DOSIMÉTRIE

peo MEDICAL

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Partner Sun Nuclear Corporation

Sun Nuclear is a leading provider of comprehensive Quality Management solutions for radiation therapy and diagnostic imaging. Their portfolio encompasses positioning systems, dosimetry tools, QA phantoms, detectors, dose rate monitoring devices, analysis software, and training phantoms. These solutions are designed to support medical professionals in ensuring accurate, safe, and efficient patient care.

Product offering

SunSCAN™ 3D

SNC 600c™ Reference Ion Chamber

Model 330 – Digital kV, Dose and Time Meter – Sun Nuclear

SNC350p™ Reference Ion Chamber

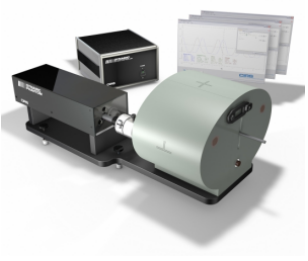
SNC125c™ Reference Ion Chamber

3D TPR™ – Sun Nuclear

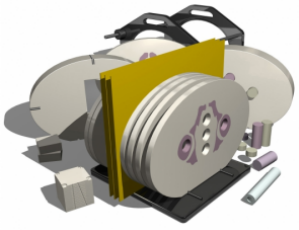
EDGE Detector – Sun Nuclear

Reference Detector – Sun Nuclear

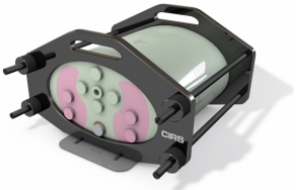
Model 008P Dynamic Pelvis Phantom – CIRS



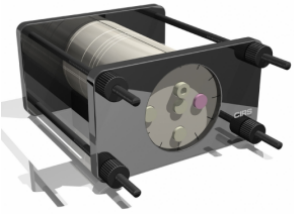
Model 002PRA Pelvic 3D Phantom – CIRS



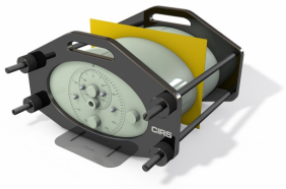
Model 002LFC IMRT Thorax Phantom – CIRS



Model 002HN IMRT Head and Neck Phantom – CIRS



Model 002H9K IMRT Head and Torso Freepoint Phantom – CIRS



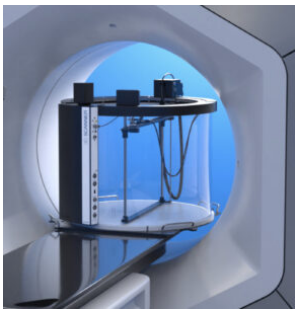
WaterProof Profiler – Sun Nuclear

ArcCHECK 4D – Sun Nuclear

PC Electrometer – Sun Nuclear

1D Scanner Water Tank – Sun Nuclear

Cylindrical 3D Water Tank Scanner – Sun Nuclear



Model 038 STEEV Steriotactic End-to-end Verification Phantom Patient

SunSCAN™ 3D

SunSCAN 3D is Faster, Easier & Hyper-Accurate

SunSCAN 3D simplifies beam scanning with SRS-class accuracy and user-centered design.

Commissioning and beam scanning are fundamental to building a strong radiation therapy program. That's why Sun Nuclear significantly enhanced their pioneering cylindrical tank design for greater clinical confidence and workflow efficiency.

Made for Every Clinical User

Conventional linac, SRS linac or bore-based. Commissioning novice or experienced clinician. SunSCAN 3D makes commissioning and annuals easier and more efficient than ever before — with SRS-class scanning accuracy and compatibility with nearly every machine and user.

Simplified Beam Scanning

From your Trusted End-to-End Quality Management Provider

SunSCAN 3D standardizes water tank setup with automation and mitigates the need for tank shifts.

- Unique Cylindrical Shape – removes need for tank shifts, which take time and compromise scanning setup
- Single Setup – 65 cm scan range allows 40 x 40 cm field scans, even at 100 cm SSD and 40 cm depth
- Consistent Detector Orientation – smallest part of the detector always measures the beam edge, minimizing stem and cable effects and water movement

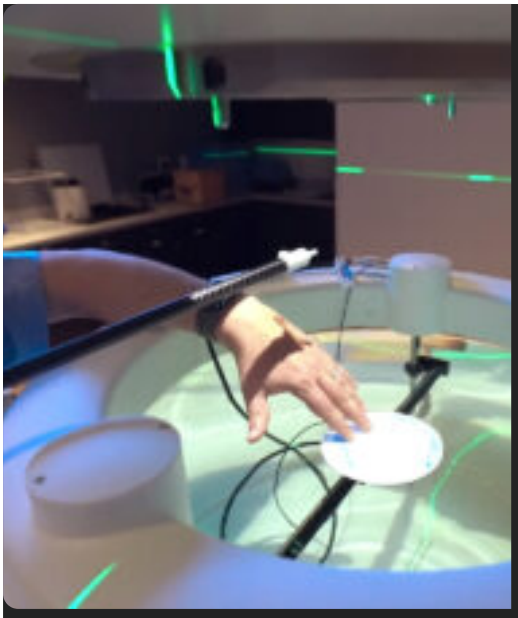
Enhanced SRS & SBRT Accuracy

Meeting the Demands of Stereotactic Programs

SunSCAN 3D's enhanced electronic resolution **improves Signal to Noise Ratio by as much as a factor of 2**, and an enhanced Median Filter provides glassy smooth scans while maintaining data integrity.

