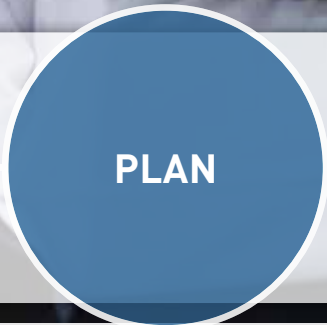


SENTINEL 4DCT™

# THE NEW BENCHMARK IN 4DCT



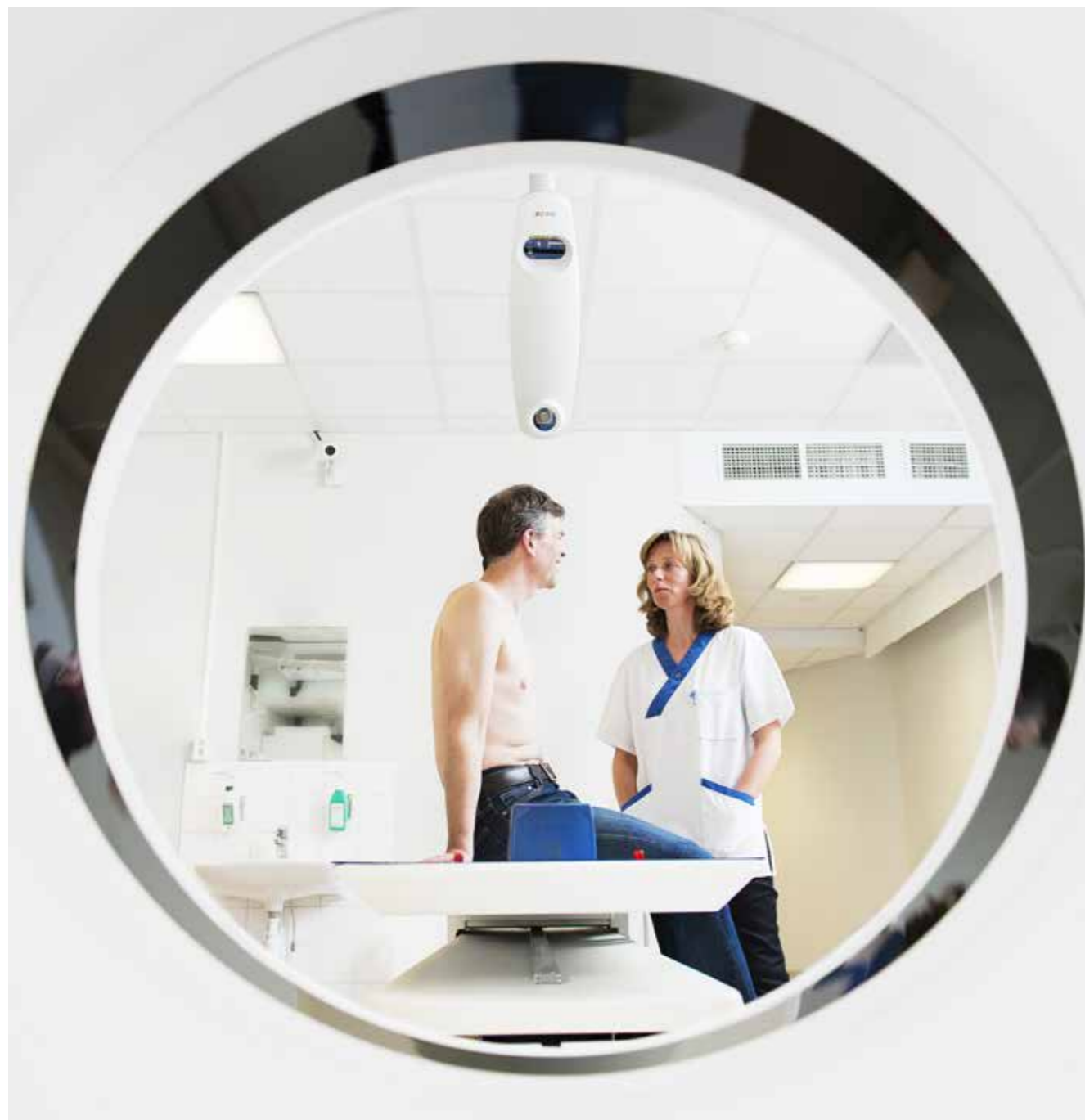
Innovative 4D SIGRT Solution

# SENTINEL 4DCT™

CT Simulation is increasingly becoming the standard procedure in radiation therapy. But patient breathing, as well as movements of the tumor or normal tissue can impact planning, delivery and verification. With a normal CT scan, motion may cause inaccurate target definition, in that moving targets could be in distorted shapes at the wrong location. It could also cause extra dose distribution to healthy tissue, due to dosing larger fields to cover a moving tumor.

To improve the visualization of moving tumors, 4D CT is applied to determine the motion and help to design an accurate plan for employing precise standard or gated therapy.

C-RAD Sentinel 4D CT is an easy-to-use, laser-based optical surface scanning system with functionality for 4D CT reconstruction and gated imaging in a CT room. It also provides reference images for patient positioning and intra-fraction motion detection in a radiation therapy treatment room.



## AT THE CT, THE SYSTEM PROVIDES THE FOLLOWING BENEFITS COMPARED TO OTHER RESPIRATORY TRACKING SOLUTIONS:



### Full 4D CT capability

- Breath-hold, deep inspiration and coached/free breathing modes are all supported, along with retrospective and prospective modes. This provides maximum flexibility to adapt to different patient capabilities and clinical requirements.
- Patient baseline is calculated as an absolute parameter that can be used during the treatment delivery
- The system offers seamless support throughout the entire 4D CT simulation, 4D treatment planning, and 4D delivery phases of the radiation therapy process.

### High level of patient safety and user confidence

- No markers or other equipment need to be placed on or around the patient.
