

# Multipurpose Chest Phantom N1 "LUNGMAN"

Broad range of possible applications in research and training.



## Multipurpose

Applicable for both plain radiography and CT scanning.

Wide variety of uses in interpretation training, anatomical education, evaluation and assessment of devices and other research.

## Accurate anatomy and high quality substitute materials

The phantom is an accurate life-size anatomical model of a human torso.

The thickness of the chest wall is based on measurement of clinical data.

The soft tissue substitute material and synthetic bones have x-ray absorption rates very close to those of human tissues.

Production supervision:

Kiyoshi Murata, Ph.D. Professor

Norihisa Nitta, Ph.D.

Shiga University of Medical Science



The phantom provides life-like radiographs very close to actual clinical images.

The three-dimensional structure allows both PA and LATERAL images to be obtained. The phantom bones and vessels show life-like contrast gradations on the image along with tube voltages.

PH-1 is used in a CT study by the FDA to create a database of scanned images.



## Computed tomography

Arms-abducted position of the torso suits the CT scanning.

The pulmonary vessels are spatially traceable.

Assessment of computer-aided detection systems is possible.

3D reconstruction of CT data



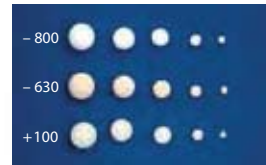
## "LUNGMAN" Training



### Attach the simulated tumors



Simulated tumors in five-size and three-HU-number variations can be attached to arbitrary position in the lung field.



### Computed tomography

CT scan training  
Interpretation training  
Assessment of computer-aided detection systems

#### CT



#### PLAIN X-RAY



### Plain radiography

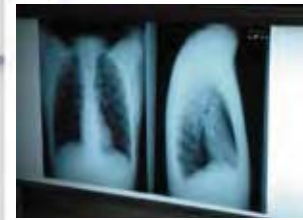
Radiograph training  
Interpretation training  
Assessment of tube voltages, films and other devices

○ Simulated tumors (HU# 100)

#### Comparison



Review the plain X-ray



## Specifications

### Set Includes:

- 1 male chest torso
  - main body: synthetic bones are embedded
  - internal parts: separates into four parts
  - mediastinum: heart, trachea
  - pulmonary vessels (right and left)
  - abdomen (diaphragm) block: no internal structure

- 15 simulated tumors (15 variations)
  - 3 varieties of Hounsfield number: approx. -800, -630, +100
  - 5 sizes for each type:
    - diameters 3, 5, 8, 10, 12 mm
    - diameters 0.12, 0.2, 0.32, 0.39, 0.47 inch

- phantom size:
  - approx. 43W x 20D x 46H cm, chest girth 94 cm
  - approx. 17W x 8D x 18H inch, chest girth 37 inch

- phantom weight:
  - approx. 18 kg
  - approx. 39.6 lbs

- packing size:
  - approx. 65W x 55D x 29H cm, 25 kg
  - approx. 26W x 22D x 11H inch, 55.1 lb.

### Improve interpretation skills

Comparison between Plain X-ray and CT, as well as between these images and the direct observation of the phantom, helps trainees to have three dimensional understanding and to improve X-ray interpretation skills.

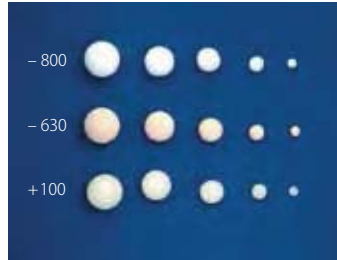
## A48-1

### Bronchus and Blood Vessels Model

Bronchus and Blood Vessels Model is a life size model that shows three dimensional structure of the bronchus, the pulmonary arteries, and veins in detail. Bronchial tree are made up to fourth bronchus and color-coded according to bronchopulmonary segments. Aortic valves and left ventricle are also shown on the model.



## Multipurpose Chest Phantom N1 "LUNGMAN" Optional and replacement parts



### 41337-070 Simulated Tumors (standard set)

15 variations  
(HU: -800, -630 and +100, each 3,5,8,10 and 12mm dia. / each 0.12, 0.2, 0.32, 0.39 and 4.7 inch dia.)

### 41337-010 Chest Plates

Chest plates can be attached to the phantom to simulate larger body type and to check the different body size parameters.

#### Specifications

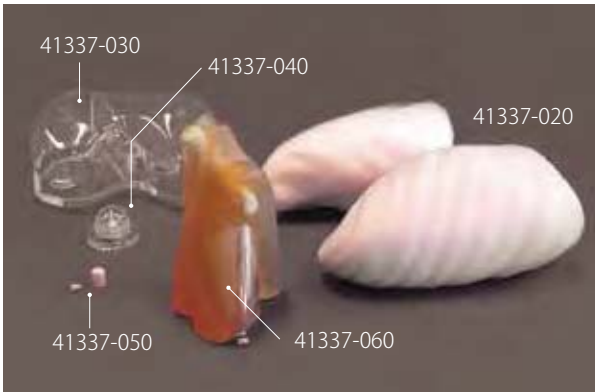
Optional Parts:  
41363-020 Carrying case



### Custom order simulated tumors

Custom order for tumors in different shapes and HU values is also available upon request.

## Components for Radioisotope



The set of RI container inserts can be set in the chest phantom in place of standard inserts allowing wider research applications including PET/CT fusion evaluation. The lungs of urethane foam can be worked easily to accommodate simulated nodules or other inserts.

#### Components for Radioisotope

- 41337-020 Lungs of urethane
- 41337-030 Liver RI container
- 41337-040 Gallbladder RI container
- 41337-050 Pulmonary nodule RI container
- 41337-060 Mediastinum with left myocardium RI container

CT



PET

fusion

