

Radiotherapy Patient System `RPS mini` by gKteso 6-DoF Robotic Couch Upgrade for Radiotherapy Cancer Treatments



RPS mini

6 DoF Couch
for more precise
radiation
treatments.

Description and essential performance features of the 6 DoF robotic system

The RPS mini features a robotic patient-positioning add-on platform with six degrees of freedom.

Upgrading already existing 3 DoF patient couches to a full 6 DoF table, RPS mini allows to correct any geometric misalignments remotely and accurately.

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

An internal sensor system which monitors the couch's position is also part of RPS mini, offering a closed loop solution for patient positioning.

All movements can be controlled by a software application.

The RPS mini features the latest carbon fiber composite tabletop solutions with lowest possible attenuation.

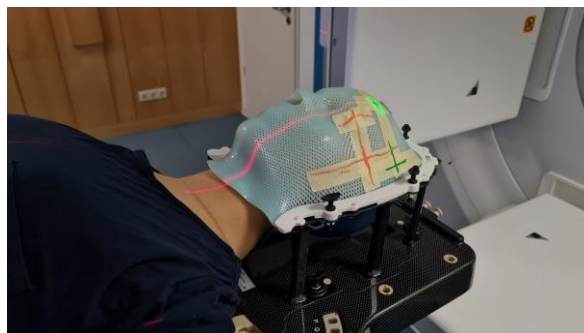
Intended use and intended user

The RPS mini is intended to be used for accurate patient positioning within a radiation therapy treatment environment. It comprises of:

- The RPS mini to support and aid in positioning a patient and
- A software to control the RPS mini position.

Indications:

The RPS mini supports and controls in positioning a patient during radiation therapy of various body regions. The system is not restricted to certain sub-populations (e.g., those defined by age, sex, ethnicity and organ function and disease severity or similar).



6 DoF Robotic system specifications

Axis	Range	Speed	Absolute positioning accuracy	Corrective position accuracy
Vertical movement	±30mm ±1.2"	0 – 25mm/s 0 – 1"/s	±0,5mm ±0.02"	±0,1mm ±0.004
Lateral movement	±30mm ±1.2"	0 – 25mm/s 0 – 1"/s	±0,5mm ±0.02"	±0,1mm ±0.004
Longitudinal movement	±30mm ±1.2"	0 – 25mm/s 0 – 1"/s	±0,5mm ±0.02"	±0,1mm ±0.004
Pitch rotation	±3°	0 - 1°/s	±0,1°	±0,05°
Roll rotation	±3°	0 - 1°/s	±0,1°	±0,05°
Yaw rotation	±3°	0 - 1°/s	±0,1°	±0,05°

Couch specifications

Footprint dimensions	530mm x 1260mm 21" x 50"
Weight of module	<100kg <220lbs
Mode of operation	continuous
6D translations and rotations corrections	simultaneously
Maximum weight of patient	200kg 440lbs
Internal Auto-Calibration	yes
Operating from outside room	Software interface (TCP/IP)
Motion Enabling from outside room	Remote Enable Controller
Interlocks	one from Host one to Host

Couchtop specifications

Material	non-conductive Carbon fiber
Length	260cm 102"
Width	53cm 21"
Indexing system	14cm 5.5"
Attenuation (% by 6MV)	3%
Accessories	Metal side rails

Power Supply

Mains	
(VAC)	100 – 230 ±15%
(Hz)	50 / 60
(A)	20A / 100V 10A / 240V
Internal Power	
(VAC)	Max. 48
(A)	Max. 20

Normal environmental operating conditions for normal use

Ambient temperature	+15°C to +35°C
Relative humidity	30% to 75%, non-condensing
Atmospheric pressure	700mbar to 1060mbar

Conformity

The RPS mini complies with the fundamental requirements of European Regulation 93/42 EEC for class I medical products and has been developed and tested in accordance with the following standards:

- IEC 60601-1:2012 (edition 3.1) - including US and CA
- IEC 60601-1-2:2014 (edition 3.0) - including US and CA
- IEC 60601-1-6:2013 (edition 3.1)
- IEC 60601-2-1:2009 (edition 3.0)
- IEC 60601-2-54:2009 (edition 1.0)
- IEC 61217:2011 (edition 2.0)
- IEC 62304:2006 (edition 1.0)
- IEC 62366:2014 (edition 1.1)

Key Features

- **High accuracy** – due to build-in redundant sensor system.
- **Customer specified tabletop** - or standard 14cm indexed tabletop with side rails
- **Low patient entrance height** – depending on chosen table top
- **Patient weight** – up to 200kg
- **Software application interface** – for simple workflow integration
- **Simultaneous 6DoF translational and rotational corrections**
- **Continuous fast movements** – prepared for motion management solutions
- **For OEM customers** – flexible design options and workflow integration

Improved patient positioning



No compromise in treatment



More precise radiation



Multiple brain metastases corrected via XVI Data