- Laser tracking system in the CT room for getting couch movement automatically
- Tracking of both thoracic and abdominal respiratory motion in parallel with virtual monitoring.
- Optional audio-visual coaching through in-room speakers and video goggles, assisting the patient to follow the optimal breathing pattern.

### Sophisticated software to streamline the workflow

- All data acquired by Sentinel is stored in a central database and the same surface points and breathing curve will be automatically tracked with a Catalyst™ system in the treatment room during every fraction, without manual intervention.
- Multi-vendor interfaces have been developed to ensure a seamless clinical workflow, including GE, Philips, Siemens, Toshiba.

C-RAD is proud to present our innovative **4D SIGRT Solution** based on the advanced Sentinel and Catalyst technologies.



**HIGH  
PRECISION**



**HIGH  
EFFICIENCY**



**PATIENT  
SAFETY**

For more information please visit:

[WWW.C-RAD.COM](http://WWW.C-RAD.COM)



# REDEFINING PRECISION IN ADVANCED RADIATION THERAPY

## SENTINEL™ 4DCT

### SYSTEM DATA

#### Physical dimensions

- *Size (L \* W \* H):* 700 \* 200 \* 200 mm
- *Weight:* 8 kg

#### Power

- *Input voltage:* 100–240 VAC
- *Frequency:* 47–63 Hz
- *Power consumption:* 1.35 A

#### Environment

- *Operating temperature:*  
+10 °C to +40 °C (50 °F to 104 °F)

#### Laser

- *Power:*  
<1 mW (class 2M) according to IEC-60825-1
- *Wavelength:* 635–690 nm

#### Interfaces

- *CT Interfaces:*  
Integration with major oncology CT models

#### Performance

- *Scan volume (X \* Y \* Z):* 800 \* 1300 \* 700 mm.
- *Measurement reproducibility:* 0.2 mm
- *Long-term stability:* Within 0.3 mm
- *Warm up time:* ~ 30 min
- *Scan speed:* Up to 100 contours per second.  
Typically, 1–2 s for a 40 cm scan
- *Respiratory detection frequency:* 15 Hz

\*Full system data upon request

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