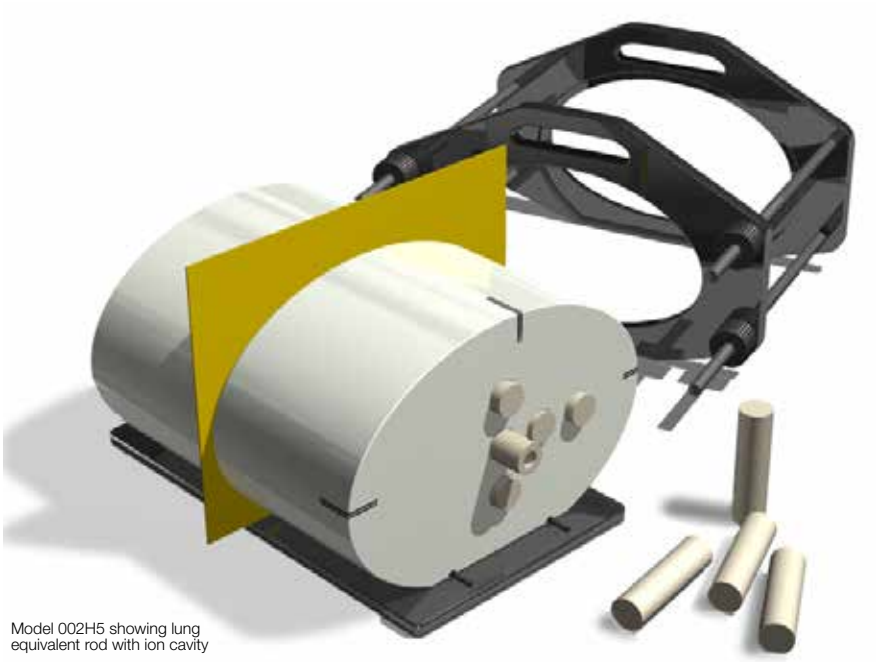
IMRT Homogeneous Phantom

Model 002H5



Model 002H5 showing lung equivalent rod with ion cavity

COMPLETE QA FROM CT IMAGING TO DOSE VERIFICATION

The CIRS Model 002H5 IMRT Homogeneous Phantom for Film and Ion chamber Dosimetry is designed to address the complex issues surrounding commissioning and comparison of treatment planning systems while providing a simple yet reliable method for verification of individual patient plans and delivery.

The 002H5 is homogeneous and elliptical in shape. It properly represents human anatomy in size and proportion. It measures 30 cm long x 30 cm wide x 20 cm thick (PA). The phantom is constructed of proprietary tissue equivalent epoxy materials. Linear attenuations of the simulated tissues are within 1% of actual attenuation for bone and water from 50 keV to 15 MeV.

Water equivalent interchangeable rod inserts accommodate ionization chambers allowing for point dose measurements in multiple planes within the phantom.[1] The phantom also supports radiographic or GafChromic® film at mid-plane in the phantom for analysis of dose distributions[2]. Additional inserts are available to support a variety of other detectors including TLD's, MOSFET, and diodes.

Handling, assembly and proper orientation of the phantom is made easy with the use of a unique alignment base and holding device. The surfaces of the phantom are etched for ease of laser alignment, and CT markers ensure accurate film to plan registration.

Features

- Check 2D dose distributions (3D distributions optional)
- Point dose measurements in multiple planes
- Calibrate film with ion chamber to quickly verify individual patient treatment plans[1]

[1]The CIRS line of IMRT phantoms is compatible with the RIT 113 software for film to plan analysis. GafChromic® is a registered trademark of International Specialty Products, Wayne, NJ.

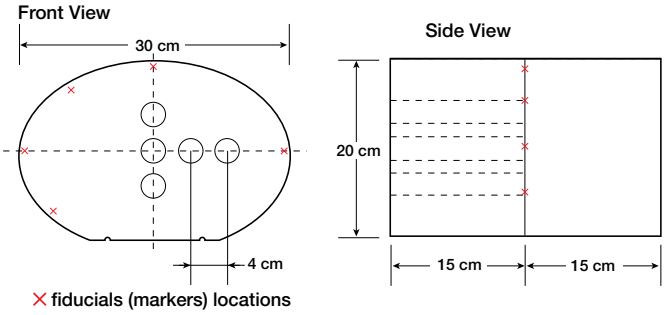
[2]Customers are encoureged to complete their oreder with the purchase of the insert option listed below. refer seperate CIRS cavity and plug code list for available chamber cavities.

