SunSCAN™ 3D

The Next-Generation Cylindrical Water Scanning System

SUN NUCLEAR
A MIRION MEDICAL COMPANY

Faster, Easier, Hyper-Accurate

Made for every clinical user, SunSCAN™ 3D simplifies beam scanning with SRS-class accuracy and user-centered design.

Simplified Beam Scanning from your Trusted, End-to-End Quality Management Provider

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

Cylindrical Design

- **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

7-Minute AutoSetup™

- Automatic setup in a third of the time of other tanks
- Tank is leveled and aligned, with detector positioned at the water surface, in minutes
- True, physical leveling enables the most accurate scans and is achieved through a proven guided workflow

Intuitive Software

- New SunDOSE™ software reduces clicks to complete commissioning, and features favorite and enhanced workflow features
- AutoSetup routine guides users through tank setup with ease

See following pages to learn how **SunSCAN 3D enhances SRS accuracy >**

Enhanced SRS & SBRT Accuracy

Meeting the Demands

The SunSCAN 3D enables unmatched scanning accuracy, efficiency and reproducibility for departments focused on stereotactic procedures.

- Enhanced electronic resolution
  - Improves Signal to Noise Ratio by as much as a factor of 2
  - Median Filter provides glassy smooth scans while maintaining data integrity
- Hyper accurate scanning
  - 0.1 mm accuracy throughout the tank
  - 0.05 mm reproducibility
  - 0.02 mm resolution
  - Verified using a Coordinate Measuring Machine (CMM)

Virtual Reference Detector

Exclusive to the SunSCAN 3D, Pulse Normalization permits accurate scanning without a physical reference detector, simplifying the acquisition of data for small fields.

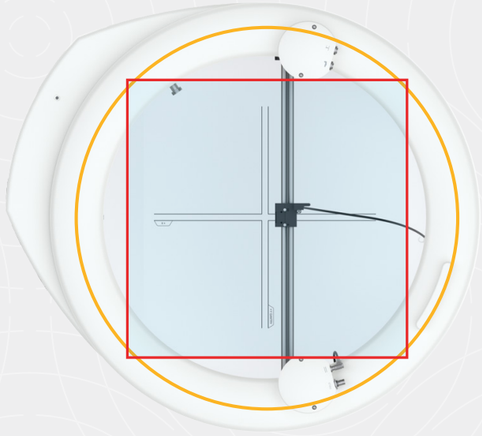
User-Centric Cylindrical Design

Outside the Box

Square 3D water tanks cannot measure a full 40 x 40 cm field at 30 cm depth and 100 cm SSD unless the user shifts the water tank twice, taking two measurements of two “halves” of the beam at different tank locations. This technique is time intensive and can introduce errors that compromise data quality.

The cylindrical shape of the SunSCAN 3D enables the most efficient scanning ranges.

A 65 cm scan range is possible without a shift, allowing a 40 x 40 cm measurement at 40 cm depth and 100 cm SSD, without the inconvenience and potential errors involved in shifting the water tank. A 65 cm scan range is achieved with the offset detector holder, whereby two scans are merged and no tank shift is needed.

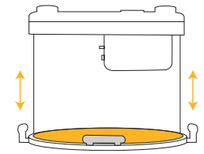


35% increase in scan range inline/crossline

A single setup covers all field sizes, eliminating the need for tank shifts.

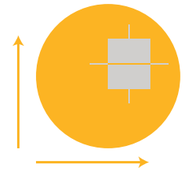
7-Minute AutoSetup™

Fast, Reproducible Tank Setup



Auto Level

Three widely set points quantify tank levelness and repeats measurement to confirm setup.



Auto Center

Using profile measurements, fine adjustments in the X and Y direction align the center of the SunSCAN 3D with the beam center.