Hyper accurate scanning, verified with a Coordinate Measuring Machine (CMM), delivers:

- 0.1 mm accuracy throughout the tank,
- 0.05 mm reproducibility, and
- 0.02 mm resolution.



SunSCAN 3D, Ready to Scan in 15 Minutes

Fast & Easy Setup

Set up your water tank in a third of the time it takes with other tanks.

1. Simply roll the tank in place
2. Starting the filling process (~7 minutes), and
3. Run the faster, more accurate AutoSetup™ routine (~7 minutes)

True leveling is achieved through a proven automatic leveling routine, perfected and optimized over 10+ years. A physically level tank makes leveling confirmation and QA easy.

If you want to see more of our dosimetry products, go here!

Consistent Detector Orientation

For more information about the SunScan 3D, go to our partner's website.

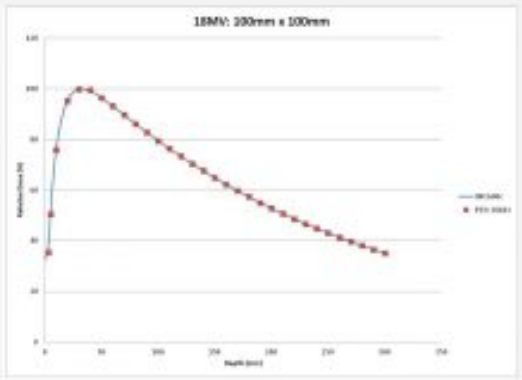
SNC 600c™ Reference Ion Chamber

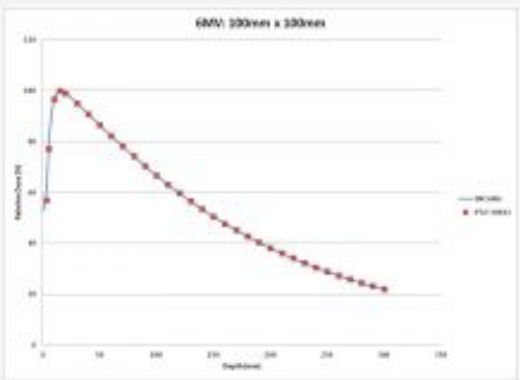
SNC600c for Photon and Electron Reference Dosimetry
SNC600c is a reference class dosimeter based on the classic Farmer Chamber design.

- Reference class performance (IEC 60731) allows for use in X-ray and electron reference dosimetry protocols – TG-51 and TRS-398
- Classic Farmer Chamber design allows use in most slab phantoms
- White thimble provides easy setup verification

Meet Requirements
Properly QA your linac, in accordance with the reference class and dosimetry protocols of IEC 60731, AAPM TG-51, and IAEA TRS-398.

Reliable & Accurate
Reference-class ion chambers are vented, waterproof and fully guarded. A white chamber body makes visualization easy during setup and relative to cross hairs and lasers.





Model 330 – Digital kV, Dose and Time Meter – Sun Nuclear

The Gammex 330 Digital kV, Dose and Time Meter is a test device for quality control and acceptance testing in radiographic, mammographic and fluoroscopic x-ray systems.

Digital kV, Dose and Time Meter features:

- includes digital display of the quantity PPV (pratical peak voltage) according to IEC 61676
- compact and light-weight
- easy-to-read LC Display
- measures kVp, dose and time non-invasively
- touch key controls