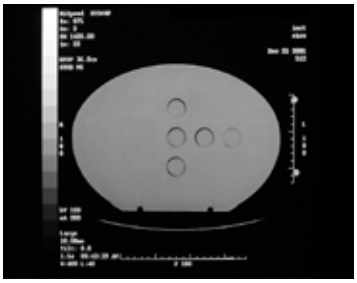
IMRT HOMOGENEOUS PHANTOM

Model 002H5

IMRT VERIFICATION SYSTEM

CIRS IMRT phantoms are manufactured from tissue equivalent materials that mimic within 1% from 50 keV to 15 MeV for accurate simulation from CT planning to treatment delivery. The interchangeable rod design allows the phantom to accommodate a multitude of dose measurement devices such as ion chambers, TLD, diodes and MOSFET's in the same location within the phantom.[1] Phantom cross sections accommodate GafChromic® or standard ready-pack films.





SPECIFICATIONS

OVERALL DIMENSIONS:	43.2 cm x 38.1 cm x 25.4 cm (17" x 15" x 10")
WEIGHT:	17.2 kg (46 lb)
MATERIALS:	Phantom Body: Tissue Equivalent Epoxy Materials Inserts: CIRS Tissue Equivalent Materials (epoxy resin based)

INSERT OPTIONS

[1]Customers are encouraged to complete their order with the purchase of the insert option listed below. Refer to separate CIRS cavity and plug code list for available chamber cavities.

PART NO.	DESCRIPTION
002RW-CVXX-XX	Water equivalent rod insert with ion chamber cavity

MODEL 002H5 INCLUDES

QTY	PART NO.	DESCRIPTION
1	002H5	IMRT Homogeneous Phantom
2		Tissue equivalent sections, one drilled to accommodate solid rod inserts
1		Set of CT to film fiducial markers
5	002RW-S	Water equivalent solid rod inserts
1		Alignment Base
1		Holding device
1		User-Guide
1		48 Month Warranty

ADDITIONAL OPTIONS

PART NO.	DESCRIPTION
002RB-CVXX-XX	Bone equivalent rod insert with ion chamber cavity
002RL-CVXX-XX	Lung equivalent rod insert with ion chamber cavity
002BR	Single breast attachment
002FC	Film stack for small volume 3D image reconstruction
002GC	Gel dosimetry cassette
002HCV	Homogeneous section that accommodates 002FC or 002GC cassettes
002CTF	Set of CT to film fiducial markers for additional interfaces
002LCV	Thorax region section that accommodates 002FC or 002GC cassettes
002SPH	Water equivalent rods for TLD's (set of 5 rods length 5cm)
002ED	Electron density reference plugs, set of 4 (lung, bone, muscle, adipose)
9501	Case for IMRT Phantoms (002H5, 002H9K, 002LFC, 002PRA) when ordered with corresponding Cavity Slab (002HCV, 002LVC, 002PCV)
9502	Case for IMRT Phantoms (002H5, 002H9K, 002LFC, 002PRA)
002SS-H	Water equivalent spacer slab (1 cm)

References:

Gershkevitsh, Eduard, et al., Dosimetric Verification of Radiotherapy Treatment Planning Systems: Results of IAEA Pilot Study. 2008 Elsevier Ireland Ltd., Radiotherapy and Oncology 89 (2009) 338-346, pgs. 338-346, March 2009.

Zhao, Y. et al., Monte Carlo evaluation of a treatment planning system for helical tomotherapy in an anthropomorphic hetergeneous phantom and for clinical treatment plans. Med. Phys., vol. 35 (12), pgs. 5366-5374, December 2008.

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Brunckhorst E., et al., Commissioning of Radiotherapy Treatment Planning Systems: Testing for Typical External Beam Treatment Techniques. IAEA, International Atomic Energy Agency, IAEA-TECDOC-1583, pgs. 1-67, January 2008.

Altman, M., et al., A Novel Phantom for use in 3-dimensional In Vitro Cell Experiments. Med. Phys., vol. 33 (6), pgs. 2058-2059, Poster # SU-FF-T-40, June 2006.