Auto Angle Offset

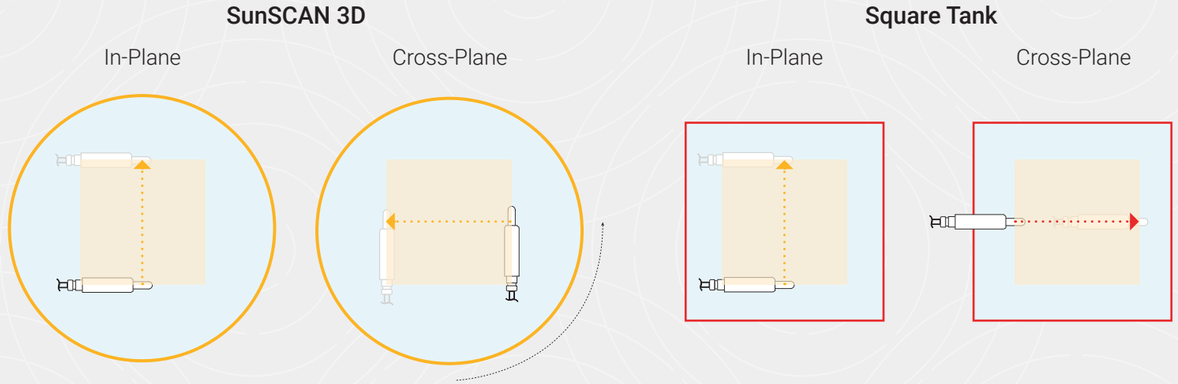
AutoSetup aligns ring center and angular orientation to the collimator axis.

SRS-class scanning starts with accurate setup and the SunSCAN 3D's AutoSetup routine levels to within 0.02 degrees and centers the tank within 0.1 mm

Set up your water tank in a third of the time it takes with other tanks. True, physical leveling is achieved through a proven automatic leveling routine, perfected and optimized over 10+ years.

Consistent Detector Orientation

Better Results



Cylindrical design ensures smallest dimension of chamber always measures beam edge, for the sharpest penumbra

Control Center with Integrated Electrometer

- Improved Signal to Noise Ratio (SNR) for superior small signal measurements
- Dual bias control, compatible with most detectors
- Enhanced Dynamic Mode automatically adjusts to signal - no need to set gain

Digital Pendant

- Two interchangeable pendants on tank and reservoir
- Easy-to-read backlit display
- Intuitive controls for tank, lift and reservoir
- Interlock prevents accidental irradiation

Reservoir

- Redesigned with half the footprint
- Dripless tank connector and self-enclosed hose avoid spills
- Water filter included

Ring Drive

- Precise positioning of the diameter drive to any orientation in the profile plane

TPR Ports

- Input for available integrated SunSCAN TPR™ kit

Vertical Drive

- Precise positioning of the diameter drive to the desired depth in the water tank
- Lead screw design

Water Tank

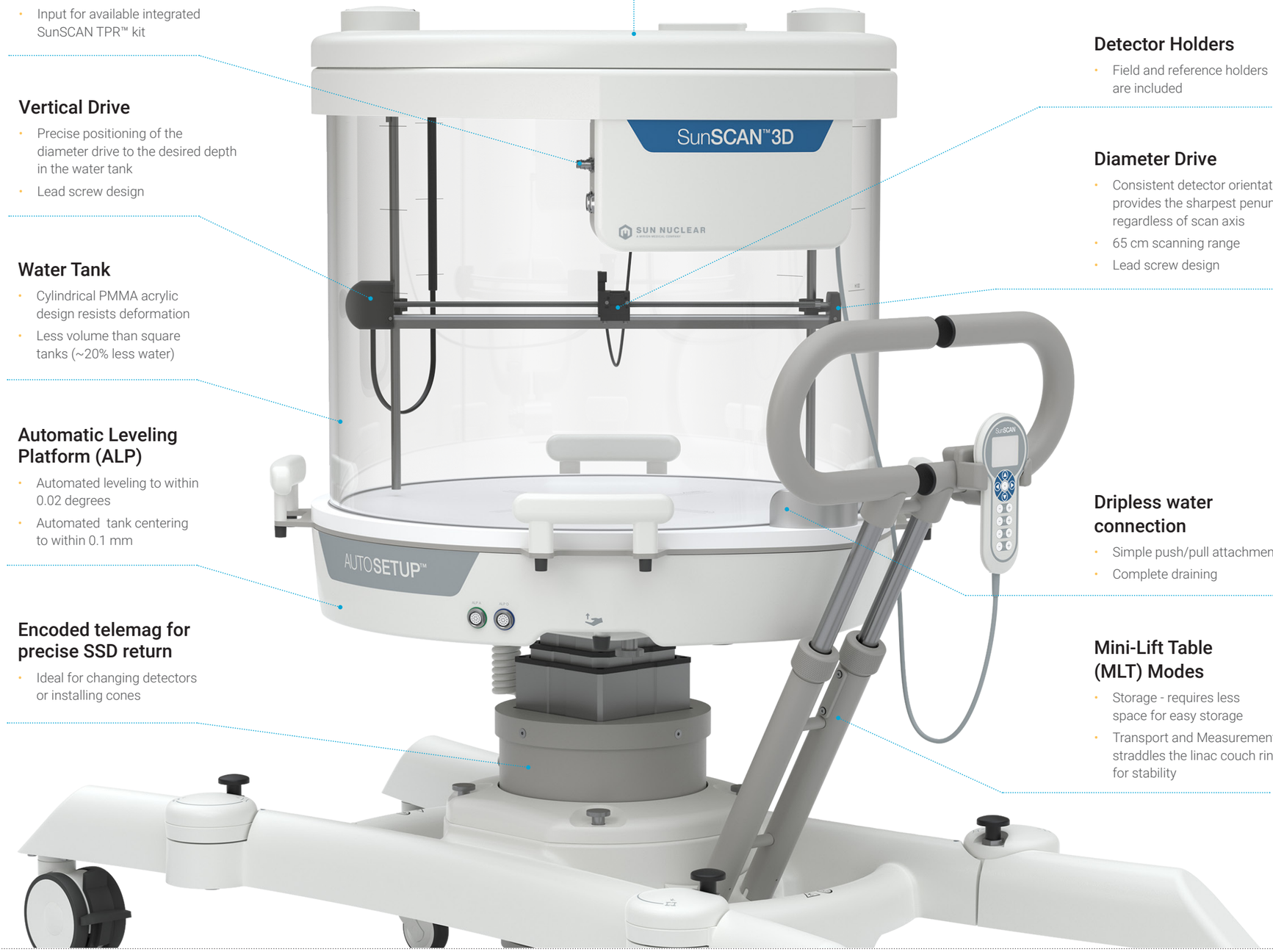
- Cylindrical PMMA acrylic design resists deformation
- Less volume than square tanks (~20% less water)