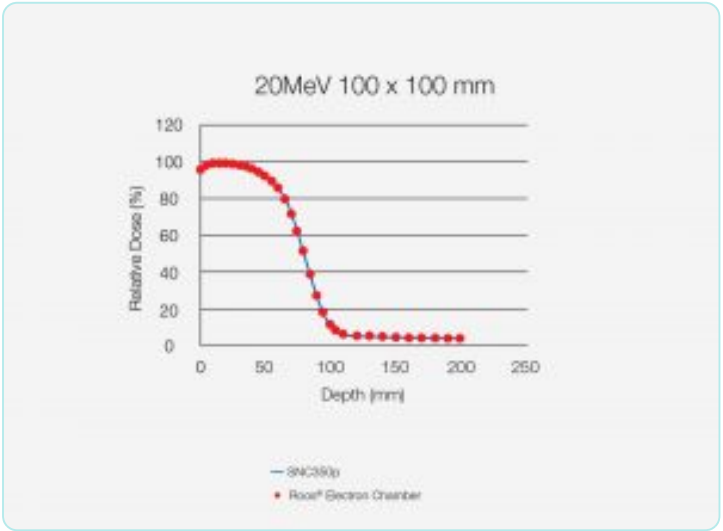
SNC350p™ Reference Ion Chamber

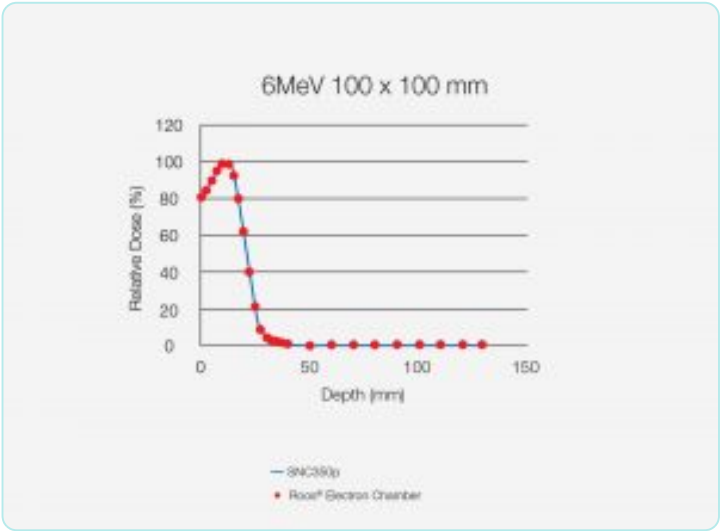
SNC350p for Electron Reference Dosimetry
This parallel-plate ion chamber is well-guarded to minimize perturbation effects for reference, field, and scanning dosimetry of therapeutic electron beams, and TDD/TPS commissioning and QA.

- Supports absolute or relative dose point measurements and PDD measurements
- Conforms to the design principles as stated by Dr. M. Roos et al. (IAEA TRS-381)
- Meets AAPM TG-51 and IAEA TRS-398 requirements for low-energy beams (< 10MeV)
- Meets reference-class dosimeter standards of performance (IEC 60731), and may be used to cross calibrate field-class dosimeters

Meet Requirements
Properly QA your linac, in accordance with the reference class and dosimetry protocols of IEC 60731, AAPM TG-51, and IAEA TRS-398.

Reliable & Accurate
Reference-class ion chambers are vented, waterproof and fully guarded. A white chamber body makes visualization easy during setup and relative to cross hairs and lasers.





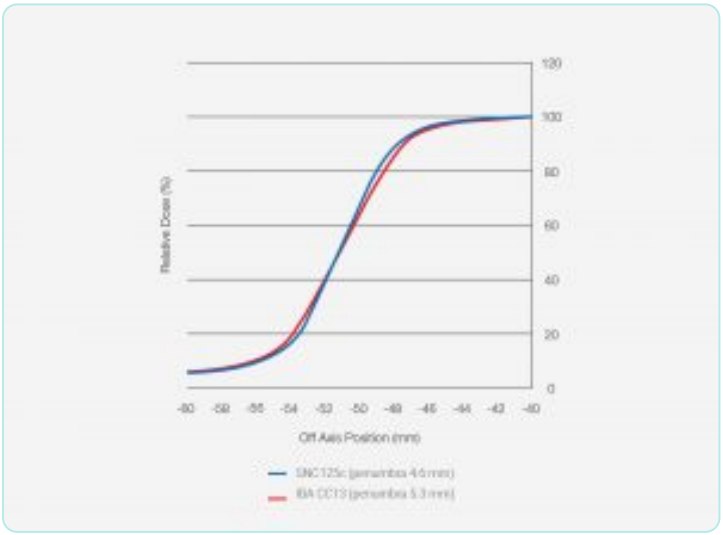
SNC125c™ Reference Ion Chamber

SNC125c for Reference Class Dosimetry
With a design that reduces the convolution of high-dose gradient regions during profile and depth measurements, SNC125c meets IEC 60731 standards and more:

- Enhanced penumbra without loss of signal strength
- Optimized to work with 3D SCANNER™
- Maintains ideal orientation during scans
- Sensitivity of a 0.125 cm^3 chamber and penumbra closer to a micro-chamber

Meet Requirements
Properly QA your linac, in accordance with the reference class and dosimetry protocols of IEC 60731, AAPM TG-51, and IAEA TRS-398.

Reliable & Accurate
Reference-class ion chambers are vented, waterproof and fully guarded. A white chamber body makes visualization easy during setup and relative to cross hairs and lasers.



3D TPR™ – Sun Nuclear

Highlights

• Supports Varian Medical Systems®, Elekta, Siemens and CyberKnife® delivery systems
• Less than 5-minute installation with no additional tools
• 20 cm TPR drain measurement 2.5 minutes
• 20 cm TPR fill measurement 3.5 minutes

EDGE Detector – Sun Nuclear

Ultimate Small Field Detector
for Precision 3D Dosimetry

EDGE Detector™ characterizes penumbra more precisely and with less averaging than ion chambers, making it the preferred detector for small field beam modeling and QA.

