

# Radiotherapy Patient System `RPS fixed beam` by gKteso 6-DoF robotic patient positioning system for Radiotherapy Cancer Treatments



## RPS fixed beam

6 DoF Robotic system  
for more precise  
radiation treatments

### Description and essential performance features of the 6 DoF robotic system

The RPS fixed beam features a robotic patient-positioning platform with six degrees of freedom. It enables accurate and remote geometric correction of any misalignments detected by state-of-the-art image guidance systems, thereby closing the gap in the 6 DoF-chain of IGRT localization and tumor isocenter targeting.

The RPS fixed beam allows sub-millimetric patient positioning accuracy in six degrees of freedom, improving clinical workflow and patient confidence. 6 DoF means that the system can correct translational errors (x, y, z) during patient positioning as well as rotational errors (roll, pitch, yaw).

An internal sensor system that monitors the system's position allows a closed-loop control for patient positioning. All movements can be controlled remotely via software application programming interface (API).

The RPS fixed beam features the latest carbon fiber composite tabletop solutions.

### Intended use and intended user

The RPS robotic system is intended to be used for accurate patient positioning within a radiation therapy fixed beam treatment environment.

It comprises of

- the RPS robotic system,
- API to control the RPS robotic system position and
- couchtop accessories, that allow for treating patients in prone and seated position

The RPS robotic system is to support aid and control in positioning a patient during radiation therapy of various body regions within a fixed beam environment such as proton therapy or BNCT.

The device is to be used by radiation physicists, respectively their MTAs/ RTAs (medical/ radiology technical assistants).

## 6 DoF Robotic system specifications

Vertical movement	55cm – 170 cm (22" – 68")
Horizontal movement	25cm – 145 cm (10" – 58")
Isocenter rotation	+/- 120°
Pitch/Roll/Yaw rotation	+/- 5°
Mode of operation	30% duty cycle
Speed	0-50mm/s
6D translations and rotations corrections	simultaneously
Isocenter accuracy at isocenter height	<2,0 mm
Typical couch deflection (IEC60976)	<2,0 mm
Maximum weight of patient	200kg / 440lbs
Enabeling	API for remote control
Power rack	100-240V +/- 10%, 50/60Hz 20A /100V - 10A /240V Internal power 48V
Couch top specifications	different carbon boards with low-rated attenuations as well as plastic boards to support seated patients
Standards	IEC 60601-1:2005 + Cor.:2006+Cor.:2007 +A1:2012 IEC 60601-1-1:2000 IEC 60601-1-2:2014 IEC 62304:2006

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