Automatic Leveling Platform (ALP)

- Automated leveling to within 0.02 degrees
- Automated tank centering to within 0.1 mm

Encoded telemag for precise SSD return

- Ideal for changing detectors or installing cones



Detector Holders

- Field and reference holders are included

Diameter Drive

- Consistent detector orientation provides the sharpest penumbra regardless of scan axis
- 65 cm scanning range
- Lead screw design

Dripless water connection

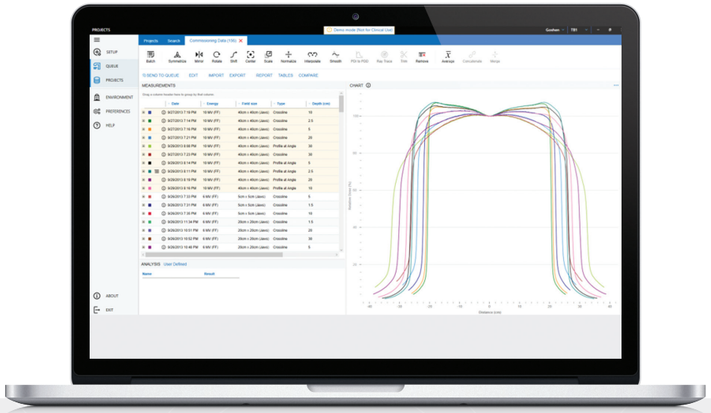
- Simple push/pull attachment
- Complete draining

Mini-Lift Table (MLT) Modes

- Storage - requires less space for easy storage
- Transport and Measurement - straddles the linac couch ring for stability

Intuitive SunDOSE™ Software

Setting up the tank, collecting scan data, and storing and comparing scans is made easy with the SunDOSE Software. An intuitive interface with reduced clicks makes completing commissioning easier than ever.



AutoSetup Routine

The AutoSetup routine walks users through setting up their environment, homing the motors, entering detectors used, and leveling tank and water surface to perform beam measurements.

Processing

With easy visualization of all processing layers, users can see the processing applied on each scan in the queue, and batch process groups of similar scan types with one click. Roll back processing layers at any time without losing raw data, and easily correct over-processing.

Clean Data

Enhanced smoothing algorithms preserve data better. Import/export results to Excel as needed.

RayTrace Scanning

Easily achieve the most accurate small field PDDs for stereotactic treatments using our integrated RayTrace feature that automatically traces the ray of the beam's angle of inclination.

Live Scan QA

Scans are compared to baseline datasets with user defined protocols. Warnings and failures are flagged for each measurement and analysis parameter.

Treatment Planning System Model QA

SunDOSE extracts dose data from TPS RT-DOSE files allowing users to analyze and compare measured data against TPS data.

