



# 3D SCANNER™

## 3D Dosimetry Comes Full Circle

*Relative 3D Dosimetry offering the easiest setup, most objectivity, and best consistency available*

### The 3D Scanner Advantage

#### Advanced Design

- › Ring drive mechanism positions detector in any relevant 3D location
- › 660mm scanning range eliminates the need for tank shifts

#### Better Data

- › Eliminates setup subjectivity which affects data quality
- › Detector maintains consistent orientation for in-plane, cross-plane, and diagonal scans
- › Narrow side of scanning detector remains parallel to beam edge, reducing dose volume averaging

#### Simple to Setup and Easy to Use

- › Automated tank leveling, water surface, and beam center detection
- Less than 30 minute setup

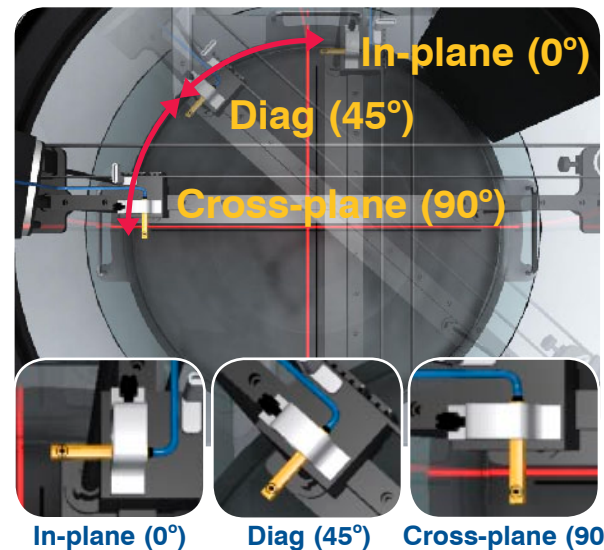
#### Efficient

- › Maintain consistent detector orientation without moving tank
- › Setup tank once for all required scans (no shifts required)

#### Software

- › New multi-product scanning/profile software application
- › Customizable user interface and measurement scripts
- › Database for effective data management

Consistent scanning direction = Better results



## 3D Scanner Features

### Ring Drive

- > Precise positioning of the scanning arm to any orientation in the profile plane

### Vertical Drive

- > Precise positioning of the scanning arm to the desired depth in the water tank
- > Lead screw design

### Detector Holders

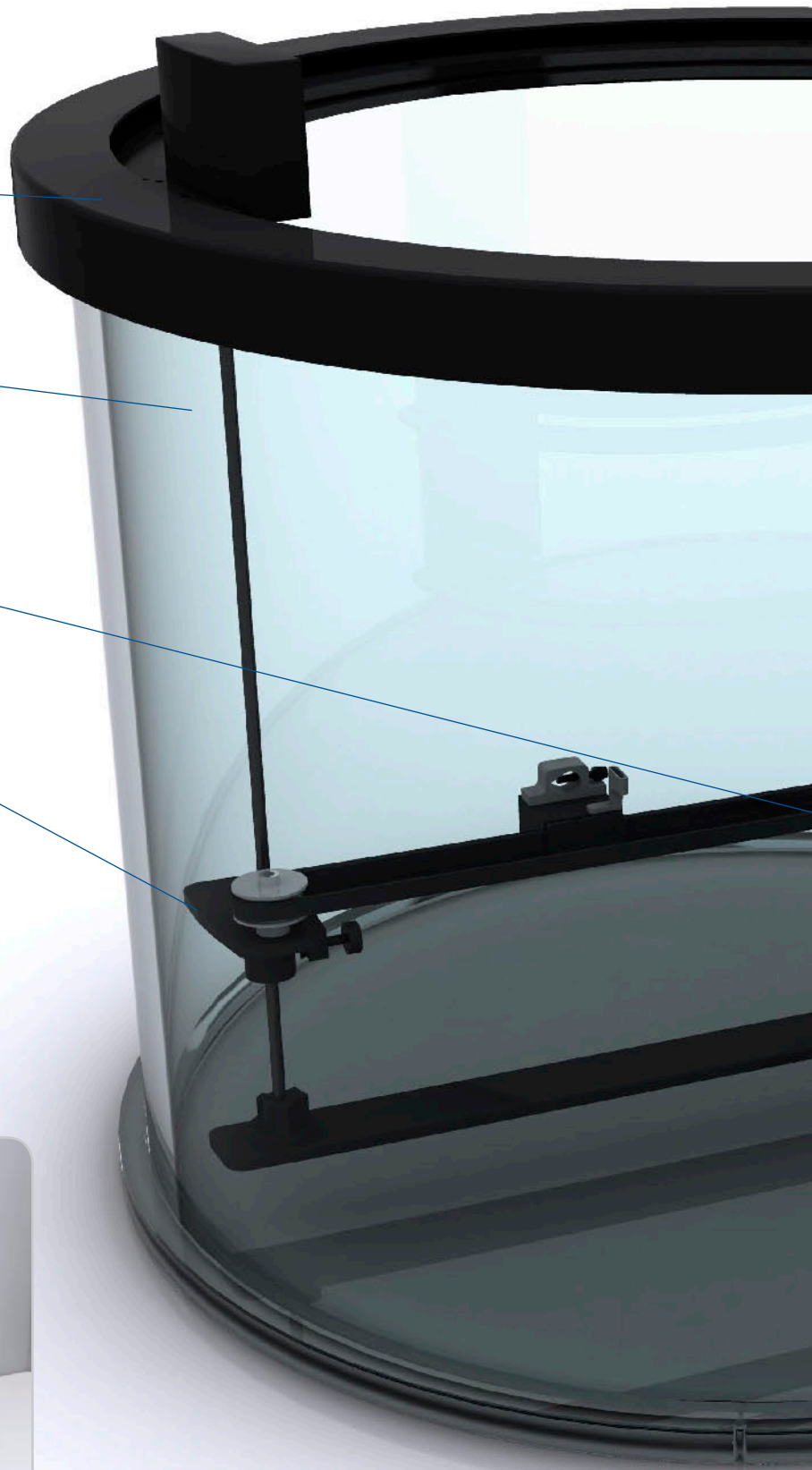
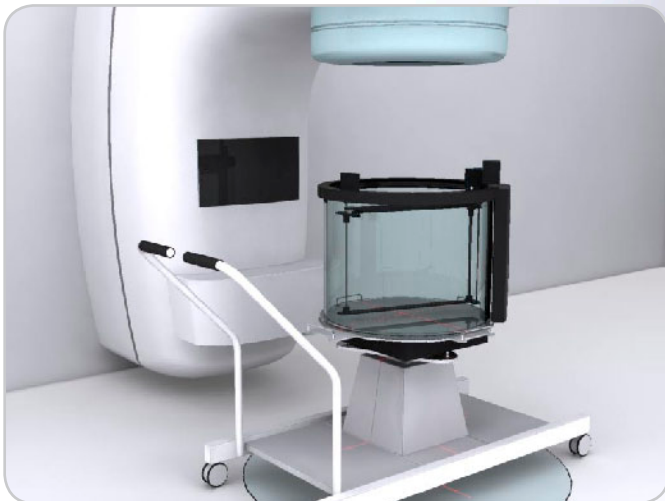
- > Universal field and reference holders for both diode and ion chambers are included

