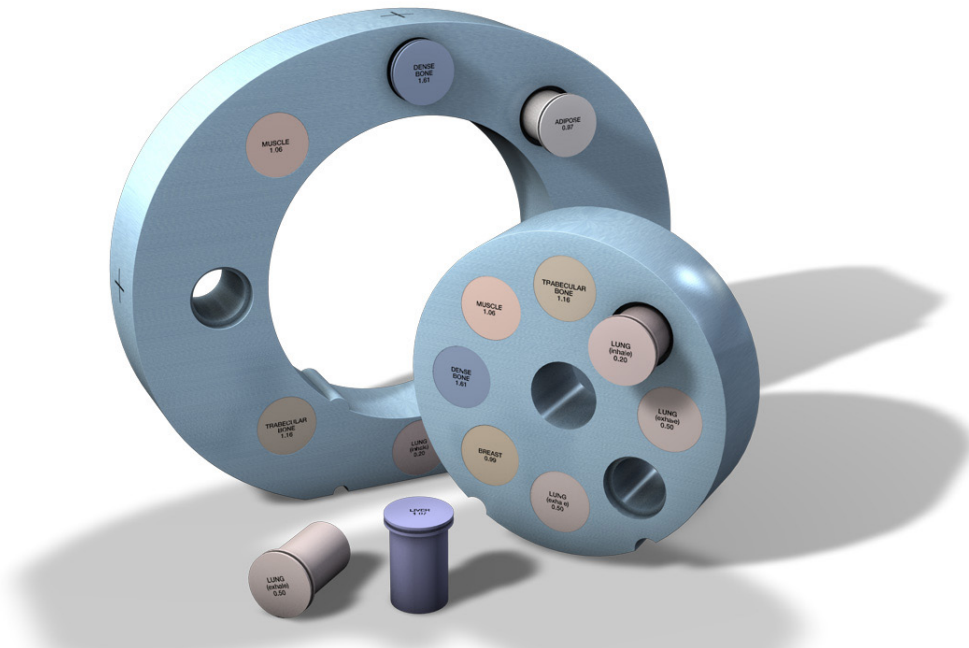


Electron Density Phantom

Model 062M



CORRELATE CT NUMBER AND TISSUE ELECTRON DENSITY

Because CT scans are used to correct for tissue inhomogeneities in radiotherapy treatment planning, it's important to obtain a precise relationship between CT number (in Hounsfield units) and electron densities. The Model 062M Electron density phantom enables precise correlation of CT data to electron density of various tissues, and is manufactured from CIRS tissue equivalent materials.

The Model 062M consists of two nested disks made from Plastic Water® -LR. They can represent both head and abdomen configurations. Nine different tissue equivalent electron density plugs can be positioned at 17 different locations within the scan field. Included is a water vial plug that can be filled with any fluid. Optional distance marker plugs enable quick assessment of the CT scanner's distance measurement accuracy.

Physicists performing treatment planning need accurate tools to evaluate CT scan data, correct for inhomogeneities and to

document the relationship between CT number and tissue density. To improve the accuracy of your treatment planning, consider the CIRS Model 062 Electron Density Phantom.

The 062M is just one of three configurations available as a part of the Cone Beam CT Electron Density & Image Quality Phantom System.

Features

- Evaluate CT scan data
- Correct for inhomogeneities
- Document relationship between CT number and tissue electron density
- Simulate indicated tissue within the diagnostic energy range
- Quick assessment of distance registration

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Tissue Simulation & Phantom Technology