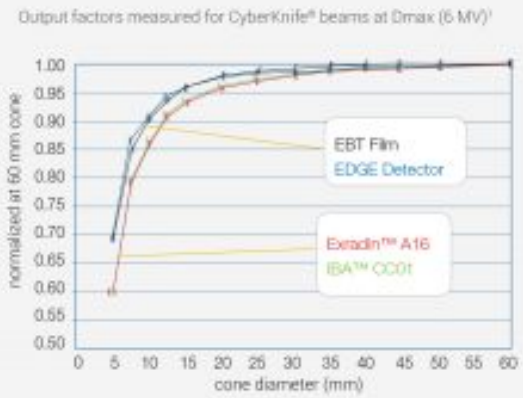
Waterproof and highly accurate, it works with all common water phantoms for SRS and IMRT beam modeling and TPS commissioning.

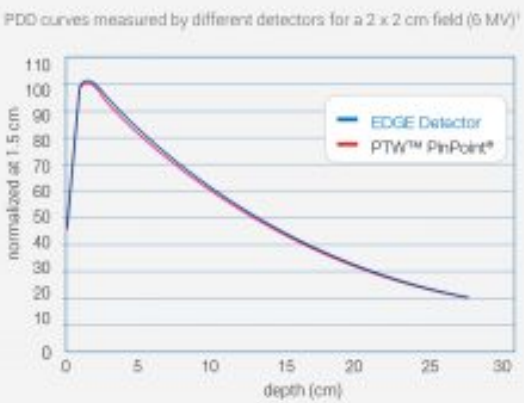
Well-Suited for Small Fields
EDGE Detector is comprised of a SunPoint® Diode Detector that is 842 times smaller, and has 100 times more signal, than micro ionization chambers. Its small size makes it ideal for accurate penumbra characterization and steep gradients for fields ≤10 cm.

Maintain Compliance
EDGE Detector supports compliance with TRS483 and precision dosimetry.

“The practical methods described can be used for commissioning an SRS system with small cones. New correction factors significantly improve agreement between different detectors.”

- E. Lief, et al
- Measurement of Output and Percent Depth Dose (PDD) for Small Stereotactic Radiosurgery (SRS) Cones Using Semiconductor and Microdiamond Detectors





Reference Detector – Sun Nuclear

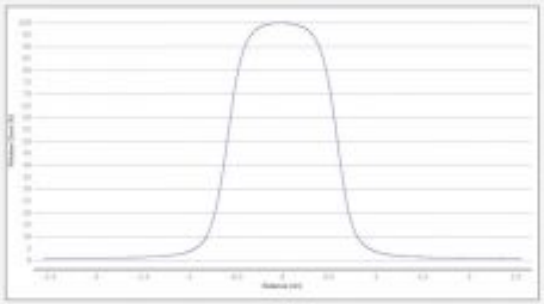
Interference-Free Dosimetry Scanning

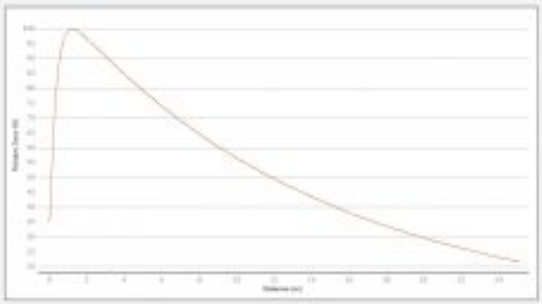
Reference Detector is a patented, out-of-field detector that uses linac head leakage to obtain a reference signal during water tank scanning of photon energies.

Small Field Annuals & Commissioning
The Reference Detector can be used for commissioning measurements of any field size, but it is especially helpful for small fields because it is fully out-of-field and does not impinge on the measurement.

Use it with 3D SCANNER™ for comprehensive commissioning and annual beam scanning.

Easy & Efficient
Reference Detector mounts to the top surface of a supported linac gantry using a non-invasive dual-lock fastener and includes a 2-meter cable with triax connector. Once setup, there is no need to move the detector when changing field sizes.





Model 008P Dynamic Pelvis Phantom – CIRS

The Model 008P Dynamic Pelvis Phantom is a precision instrument for investigating and minimizing the impact of prostate motion inside the pelvis. It delivers accurate, known and repeatable 2-dimensional target motion inside a water-equivalent phantom.

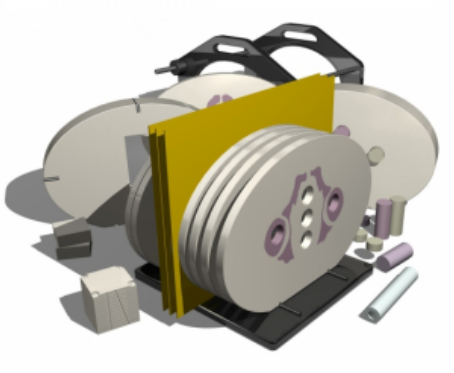
Model 008P Dynamic Pelvis Phantom features:

- tissue equivalent from 50 keV to 15 MeV
- sub-millimeter reproducibility and accuracy
- compatible with micro-chamber, film and 3D dosimeters
- motion software enables amplitudes, cycles and wave forms

Read more about the Model 008P Dynamic Pelvis Phantom on the CIRS website.

