

POSITIONING AID FOR CRANIOCAUDAL & MEDIOLATERAL OBLIQUE VIEWS

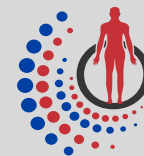
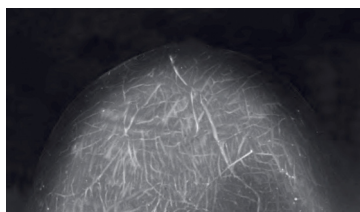


- Demonstrates spot-compression procedures
- Sensitivity training for patient comfort
- Helpful in training male students (eliminating loaded vests to simulate breasts)

RSD's Mammography Phantom is a perfect patient substitute allowing instructors to teach mammography positioning. This valuable teaching and training aid simplifies classroom procedures, allowing trainees to take as many exposures as are needed to develop expertise. Mammograms, taken within the range of standard technical factors, provide realistic images with high contrast.

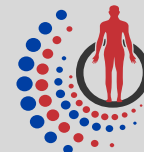
A molded gel provides realistic compressibility. Mammograms are taken at a breast thickness of 5-cm, using normal technical factors. The breast is mounted on a post with adjustments for height and the angles needed for various views.

A small indicator box is placed next to the breast to signal when the 5-cm breast thickness is reached. Patient discomfort is signaled by a red warning light which informs the trainee that the pain level can be reached at about this compression. The light is actuated 5-mms before the dead stop produced by the box. This procedure emphasizes the care needed for patients when the pain zone is reached.



Applications

- Teaching & training
- Image quality
- Protocol verification



Modalities

- Mammogram

Model Numbers

Model No.	Product Description
RS-750	Stand & carrying/storage case
RS-750A	Phantom ONLY
RS-750S	Stand ONLY

Contact RSD or an authorized RSD Dealer for custom pathologies and traumas.

Materials *See page 30 for more information.*

RSD Soft Tissue	RSD Cortical Bone	RSD Trabecular Bone
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Specifications

Packing Size	Packing Weight
Box 1: 51W x 41D x 36H cm	14 kg
Box 2: 74W x 74D x 15H cm	
Tube: 114L x 15D cm	
Box 1: 20W x 16D x 14H in	30 lb.
Box 2: 29W x 29D x 6H in	
Tube: 45L x 4D in	

Publication Reference: Obenauer S, Hermann KP, Schorn C, Funke M, Fischer U, Grabbe E. Digitale Vollfeldmammographie: Phantomstudie zur Detektion von Mikrokalk [Full-field digital mammography: a phantom study for detection of microcalcification]. *Rofo.* 2000 Jul;172(7):646-50. German. PMID: <https://pubmed.ncbi.nlm.nih.gov/10962993>.

Soft Tissues: There are unlimited, small variations in density and absorption throughout the human body. Phantom soft tissue is closely controlled to have the average density of these tissues.

Skeletons: RSD skeletons are highly detailed polymer moldings which reproduce the shape, mass density and attenuation coefficients of cortical bone and spongiosa. RSD's proprietary moldings allow for continuous production, eliminate the restrictions of human skeleton bones (including limited availability, unethical collection of human bone specimen, variable size, and uncertain chemical composition), and avoid the loss of marrows in dried natural skeletons thereby making RSD skeletons superior to "real bone."

Molds: Molds for the RSD cortical bone and spongiosa were made from human skeletons consistent with the sizes of the soft tissue molds.

ICRU 44: RSD skeletons conform closely to the standards established by the International Commission on Radiation Units and Measurements ([ICRU Report No. 44](#)); mass density is reduced slightly to take into account a small decrease in calcium content for older patients.

LINEAR ATTENUATION DATA

1. Monte Carlo simulation was used to calculate linear attenuation coefficients as a function of beam.
2. Monte Carlo results were validated with linear attenuation coefficients derived from Hounsfield Unit measurements at discrete energy levels.
3. RSD Phantom material linear attenuation data was compared to NIST data using ICRU Report 44 compositions of human tissues.
4. NIST data was interpolated when necessary.

MATERIALS	DENSITY (g/cc)
RSD Soft Tissue (Opaque)	1.08
RSD Soft Tissue (Transparent)	1.10
RSD Cortical Bone	1.18
RSD Trabecular Bone	1.17

RSD SOFT TISSUE					
Energy (MeV)	Mean (HU)	Calculated (M)	μ (ICRU 44)	% Difference	Ratio
00.08	60.30	0.1948	0.1932	0.0080	0.9921
00.10	52.88	0.1797	0.1795	0.0015	0.9985
00.12	57.10	0.1717	0.1709	0.0044	0.9956
00.14	52.95	0.1623	0.1624	0.0007	1.0007
00.20	--	0.1477	0.1439	0.0261	0.9746
00.30	--	0.1245	0.1246	0.0004	1.0004
00.60	--	0.0950	0.0941	0.0101	0.9900
00.80	--	0.0825	0.0826	0.0013	1.0013
01.00	--	0.0744	0.0743	0.0018	0.9982
02.00	--	0.0520	0.0519	0.0018	0.9982
03.00	--	0.0351	0.0357	0.0171	1.0174
06.00	--	0.0288	0.0291	0.0088	1.0088
08.00	--	0.0252	0.0255	0.0098	1.0099
10.00	--	0.0229	0.0232	0.0149	1.0151
15.00	--	0.0203	0.0203	0.0015	0.9985
20.00	--	0.0189	0.0189	0.0017	1.0017

RSD CORTICAL BONE					
Energy (MeV)	Mean (HU)	Calculated (M)	μ (ICRU 44)	% Difference	Ratio
00.08	1365	0.4345	0.4280	0.0151	0.9851
00.10	1048	0.3496	0.3562	0.0184	1.0188
00.12	0977	0.3211	0.3274	0.0191	1.0195
00.14	0902	0.2932	0.2986	0.0180	1.0184
00.20	--	0.2511	0.2513	0.0009	1.0009
00.30	--	0.2155	0.2137	0.0084	0.9916
00.60	--	0.1596	0.1598	0.0011	1.0011
00.80	--	0.1403	0.1402	0.0010	0.9990
01.00	--	0.1274	0.1261	0.0106	0.9895
02.00	--	0.0883	0.0885	0.0017	1.0017
03.00	--	0.0611	0.0625	0.0229	1.0235
06.00	--	0.0512	0.0525	0.0246	1.0253
08.00	--	0.0468	0.0474	0.0120	1.0121
10.00	--	0.0446	0.0444	0.0039	0.9962
15.00	--	0.0410	0.0409	0.0016	0.9984
20.00	--	0.0393	0.0397	0.0102	1.0103

RSD TRABECULAR BONE (SPONGIOSA)					
Energy (MeV)	Mean (HU)	Calculated (M)	μ (ICRU 44)	% Difference	Ratio
00.08	551	0.2849	--	--	--
00.10	515	0.2586	--	--	--
00.12	439	0.2337	--	--	--
00.14	318	0.1541	--	--	--