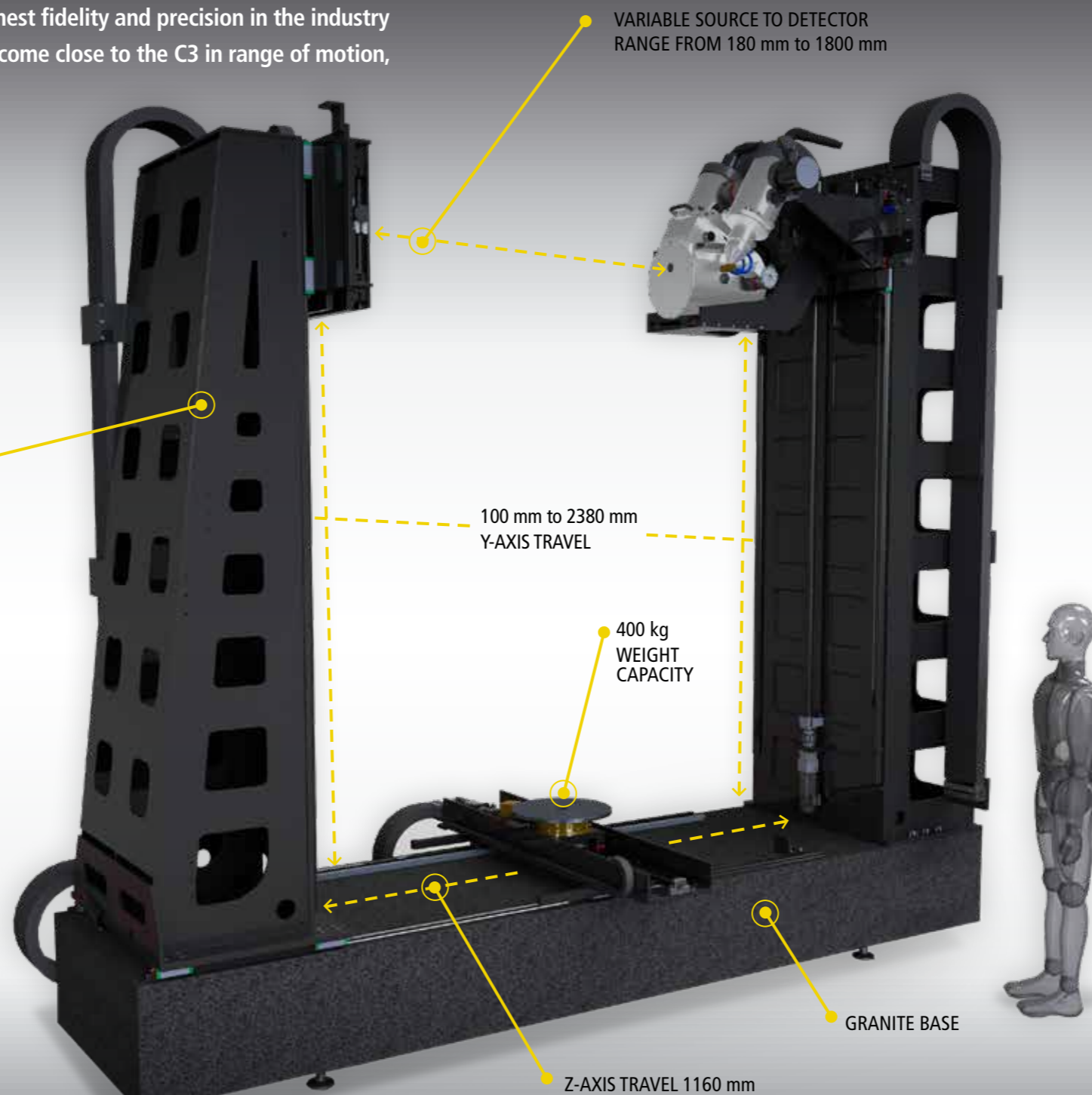
X-Axis Travel: 1300 mm (+/- 650 mm)

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



# E1

## SINGLE SOURCE 6-AXIS PRECISION CT SCANNING SYSTEM

WIDE RANGE OF MOTION IN AN ECONOMICAL PACKAGE.

