

Fast and Precise Geometric Tests of Linear Accelerators

The Geocheck-1[®] is a useful tool for the physicist and service engineer to use together to diagnose problem issues and to confirm performance issues once the service is finished.

All listed tests are quantifiable, with mm markers on distance scales and mm circles at isocenter centering tests. There are degree scales as indicators for evaluation of rotational accuracy.

Tests can be performed at isocenter, and at distances other than isocenter. Tests can also be performed to the side and above isocenter, which may be more relevant to patient shapes.

Radiation Calibration and QA Instruments

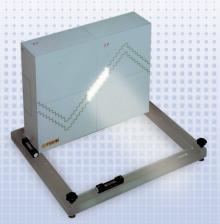
With Geocheck-1, the following parameters can be evaluated

- ▶ Alignment of the laser system
- ► Mechanical isocenter 0°, 90°, 270°
- Agreement between the light field axis and mechanical axis of the collimator
- ▶ Field size
- Jaw symmetry
- Collimator rotation angle
- ► Effect of gravity on collimators at 90° and at 270°
- ▶ Value of the ODI isocenter distance
- Variations of the ODI with gantry rotation
- ▶ Linearity of the ODI
- Direction and scale of the rectilinear movements of the table
- lsocenter and scale of the rotation movement of the table
- ▶ Geometrical focus

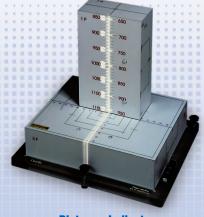
Geocheck-1 provides a fast and quantifiable way to verify recommended (i.e. TG 40) periodic tests of the treatment system. It also provides the physicist with a method to perform higher level physics tests.



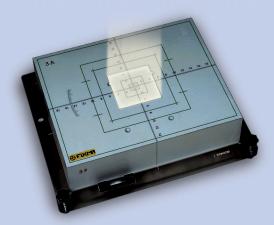
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IMRT Leaf Movement



Distance Indicator



Collimator Sizes



Plane of Laser Accuracy



Verticality of Gantry

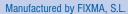


Laser Alignments



Specifications

Overall Size	Block Sizes	Weight	Dimension Tolerance
23 cm (wide) x 39 cm (deep) x 47 cm (tall)	20 cm x 32 cm (2) 32 cm x 40 cm (1)	8.1 kg (18 lbs)	0.3 mm





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