

The Reinstein "EDGE"

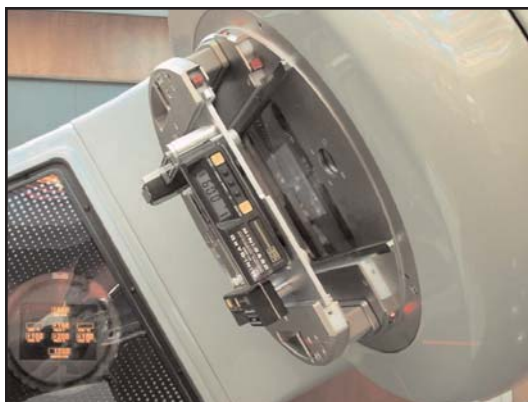
(Easy-Daily-Geometric-Evaluator)

Designed by: Lawrence E. Reinstein, Ph.D.
SUNY at Stony Brook, NY

The Reinstein "EDGE" Provides State-of-the-Art
Digital Technology To Ensure The Accuracy and Reproducibility
Of All Mechanical Parameters Of Linear Accelerators!

The Reinstein "EDGE"

Catalog # 0403



The Reinstein "EDGE" is universally compatible for use with all Linear Accelerators to provide all the necessary accuracy you need to perform the most important Quality Control tests.

Features:

- The "EDGE" tests field size readouts using a projection scale that is precise to +/-0.5mm.
- Gantry angle readout (+/- 0.1°)
- Collimator angle readout (+/- 0.1°)
- Field size using digital readouts (+/- 0.5mm)
- Optical distance indicator (+/- 0.1cm)
- Crosshair centering (+/- 0.5mm)
- Checks any gantry or collimator angle
- Easy to use.
- Helps eliminate errors.

Specifications:

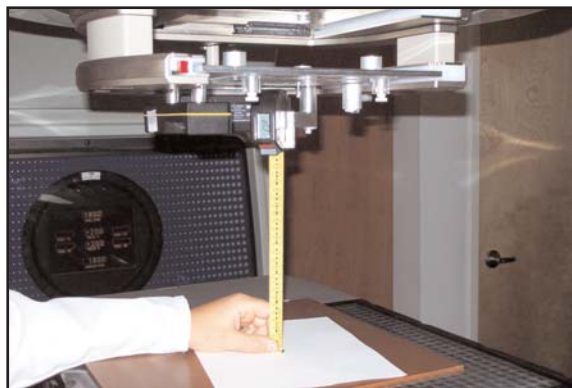
- Goniometer Accuracy / Resolution: 0.1°
- Optical Distance Indicator Resolution: 0.1cm
- Field Size Indicator: 5cm x 5cm / 10cm x 10cm
15cm x 15cm / 20cm x 20cm
- Overall Size: 29.5cm x 30.0cm x 7.5cm
- Overall Weight: 5.3lbs 2.4Kg)

Description:

The Reinstein "EDGE" from your Quality Assurance Source, MRNI, Inc. is an absolute necessity to maintain an acceptable level of equipment performance and reliability of Linear Accelerators.

The Reinstein "EDGE" uses new, state-of-the-art digital technology to improve the precision and convenience of SSD and gantry/collimator digital readout verification.

The Reinstein "EDGE" is easy-to-use, light-weight, portable and checks any gantry or collimator angle!



The DIGITAL tape measure is mounted on an arm that is locked OUTSIDE the aperture in the base when not in use and swings into the central axis of the beam.

The Reinstein "EDGE" is designed to fit into the shadow tray of the Linear Accelerator providing a "fixed" reference point for all measurements. This helps to eliminate errors associated with using independent devices for each geometric parameter.

The Reinstein "EDGE" is manufactured to fit any of today's Linear Accelerators.

Mick Radio-Nuclear Instruments, Inc.