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

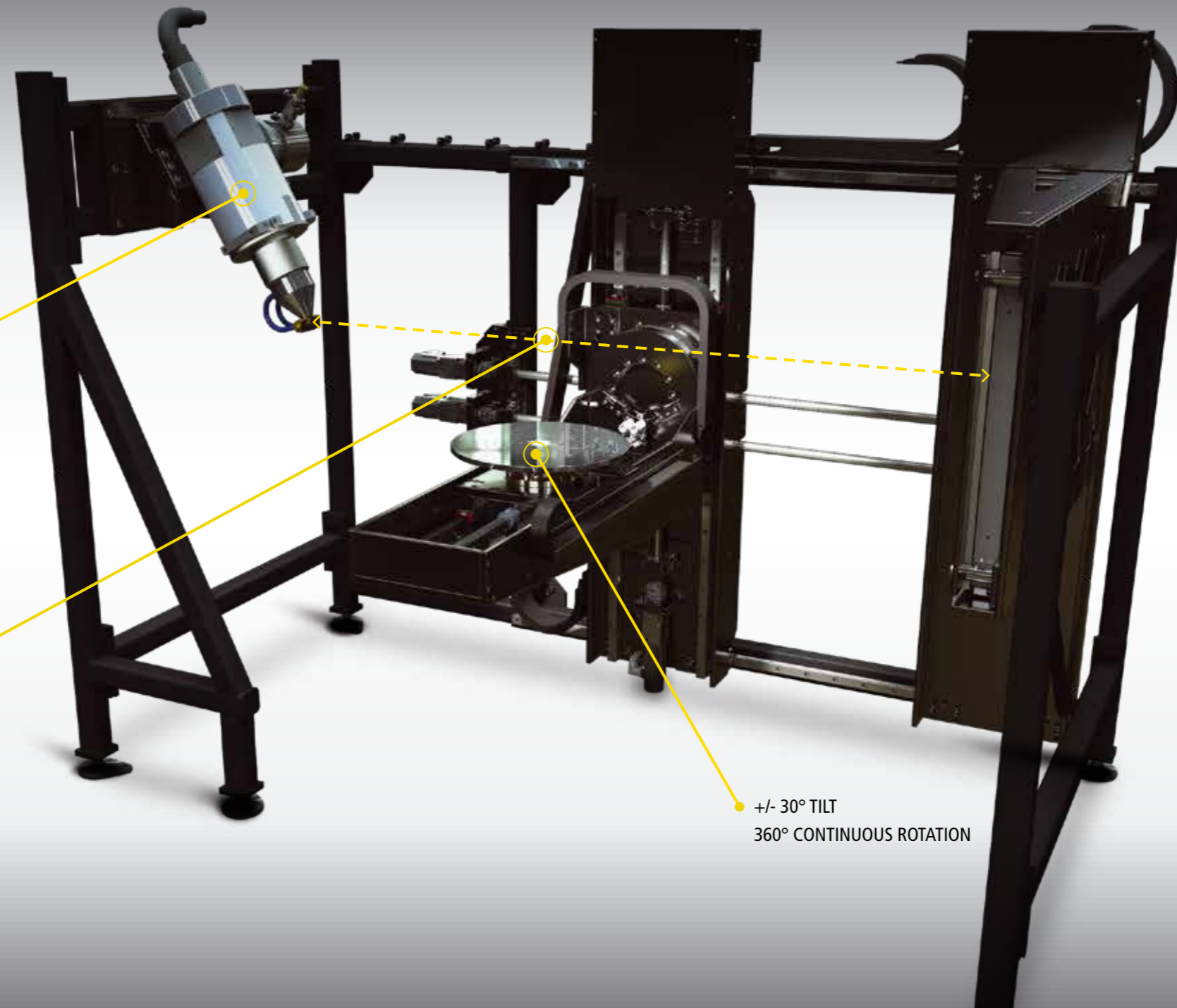
Y-Axis Travel: 795 mm

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

+/- 30° TILT  
360° CONTINUOUS ROTATION





# CONFIGURE YOUR SYSTEM

## Specifications

Microfocus source	Max. kV	Max. power	Focal spot size	
180 kV Transmission target	180 kV	20 W	1 µm up to 3 W	10 µm at 10 W
225 kV Reflection target	225 kV	225 W	3 µm up to 7 W	225 µm at 225 W
225 kV Rotating target option	225 kV	450 W	10 µm up to 30 W	160 µm at 450 W
320 kV Reflection target	320 kV	320 W	30 µm up to 30 W	320 µm at 320 W
450 kV Reflection target	450 kV	450 W	80 µm up to 50 W	320 µm at 450 W
450 kV Rotating target	450 kV	450 W	80 µm up to 100 W	120 µm at 450 W

Minifocus source	Max. kV	Max. power	Focal spot size	
Varex HPX-450-11	450 kV	700 W/1500 W	0.4 mm up to 700 W	1.0 mm up to 1500 W

## Pick Your Detector(s)

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

## Pick Your Platform

	E1	M2	C1	C2	C3
<b>Manipulator</b>					
# Axes	6	5-6	5	5	5
Axes travel	(X) 600 mm (Y) 795 mm (Z) 965 mm (Tilt) +/- 30° (Rotate) n*360°	(X) 500 mm (Y) 750 mm (Z) 1000 mm (Tilt) +/- 30° (Rotate) n*360°	(X) 1000 mm (Y) 1166 mm (Z) 1160 mm (Rotate) n*360°	(X) 1000 mm (Y) 1400 mm (Z) 1700 mm (Rotate) n*360°	(X) 1300 mm (Y) 2280 mm (Z) 1630 mm (Rotate) n*360°
Max. sample weight	75 kg	100-180 kg	180 kg	275 kg	400 kg
<b>General specifications</b>					