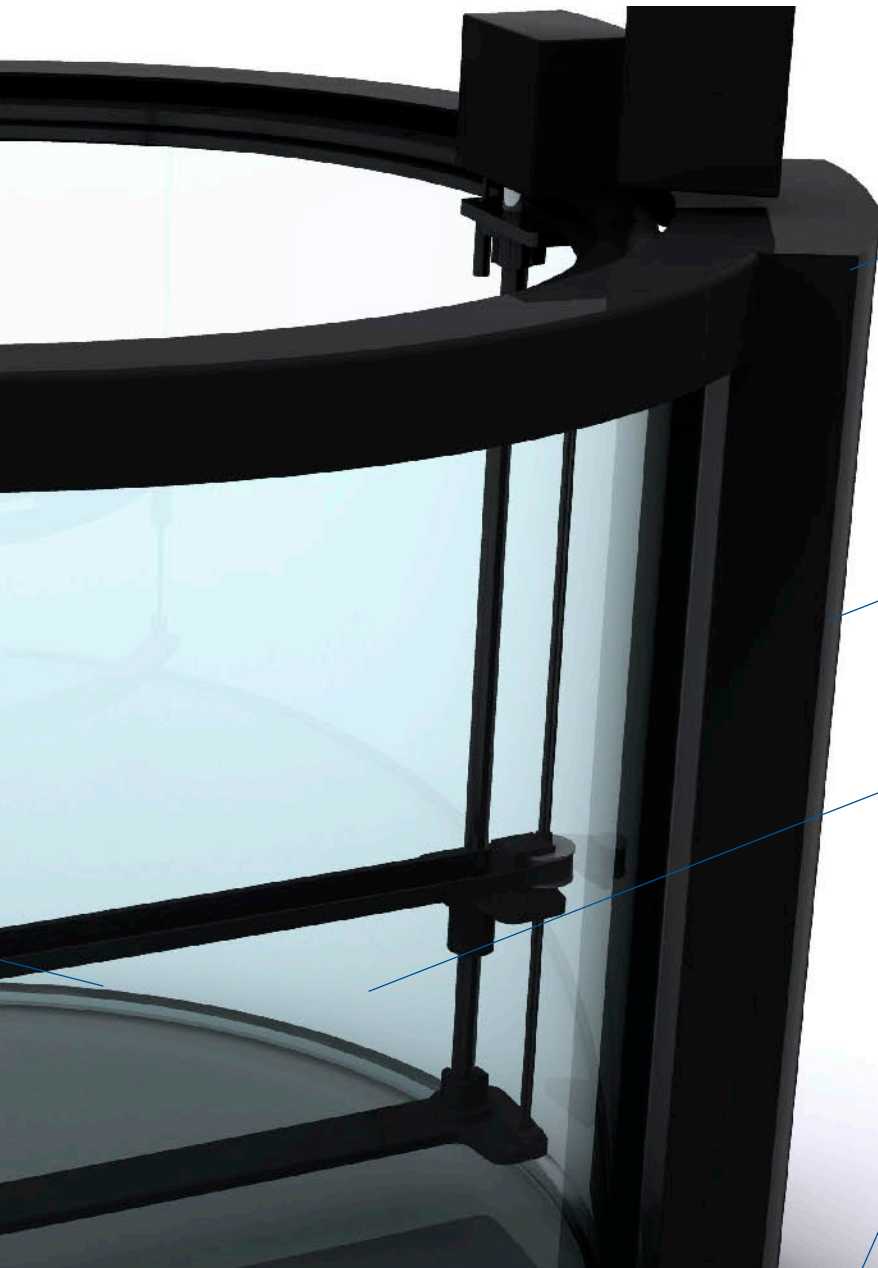
### Diameter Drive

- > Consistent detector orientation through the penumbra regardless of scan axis
- > 66.0cm scanning range
- > Tension belt design

### Lift Table

- > Position the 3D Scanner to the desired SSD
- > Automatic adjustment of ring axis to CAX
- > Automatic leveling system
- > Designed to fit over all linac floating floor panels
- > Optional water reservoir available





### Electrometer

- > Dual independent measurement channels

### Motor Controller

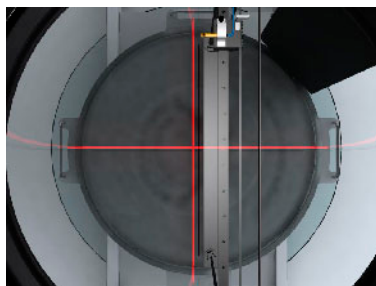
- > Integrated with electrometer
- > Mount directly to tank

### Water Tank

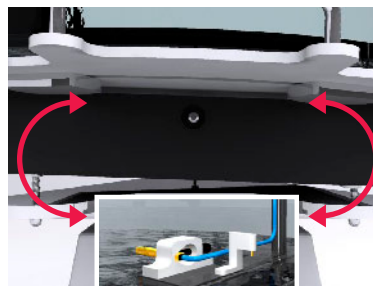
- > Cylindrical PMMA acrylic is extreme high quality, strong, and resists deformation

### Automated Setup Routine

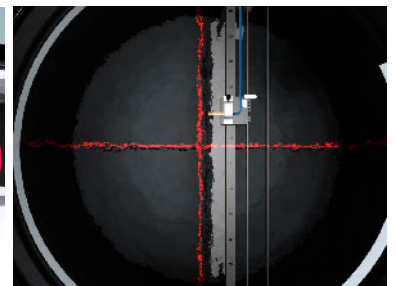
- > The 3D Scanner performs automatic level, water detection and tank shift (+/- 1cm, X,Y) to match the linac alignment. The entire setup process takes less than 30 minutes.



**1 STEP** Automated Alignment. 3D Scanner determines and sets in-plane and cross-plane alignment automatically using the radiation beam as a reference.



**2 STEP** Automated Leveling. 3D Scanner leveling is automatically performed by comparing water surface to scanner surface at several points.



**3 STEP** Automated Centering. Two measurements determine X and Y shifts to center 3D Scanner on Beam Center. Shifts are applied automatically by the Lift Table. Setup complete.

### Automated Setup Routine

## Features and Specifications

### Scanning:

Vertical (mm):	400.0