Model 002PRA Pelvic 3D Phantom – CIRS

The Model 002PRA Pelvic 3D Phantom represents human pelvic anatomy in density, proportion, structure and shape. The phantom is made of proprietary tissue equivalent epoxy materials. Linear attenuations of the simulated tissues are within 1% of actual attenuation for bone and water from 50 keV to 15 MeV.



Model 002PRA Pelvic 3D Phantom features:

- 3D and 2D isodoses
- correlates CTU to electron density
- verifies individual patient treatment plans
- checks dose distributions in sensitive areas
- verifies heterogeneity corrections
- checks depth doses and absolute dose
- calibrates film with ion chamber

Read more about the Model 002PRA Pelvic 3D Phantom on the CIRS website

Model 002LFC IMRT Thorax Phantom – CIRS

The Model 002LFC IMRT Thorax Phantom is designed for ion chamber and film dosimetry. Its shape is elliptical and properly represents an average human torso in proportion, density and two-dimensional structure.

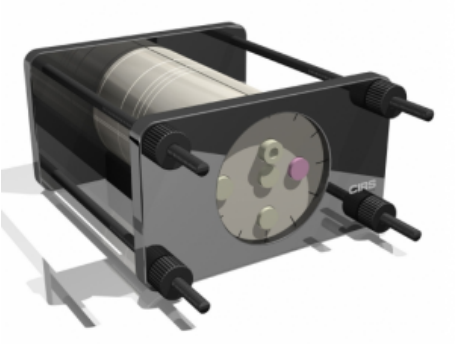
Model 002LFC IMRT Thorax Phantom features:

- 2D and 3D isodoses
- correlates CTU to electron density
- verifies heterogeneity corrections
- verifies individual patient treatment plans
- checks dose distributions in sensitive areas
- calibrates film with ion chamber & other detectors
- checks depth doses and absolute dose

Read more about the Model 002LFC IMRT Thorax Phantom on the CIRS website

Model 002HN IMRT Head and Neck Phantom – CIRS

The Model 002HN IMRT Head and Neck Phantom represents human head and neck anatomy in proportion, shape, structure and density. This enables thorough analysis of both the treatment planning and delivery systems.

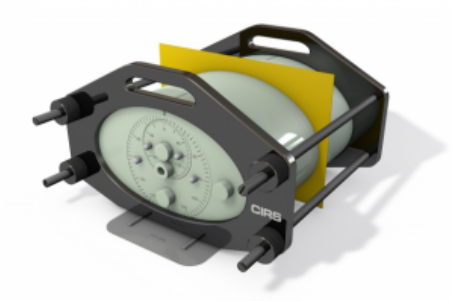


Model 002HN IMRT Head and Neck Phantom features:

- verifies individual patient treatment plans
- verifies heterogeneity corrections
- checks dose distributions in sensitive areas
- 2D and 3D isodoses
- checks absolute dose and depth doses
- correlates CTU to electron density
- calibrates film with ion chamber

Read more about the Model 002HN IMRT Head and Neck Phantom on the CIRS website

Model 002H9K IMRT Head and Torso Freepoint Phantom – CIRS



The Model 002H9K IMRT Head and Torso Freepoint Phantom is a complete QA from CT imaging to dose verification. With this phantom you can choose any point dose location within a circular area with diameter of 11.2 cm by adjusting the 2 rotating cylinders.

Model 002H9K IMRT Head and Torso Freepoint Phantom features:

- configure with or without heterogeneities
- uses Gafchromic or Ready Pac radiographic dosimetry film
- close placement of detectors to film improves film calibration
- surfaces are etched with indices for precise alignment
- CT; film markers ensure accurate film to plan registration
- ionization chambers, MOSFET, TLD and Diodes easily positioned using interchangeable rods

Read more about the Model 002H9K IMRT Head and Torso Freepoint Phantom on the CIRS website

WaterProof Profiler – Sun Nuclear

The Sun Nuclear WaterProof PROFILER is a linear detector array used in place of a single detector for commissioning and routine measurements. WaterProof PROFILER works in air or in water and drastically reduces the time required to collect high quality beam profile data for any beam type.

WaterProof Profiler features:

- speed – 127 detectors capture complete beam profiles instantly, and with a fraction of the MU’s needed when using a single detector
- accuracy – data is comparable to data collected when using a single ion chamber
- ease of use – attaches directly to 3D SCANNER in seconds with no tools, warm-up, or external electrometer needed
- scanning dosimetry – acceptance testing, treatment planning system commissioning and QA
- open fields – measure entire field instantaneously
- wedges – measure electronic and physical wedges instantaneously in a single measurement
- compatible with Sun Nuclear 3D SCANNER
- can be used for in-air measurements
- quickConnect connects WaterProof PROFILER to the Sun Nuclear 3D SCANNER in seconds
- oversampling feature provides more accurate scans
- SunPoint Diode Detectors measure only 0.8 x 0.8 mm and provide the sharpest penumbra for the highest accuracy in beam modeling
- best detector spacing of any waterproof array: only 0.4 cm
- best detector count of any waterproof array: 127 detectors
- best detector array length of any waterproof array: 50.4 cm
- calibration is fully automated and performed in the 3D SCANNER with no need to go in and out of bunker