SPECIFICATIONS

MODEL 062M INCLUDES

QTY	PART NO.	DESCRIPTION	PHYSICAL DENSITY, g/cc	ELECTRON DENSITY, x 10 ²³ electrons/cc	RED (RELATIVE TO H ₂ O)
1	062MA-01	Electron Density Head Insert	1.029	3.333	0.998
1	062MA-02	Electron Density Body without Head Insert	1.029	3.333	0.998
2	062A-04	Lung (Inhale) Equivalent Electron Density Plug	0.205	0.668	0.200
2	062A-05	Lung (Exhale) Equivalent Electron Density Plug	0.507	1.658	0.496
2	062A-06	Breast (50% Gland / 50% Adipose) Equivalent Electron Density Plug	0.99	3.261	0.976
2	062A-08	Solid Trabecular Bone (200 mg/cc HA) Equivalent Electron Density Plug	1.16	3.730	1.117
2	062A-09	Liver Equivalent Electron Density Plug	1.07	3.516	1.052
2	062A-10	Muscle Equivalent Electron Density Plug	1.06	3.483	1.043
2	062A-11	Adipose Equivalent Electron Density Plug	0.96	3.171	0.949
2	062A-15	Solid Dense Bone (800 mg/cc HA) Equivalent Electron Density Plug	1.53	4.862	1.456
1	062A-27	Solid Dense Bone (1250 mg/cc HA) Equivalent Electron Density Plug	1.82	5.663	1.695
1	062MA-39	Water-fillable Electron Density Plug, Ø 1" removable vial inside (Real water data provided)	1.00	3.340	1.000
1	062M-30	Set of 2 Feet for Model 062M			
1	062M-40	Soft Carry Case for Model 062M			
1		User Guide			
-		60 Month Warranty			

OVERALL DIMENSIONS:	Electron Density Head Insert: Ø 180 mm x 50 mm (Ø x D) Electron Density Body without Head Insert: 330 mm x 270 mm x 50 mm (W x H x D)
WEIGHT:	Electron Density Head Insert: ≈ 0.950 kg (2 lbs.) Electron Density Body without Head Insert: ≈ 2.1 kg (4.7 lbs.)
MATERIALS:	Water and Tissue Equivalent Epoxy Resins

MODEL 062M OPTIONAL ACCESSORIES

PART NO.	DESCRIPTION	PHYSICAL DENSITY, g/cc	ELECTRON DENSITY, x 10 ²³ electrons/cc	RED (RELATIVE TO H ₂ O)
062MA-07*	800 mg/cc HA in Water Equivalent - Core Insert	1.53	4.862	1.456
062MA-12	Titanium Rod Core Insert	4.51	12.475	3.735
062MA-13	Distance Marker Insert	1.029	3.333	0.998
062MA-14-CV†	Water Equivalent Chamber Rod with Cavity for Ion Chamber	1.029	3.333	0.998
062MA-16	Water Equivalent Insert	1.029	3.333	0.998
062MA-17*	1000 mg/cc HA in Water Equivalent - Core Insert	1.66	5.243	1.570
062MA-18*	1250 mg/cc HA in Water Equivalent - Core Insert	1.82	5.663	1.695
062MA-19*	ICRU Cortical Bone Equivalent Core Insert**	1.91	5.915	1.771
062MA-20*	1500 mg/cc HA in Water Equivalent - Core Insert	1.99	6.134	1.837
062MA-21*	1750 mg/cc HA in Water Equivalent - Core Insert	2.15	6.600	1.976
062A-26	Solid Dense Bone (1000 mg/cc HA) Equivalent Electron Density Plug	1.66	5.243	1.570
062A-28	Solid Dense Bone (1500 mg/cc HA) Equivalent Electron Density Plug	1.99	6.134	1.837
062A-29	Solid Dense Bone (1750 mg/cc HA) Equivalent Electron Density Plug	2.15	6.600	1.976
062MA-41	Water Equivalent Material Surrounding 6.4mm Diameter Stainless Steel (Alloy 20) Rod Core Electron	8.03	23.101	6.917
062MA-42	Water Equivalent Material Surrounding 6.4mm Diameter Aluminum Rod Core Electron Density Plug	2.70	8.008	2.398

* These inserts contain a 10 mm diameter core of indicated bone reference surrounded by H₂O background. Hydroxyapatite (unit mg/cc) in H₂O background Plugs to accommodate chambers.

** CIRS Cortical bone reference is based on ICRU Report No.44, and represents ≈ 12.2% H₂O, 24.6% protein, 58% mineral (assumed to be Calcium Hydroxyapatite (HA)), and 5.2% monosaccharides. CIRS further offers a series of mineral density references that mimic various HA concentrations in a pure water-equivalent epoxy background matrix.