Diameter (mm):	660 with offset 500 without offset
Ring (degrees):	330
Motors:	Encoded stepper/servo
Scanning modes:	Continuous and step
Scanning speed range (mm/sec):	Variable up to 50
Scanning accuracy (mm):	0.1 in all dimensions

### Water Tank:

Thickness wall / bottom (mm):	13 / 19
Height inner (mm):	485 / 600
Diameter inner / system (mm):	676
Water capacity (L):	174
Weight empty / full (kg):	44 / 218

### 3D Lift:

Vertical travel (cm):	40
Wheelbase (cm):	137
X / Y Tank adjustment (mm):	$\pm 10$
Vertical stability (mm):	1.0 (tank full at max height)

### 3D Reservoir:

Max fill / empty speed (min):	5
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### TPR/TMR Measurement:

Drain rate (cm/min):	10.0
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### Electrometer:

Warm up time (min):	< 1.0
Charge:	2pC - 10mC
Rate:	2pA - 50nA
Leakage (pA):	< 0.01
Time constant (ms):	0.08
Update time (ms):	25
Voltage (V):	Adjustable, -400 to +400
Non-linearity:	$\pm 0.1\%$
Long term stability:	< +/- 0.25%
Repeatability:	< +/- 0.05%
A/D Converter:	16 bit
Linac pulse count:	Included, with threshold detection

### Software:

Tank centering:	Automatic
Leveling:	Automatic
Surface detection:	Automatic
RTP export:	Included