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				



### NIKON METROLOGY NV

Geldenaaksebaan 329  
B-3001 Leuven, Belgium  
Tel: +32 16 74 01 00 Fax: +32 16 74 01 03  
Sales.NM@nikon.com

### NIKON METROLOGY EUROPE NV

Tel: +32 16 74 01 01  
Sales.Europe.NM@nikon.com

### NIKON METROLOGY GMBH

Tel: +49 6023 91733-0  
Sales.Germany.NM@nikon.com

### NIKON METROLOGY SARL

Tel: +33 1 60 86 09 76  
Sales.France.NM@nikon.com

### NIKON METROLOGY, INC.

Tel: +1 810 2204360  
Sales.NM-US@nikon.com

### NIKON METROLOGY UK LTD.

Tel: +44 1332 811349  
Sales.UK.NM@nikon.com

### NIKON MÉXICO - METROLOGY SHOWROOM

Tel: +52 (442) 688 5067  
Sales.NM-MX@nikon.com

### NIKON CORPORATION

Shinagawa Intercity Tower C, 2-15-3, Konan,  
Minato-ku, Tokyo 108-6290 Japan  
Tel: +81 3 6433 3701 Fax: +81-3-6433-3784  
[www.nikon.com/products/industrial-metrology/](http://www.nikon.com/products/industrial-metrology/)

### NIKON INSTRUMENTS (SHANGHAI) CO. LTD.

Tel: +86 21 6841 2050 (Shanghai branch)  
Tel: +86 10 5831 2028 (Beijing branch)  
Tel: +86 20 3882 0551 (Guangzhou branch)

### NIKON SINGAPORE PTE. LTD.

Tel: +65 6559 3651

### NIKON MALAYSIA SDN. BHD.

Tel: +60 3 7809 3688

### NIKON INSTRUMENTS KOREA CO. LTD.

Tel: +82 2 2186 8400

### NIKON SALES (THAILAND) CO., LTD.

Tel: +66-2633-5100

### NIKON INDIA PRIVATE LIMITED

Tel: +91-124-4688500

ISO 14001 Certified  
for NIKON CORPORATION

ISO 9001 Certified  
for NIKON CORPORATION  
Industrial Metrology Business Unit