Detector Library

Preloaded default settings for detectors from various manufacturers for faster setup and ease of use.

Tank Diagnostics

The advanced software menu offers options to determine hysteresis, vertical drive swingout, and vertical drive tilt, as well as delivery system diagnostics for collimator jaw symmetry, and gantry sag and tilt.

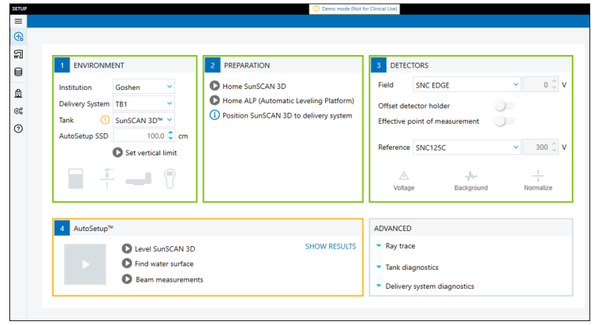
Collect, Store & Compare Scan Data

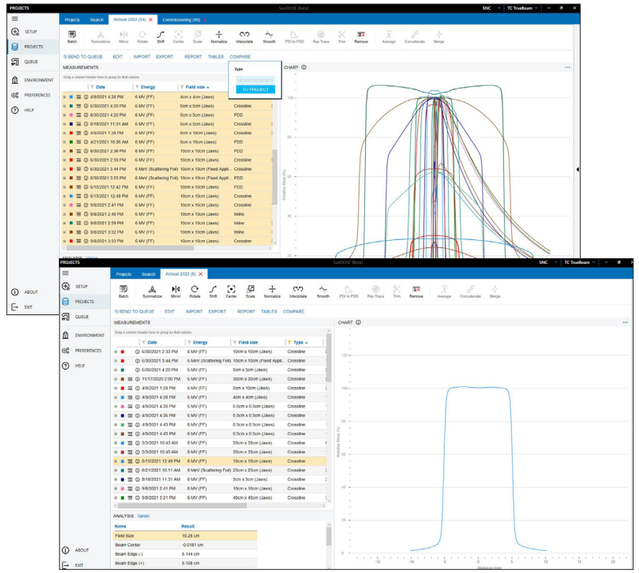
Easily perform tank setup, and collect and store data for the unique needs of your team.

7-Minute AutoSetup

Fast & Easy Tank Setup

In minutes, the AutoSetup routine walks users through setting up the environment, homing the motors, entering detectors, and leveling the water surface and tank. An Advanced Software menu features tank diagnostics.





Favorite Features

Work Smarter

Find favorite SNC Dosimetry™ software features: auto saving of scans, auto-generation of TPS commissioning queues, easy PDD and TPR table generation, TPS exports, one-click annual reports, and electrometer mode for easy output measurements.

Compatibility & Accessories

Conventional linac, SRS linac or bore-based, SunSCAN 3D works with nearly every type of linac*. Combine it with your preferred detectors and ion chambers for comprehensive dosimetry.

SNC125c™

Reference Class Dosimetry

- Sensitivity of a 0.125cm^3 penumbra closer to a micro-chamber

SNC600c™

Reference Class Dosimetry

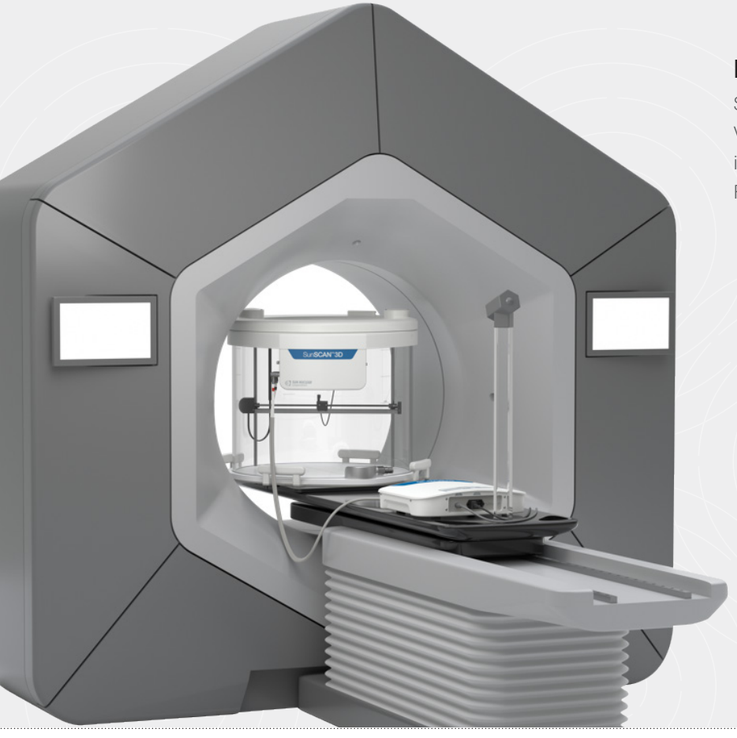
- Compatible with most existing slab phantoms and detector holders