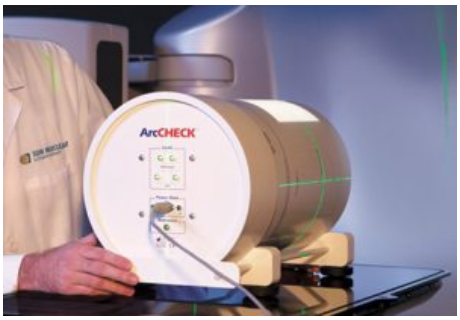
Read more about the WaterProof Profiler on the Sun Nuclear website

← Back to partner

Radiotherapy › Dosimetry

ArcCHECK 4D – Sun Nuclear

ArcCHECK is the only true 4D array specifically designed for QA of today's modern rotational deliveries. At its heart are over 1300 SunPoint Diode Detectors providing consistent and highly sensitive measurements for all gantry angles, with no additional hardware required. Independent absolute dose measurements enable the gold standard for stringent and efficient patient plan and machine QA testing.



ArcCHECK 4D features:

- smallest available detectors for accurate measurements
- BEV is consistent regardless of gantry angle
- 3D and DVH Analysis
- Flattening Filter Free (FFF)
- easy setup and lightweight (16kg)
- measure both composite and per control point
- real-time updates (50ms)

ArcCHECK 4D compatibility:

- rotational therapy: RapidArc, VMAT, TomoHelical
- static gantry: IMRT, TomoDirect
- treatment planning systems: Pinnacle, Eclipse, Monaco, iPlan, and any TPS system that can export DICOM data
- FFF and non-FFF deliveries

Contact our product specialist or download the datasheet below.

PC Electrometer – Sun Nuclear

PC Electrometer is a dual channel reference class electrometer for absolute dose calibration. The system is designed for accuracy and convenience. It offers small size (0.4 kg), near no warm-up time (< 1 minute), and complete operation through USB, with no batteries or external power connections.

PC Electrometer features:

- reference class dosimetry for absolute dose calibration
- two independent measurement channels
- lightweight and portable; only 0.4 kg
- USB powered — no batteries or power cord
- fully configurable and intuitive software interface
- interfaces directly with the Sun Nuclear 1D SCANNER
- less than 1-minute warm-up time
- single USB cable connection
- fast 500 ms sampling interval
- detector library

Read more about the PC Electrometer at the Sun Nuclear website

1D Scanner Water Tank – Sun Nuclear

The 1D Scanner Water Tank is used for dosimetry measurements in water including output factors, dose calibrations, annual, and routine QA. Setup subjectivity is reduced with a water surface detection feature that automatically sets the dosimetry detector at the water surface.

1D Scanner Water Tank features:

- PC software control and multi-function pendant included
- all common electron cones are accommodated
- scanning software (optional)
- detector positioning depth and 30 cm scan
- off-axis detector positioning (horizontal ruler)
- reference detector holders included
- 50 liters at 35 cm depth: interior volume
- 37.6 x 40.6 x 36.8: exterior dimensions L/W/H (cm)
- 35.0 x 39.0 x 36.2: inner dimensions L/W/H (cm)

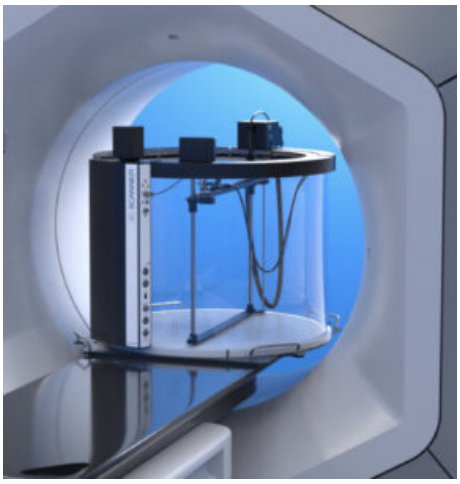
Read more about the 1D Scanner Water Tank at the Sun Nuclear Website.

Cylindrical 3D Water Tank Scanner – Sun Nuclear

Sun Nuclear purpose-built this Cylindrical 3D Water Tank Scanner for modern treatment modalities. It achieves faster and more accurate commissioning, and annual QA with consistent scan orientation and automated setup.

The 3D SCANNER is different by design. To provide accurate and reproducible beam data, Sun Nuclear developed the machine from the ground up.

Everything, from the geometrical design, to the setup process, is developed to improve both the accuracy and the objectivity of the data.



AUTOSETUP

The 3D SCANNER is less subjective and saves time, because of AutoSetup™.

