

# Dosimetry Verification Phantoms



ATOM® Phantoms were previously manufactured in Riga, Latvia and sold worldwide. Since the late eighties, these phantoms have been used extensively in Australia, Western Europe and the Republics of the former Soviet Union.

The complete line of ATOM® phantoms are now being manufactured exclusively by CIRS. Standard phantoms include bone, lung and soft tissue compositions formulated for accurate simulation for diagnostic and therapy

energies. Photon attenuation values between 30 keV and 20 MeV are within 1% for bone and soft tissue substitutes and within 3% for lung substitute.

The skeleton is made from an average composition of normal cortical and trabecular bone and includes vertebral disks and spinal cord.

Standard phantoms consist of 25 mm thick contiguous sections. Each section contains 5 mm diameter through holes filled with tissue equivalent plugs for TLD placement. Hole locations are optimized for precise dosimetry in more than 20 internal organs (detailed list available upon request). Ion chamber cavities, other grid patterns and hole diameters are available upon request.

Standard phantom includes head, torso, upper femur and genitalia. Legs and arms are included with the newborn and 1 year pediatric phantoms. Legs and arms can be manufactured for other phantoms upon special request.

All complete phantoms include detailed technical manual, positioning system and storage case. Attenuation coefficients for all materials is available.

*Tissue Simulation &  
Phantom Technology*

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# ATOM<sup>®</sup> Anatomical References

Based on ICRP 23, ICRU 48 and available anatomical reference data

Description	Height	Weight	Thorax Dimensions
Adult Male	173 cm	73 kg	23 cm x 32 cm
Adult Female	160	55	20 x 25*
Pediatric Newborn	51	3.5	9 x 10.5
Pediatric 1 year	75	10	12 x 14
Pediatric 5 years	110	19	14 x 17
Pediatric 10 years	140	32	17 x 20

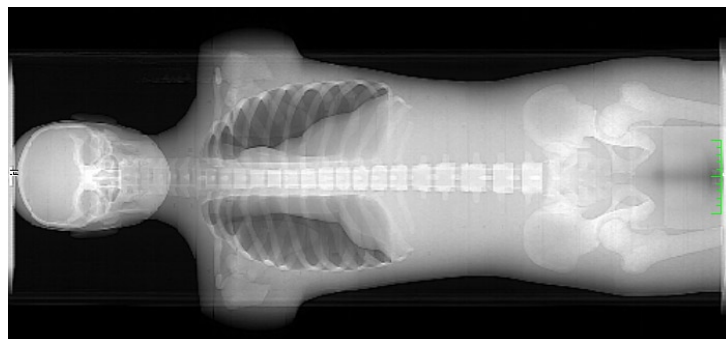


\*Measurement does not include breasts

## Configuration Table

Model Number	-A	-B	-C	-D	-E	-F
	Without Holes	5 mm Ø holes in a 3 X 3 cm grid spacing	5 mm Ø holes in a 1.5 X 1.5 cm grid spacing	5 mm Hole placement for Organ Dosimetry	Set of R & L Arm & Leg attachments	Non-sectioned without holes
<b>701</b> Adult Male (Sections 1-39) Complete Phantom	Available	Available	Available	Available	Available	Available
<b>701-HN</b> Adult Male Head & Neck (Sections 1 - 10) Partial Phantom	Available	Available	Available	Available	Not Available	Available
<b>701-T</b> Adult Male Torso (Sections 11- 25) Partial Phantom	Available	Available	Available	Available	Not Available	Available
<b>701-P</b> Adult Male Pelvis (Sections 26-39) Partial Phantom	Available	Available	Available	Available	Not Available	Available
<b>702*</b> Adult Female (Sections 1-38) Complete Phantom	Available	Available	Available	Available	Available	Available
<b>702-HN</b> Adult Female Head & Neck (Sections 1-10) Partial Phantom	Available	Available	Available	Available	Not Available	Available
<b>702-T*</b> Adult Female Torso (Sections 11-23) Partial Phantom	Available	Available	Available	Available	Not Available	Available
<b>702-P</b> Adult Female Pelvis (Sections 24-38) Partial Phantom	Available	Available	Available	Available	Not Available	Available
<b>703</b> Newborn Complete Phantom	Available	Available	Available	Available	Included	Not Available
<b>704</b> 1 Year Old Complete Phantom	Available	Available	Available	Available	Included	Available
<b>705</b> 5 Year Old Complete Phantom	Available	Available	Available	Available	Available	Available
<b>706</b> 10 Year Old Complete Phantom	Available	Available	Available	Available	Not Available	Available

\*Standard female breast size is 190 cc included. Optional Male breast attachments is 350 cc.



CT Scout of Model 701

\* Average Bone material for Pediatric Phantoms is being used in Models 703, 704, and 705.

\*\* Average (density - 0.26 - 0.30 gcm<sup>-3</sup>) and Exhale Lung material (density - 0.45 - 0.50 gcm<sup>-3</sup>) available.  
Attenuation coefficients for all materials available upon request.

### REFERENCE

1. ICRP 23, Reference Man, 1975.
2. ICRU 44, 1989.