SNC350p™

Electron Reference Dosimetry

- Conforms to design principles stated by Dr. M. Roos

Verify compatibility of the SunSCAN 3D with delivery system before use.



Bore-Based Linac Compatibility

SunSCAN 3D supports beam model verification of Varian Medical Systems® Halcyon™ Systems, including Halcyon-specific scan support and enhanced FFF analysis parameters.

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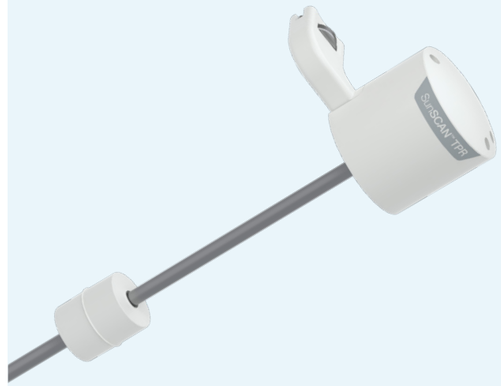
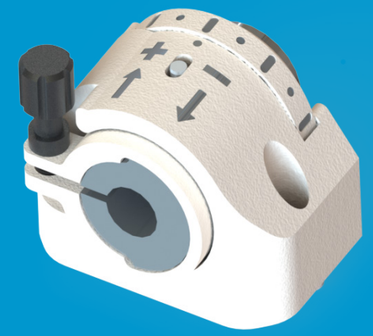


SunSCAN™ TPR

Fast TPR Measurement



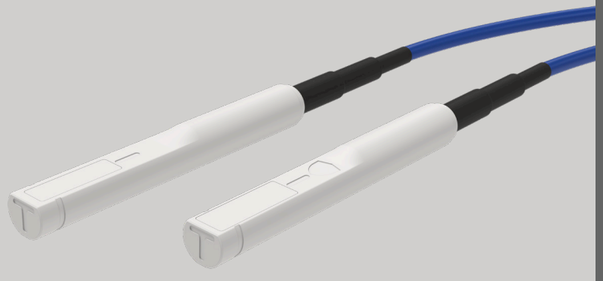
Precision Detector Holder

Fine-Tune Detector Positioning for Highly Accurate Scans

Compatible Accessories

NEW SunSILICON™ & SunSILICON™ P Detectors

Optimized for Precision in Relative Photon and Electron Dosimetry



SNC125c™, SNC350p™, & SNC600c™

Proven Reference Ion Chambers

SunSCAN 3D™

Features and Specifications

Scanning

Vertical (mm):	400.0
Diameter (mm):	650.0
Ring (degrees):	360.0
Motors:	Encoded stepper/servo
Scanning Modes:	Continuous and step
Scanning Speed Range (mm/sec):	Variable up to 20
Scanning Accuracy (mm):	0.1 throughout the 3D volume
Repeatability (mm):	0.05
Position Resolution (mm):	0.02

Water Tank

Thickness Wall / Bottom (mm):	13 / 19
Height (mm):	916
Width (mm):	736
Diameter Inner (mm):	676
Water Capacity (L):	172
Weight Empty / Full (kg):	59 / 194
Linac Pulse Count:	Included with threshold detection

Software

Tank Centering:	Automatic
Leveling:	Automatic
Surface Detection:	Automatic
TPS Export:	Included

TPR/TMR Measurement

TPR Measurement Fill/Drain (min):	< 5

Electrometer

Warm up Time (min):	< 1.0
Charge:	10pC to no upper limit
Current:	10pA - 7.2nA
Leakage (pA):	+/- 0.12
Voltage (V):	Adjustable, -400 to +400

Computer Hardware/Software Requirements

CPU:	2.4GHz; 2 cores
RAM:	4GB
Hard Drive Space:	4GB
Operating System:	Windows 10 Pro 64 bit; check with representative for SQL Server or SQL Server Express requirements
USB Version:	2.0
Video Card Memory:	64MB