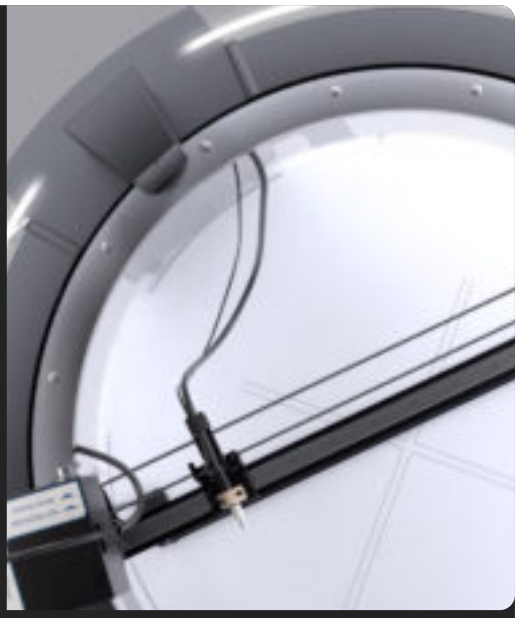
First, the machine's water sensor measures water surface relative to the scanning mechanism at three points and automatically adjusts the water tank levelling. After that, the device measures a 10 x 15 beam to determine the center of the beam, and align the center of the scanner with the beam center. Last, the scanner uses a series of beam measurements to automatically establish in-plane and cross-plane home positions. The ring drive electric motor's zero position is set to the found cross-plane direction.

Because of this setup, it only takes less than 20 minutes to set up.

3D SCANNER offers a diameter drive for consistent detector orientation for all angles. Because of the 360º degree circumference and rotation range of 330º, there is no need for tank shifts.

INTUITIVE SOFTWARE

3D SCANNER uses SNS Dosimetry scanning software. This software offers powerful analysis and smart features for enhanced efficiency. This software can queue scans, it is a multi-scan comparison tool with a searchable database and it has processing layers.



CYLINDRICAL 3D WATER TANK SCANNER BENEFITS

- Easy and fast setup because of AutoSetup™
- No tank shifts necessary
- Better, more objective data

- 360º scanning
- Timesaving SNC Dosimetry software

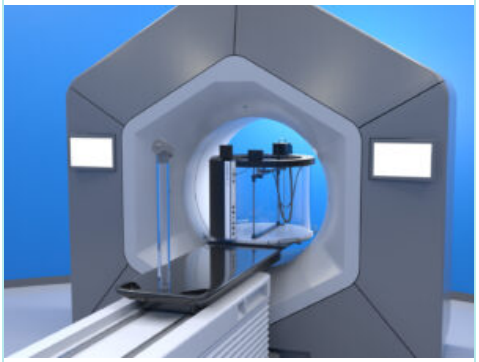
For more info on the scanner, read our article!

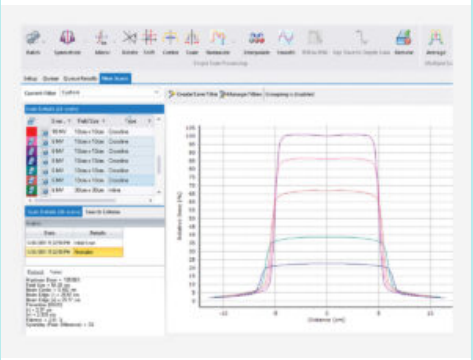
GO ANYWHERE

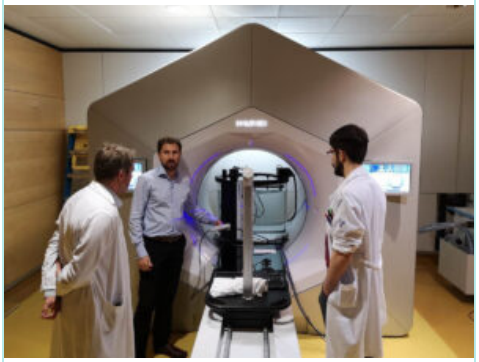
The 3D MiniLift is specially designed for transporting the 3D SCANNER. The lift is part of a convenient and portable 3D SCANNER system. The lift is easily stored, easy to use, small and fits through standard doors.

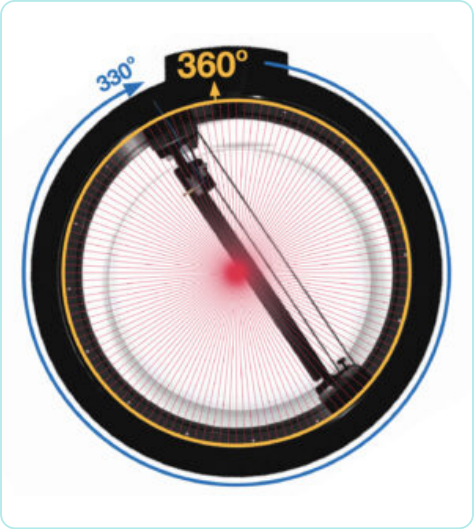
The MiniLift enables you to easily take the 3D SCANNER from room to room when necessary. It is 57 cm high, 95 cm in length and weighs 105 kg.

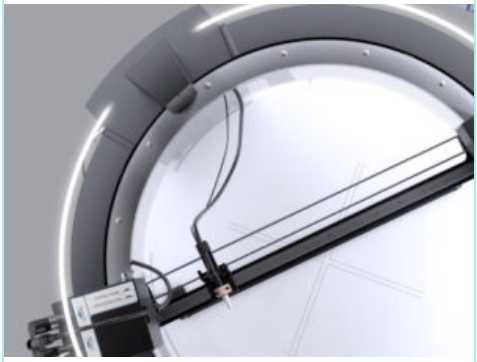
If you want to know more about the 3D SCANNER an the MiniLift, visit our partner's website!