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Description:

The Reinstein "EDGE" is composed of a flat (approximately 1/4cm thick) aluminum support plate that fits into the accessory mount of the medical LINAC and has a 17 x 17cm aperture in the center. Mounted on this plate are two calibratable electronic digital goniometers for measurement of the gantry and collimator angles, a tape measure with an electronic digital readout for ODI verification, and a precision projection scale for light field size and laser alignment verifications. Two electronic digital goniometers are mounted along adjacent edges of the plate and, once calibrated, have a precision of $\pm 0.5^\circ$ for a full 360° of rotation. When setup correctly they are oriented such that the sensitive rotational axis of one of the goniometers is parallel to the gantry rotational axis for measurement of the gantry angle, and the other goniometer has its axis parallel to the collimators rotational axis for measurement of the collimator angle. They are labeled in Fig. 1 as "Gantry Goniometer" and "Collimator Goniometer," respectively. The electronic digital tape measure is mounted on an arm that swings out to position the tape measure at the center of the field. The digital tape measure has a precision of ± 0.05 cm. When not in use, the tape measure arm locks outside of the field. The projection scale is inscribed on a sturdy adjustable transparent acrylic plate that spans the center aperture of the Reinstein "EDGE" base plate. A schematic of the projection scale is shown in Fig. 1. The projection consists of a crosshair, to define the central axis, and inscribed lines that represent the field sizes 5 x 5, 10 x 10, 15 x 15, and 20 x 20cm at 100cm SSD. In addition, there are tick marks in 1.0mm increments, for a projection measured at 100cm SSD, positioned along the cross hair lines to aid in the determination of field size errors. The position of this projection is easily positioned for initial alignment with LINAC's crosshair. (Varian target to tray distance: 65.4cm)

The Reinstein "EDGE" achieves increased efficiency through a set-up of a SINGLE fixed platform from which all measurements are made, thus eliminating extra time and uncertainty associated with the use of multiple independent measuring devices.

This work is conducted in conjunction with
Lawrence E. Reinstein, Ph.D.
Director, Division of Medical Physics
Professor, Dept. of Radiation Oncology
SUNY at Stony Brook, NY

The Reinstein "EDGE" with "Aperture, Gantry Goniometer, Collimator Goniometer and Digital Tape Measure for ODI Verification.

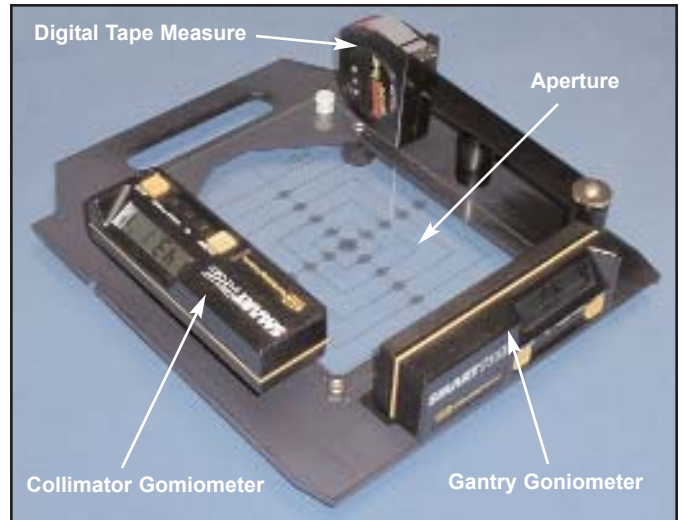


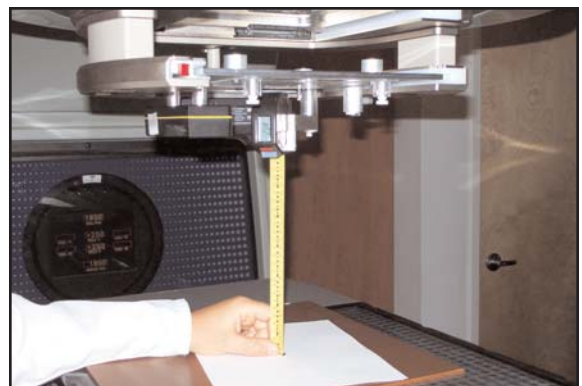
Fig 1. The Reinstein "EDGE" showing the Gantry Goniometer and the Collimator Goniometer.



Digital tape measure locked outside the aperture when not in use.



Digital tape measure swings into central axis of the beam for SSD / ODI measurements.



The Reinstein "EDGE" shown with digital tape measure located on central axis for ODI / SSD verification.

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