Mini-Lift Table (MLT)

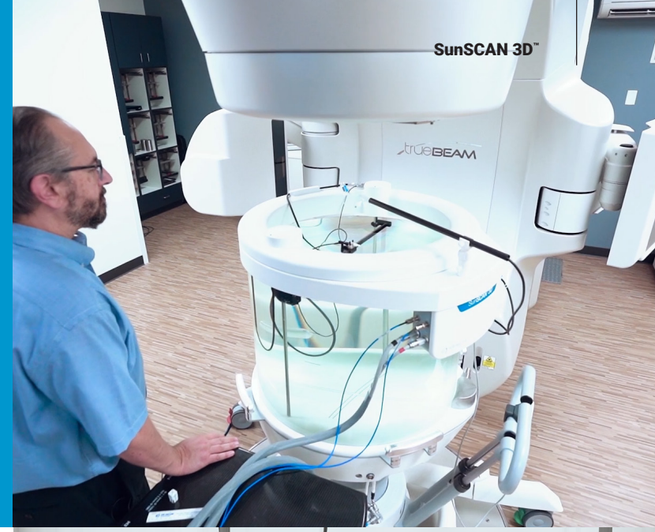
SSD Maximum (mm):	1200
SSD Minimum (mm):	700
Vertical Stability (mm):	0.1
Configuration Dimensions L/W/H (mm)	
Measurement:	1678.0 x 742.0 x 921.0
Storage:	1003.0 x 832.0 x 761.0
Disassembled Dimensions L/W/H (mm)	
Automatic Leveling Platform:	796.0 x 745.0 x 133.0
Automatic Leveling Platform Weight (kg):	29
Total Weight (kg):	81 (Does not include leveling platform)

SunSCAN Reservoir

Max Fill / Drain Speed (min):	7 / 7
Dimensions L/W/H (mm):	554.0 x 783.0 x 1298.0
Weight (Full / Empty, kg):	261.0 / 83.0
Capacity (L):	186.0

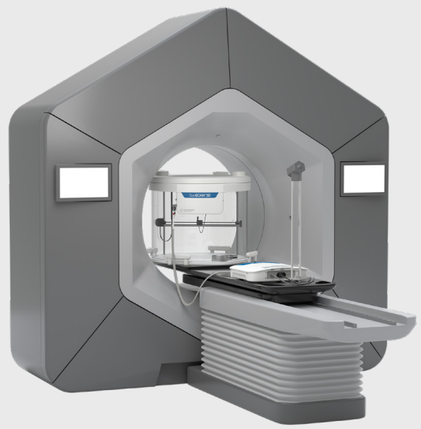
Compatibility

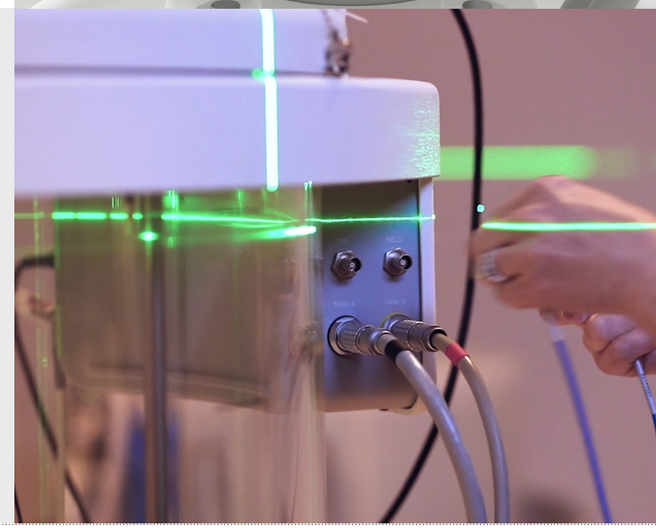
FFF:	Yes
Stereotactic:	Yes
Applicable TPS Systems:	Yes
Varian Medical Systems® Halcyon™ or Ethos™ Systems	Yes with Kit



“With SunSCAN 3D, in form and function, it’s clear Sun Nuclear put thought into every detail to help medical physics teams work smartly. It’s easy to set up, fill and drain. Plus, it’s light and compact for moving and storing. Above all, it offers high accuracy for confidence in your commissioning and annuals.”

Kayhan Mohajeri, M.S., DABR, Medical Physicist





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