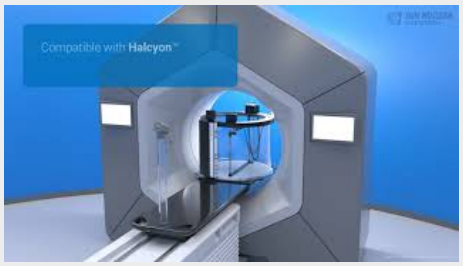








3D SCANNER™ from Sun Nuclear https://youtu.be/B6EEZokqZ8k



SCAN TO VIEW VIDEO

Model 038 STEEV Steriotactic End-to-end Verification Phantom Patient

STEEV™ Phantom

The STEEV Phantom provides the most realistic clinical simulation to perform end-to-end testing of SRS QA systems in the most challenging anatomical regions.

The Model 038 STEEV Steriotactic End-to-end Verification Phantom Patient is used for comprehensive testing of stereotactic radiosurgery systems. The Phantom provides a means to check every step the patient will undergo in the treatment process from diagnostic imaging with MR, CT, and PET to treatment plan verification.

Model 038 STEEV Steriotactic End-to-end Verification Phantom Patient features:

- Performs IGRT QA procedure for X-ray and onboard kV and MV imagers including CBCT
- TPS Deformable Image registration algorithm accuracy QA
- Performs end-to-end testing for commissioning as directed by AAPM TG-101
- Verifies patient treatment plan in critical regions
- performs geometric machine QA Winston-Lutz isocenter verification tests and localization/repositioning with couch shift
- Verifies patient positioning using frame/frameless systems, head and shoulder masks or other positioning fixation devices
- Assesses image transfer QA, image fusion, accuracy verification and TPS testing with Multi-modality imaging capabilities (CT, MRI and PET)

Workflow step:

- Treatment planning
- Pre-Treatment delivery
- Commissioning & acceptance
- Monthly QA
- Annual QA
- Dosimetry
- End-to-End QA

Modality:

- Linac
- SRS/SBRT
- Bore-based Linacs
- Cyberknife
- TomoTheraphy

- Imaging

The standard model 038 includes:

- Phantom head and neck with external fiducials and markings
- Three brain equivalent spacers to fill rectangular intercranial cavity
- Two tissue-equivalent rods to fill cylindrical channels (one includes MRI/CT fiducial)
- MRI/CT/PET ISO Center Insert
- Neck alignment plate
- Foam-lined carry case
- User guide and warranty

Read more about the Model 038 STEEV Steriotactic End-to-end Verification Phantom Patient on the Sun Nuclear website

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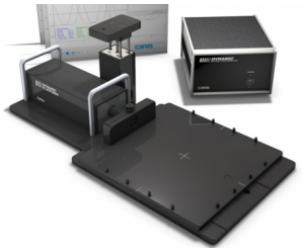
Partner Other

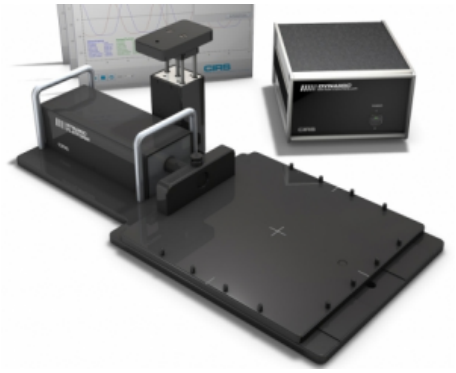
Product offering

Model 008PL Dynamic Platform for Phantom Motion - CIRS



Model 008PL Dynamic Platform for Phantom Motion – CIRS

The Model 008PL Dynamic Platform for Phantom Motion provides an convenient, economical, solution for the intricate tasks correlated with tumor motion and patient positioning in radiation therapy. The platform enables precisely controlled inferior-superior motion up to 50 mm for any phantom up to 32 kg.



The Model 008PL Dynamic Platform for Phantom Motion is operated with CIRS Motion Control Software, a graphical user interface that can be installed on any computer running Windows XP.

Model 008PL Dynamic Platform for Phantom Motion features:

- phantom and motion independently and fully programmable
- easy to move, set-up and operate
- surrogate breathing platform accommodates numerous gating devices

among others compatible with CIRS:

- Model 002H5 IMRT Phantom for Film and Ion chamber Dosimetry
- Model 002H9K Head and Torso Freepoint Phantom
- Model 002HN IMRT Head and Neck Phantom
- Model 002LFC IMRT Thorax Phantom
- Model 002PRA IMRT Pelvic 3D Phantom
- Model 036A-CVXX-XX SBRT Phantom

Read more about the Model 008PL Dynamic Platform for Phantom Motion on the CIRS website

Brochure Model 008PL Dynamic Platform for Phantom Motion CIRS