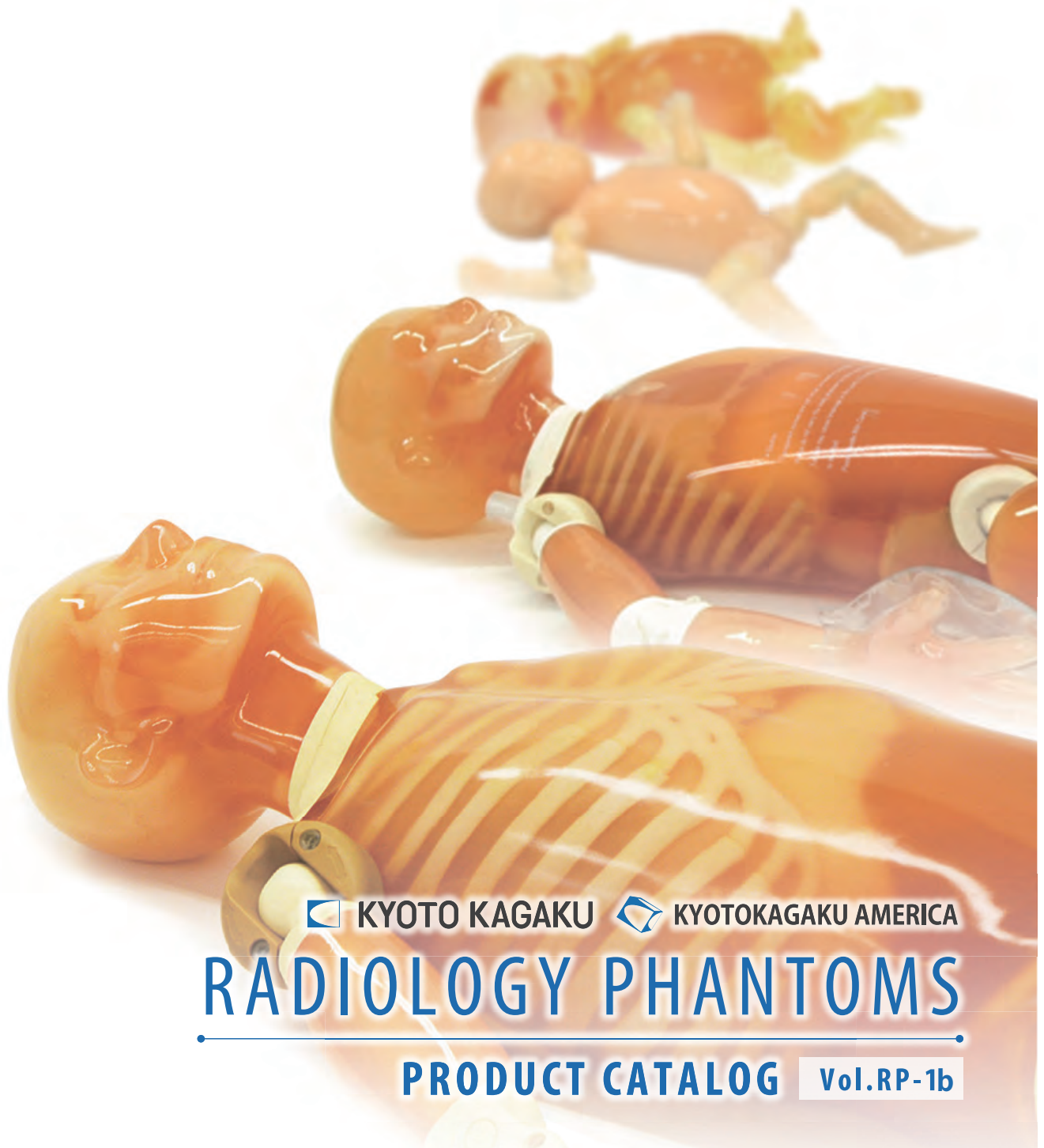


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RADIOLOGY PHANTOMS

PRODUCT CATALOG Vol. RP-1b

PRODUCT CATALOG

RADIOLOGY PHANTOMS

Vol. RP-1b

Icon Legend



Feature Article

Kyoto Kagaku Anthropomorphic Phantoms

P.4 ▶

PH-50B



P.5

Newborn Whole Body Phantom
"PBU-80"

PH-50



P.5

Newborn Whole Body Phantom

PH-2C



P.6

Pediatric Whole Body Phantom
"PBU-70"

PH-2D



P.7

Bone Fracture Pediatric Phantom
"PBU-70B"

PH-2B



P.8

CT Whole Body Phantom
"PBU-60"

PH-2E



P.9

CT Whole Body Phantom
with Pathologies

PH-2



P.10

Whole Body Phantom "PBU-50"

PH-60



P.11

Tough Whole Body Phantom
"PBU-90 RUGGED"

P.12



Body plates
BMI 32/ BMI 40

P.12



Fractured Hand/Forearm
Phantom PH-2/2B

PH-61



P.13

Sectional Phantom Series

Feature Article

Kyoto Kagaku Chest Phantom Family

P.14 ▶

PH-1



P.15

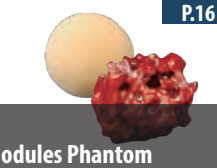
Multipurpose Chest Phantom N1
"LUNGMAN"

P.16



Components for Radioisotope

PH-58



P.16

Subsolid Nodules Phantom

PH-1C



P.17

Pediatric Chest Phantom

PH-63



P.18

Thorax Phantom for RI

PH-8



P.19

Lung Cancer Screening CT
Phantom LSCT001

PH-4



P.20

CT Torso Phantom CTU-41

PH-3



P.21

Angiographic CT Head Phantom
ACS (for CT/Angio/MECT)

PH-76



P.22

Dental Radiography Head
Phantom (Mouth closed/ opened)

PH-5



P.23

CT Abdomen Phantom
(for CT/MECT)

PH-18



P.24

Stomach Phantom BMU-1

PH-19



P.24

Rotation Stomach Phantom
TMP-R

PH-46



P.25

CT Prostate Phantom

PH-71



P.25

Knee Ligament Phantom

PH-49



P.26

CT Colonography Phantom NCCS

PH-51



P.27

Lumbar Spine Fluoroscopy
Training Phantom



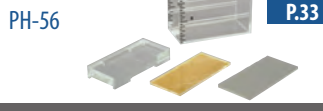
PH-75A/B **P.30**
Multi Energy CT Quality Assurance Phantom



PH-74 **P.31**
Bone Scintigraphy Quality Assurance Phantom



PH-55 **P.32**
CT ERF Phantom HIT



PH-56 **P.33**
Tomosynthesis Phantom NS



PH-59 **P.34**
CT-DI Phantom (Head and Body Phantom)



PH-54 **P.34**
CT QA Phantom JCT II



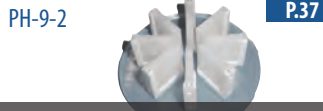
PH-9 **P.35**
Multi Slice CT Phantom MHT



PH-7 **P.36**
CT-AEC Phantoms



PH-6C **P.37**
Dynamic Cardiac CT Phantom SKK II



PH-9-2 **P.37**
Ladder Phantom



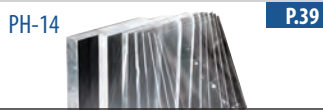
PH-13 **P.38**
Digital Mammographic Phantom NCCE



PH-10 **P.38**
BMD Chart Phantom UHA



PH-17 **P.39**
Water Body Phantom WAC



PH-14 **P.39**
Acrylic Phantom XAC



PH-16 **P.39**
Contrast Detail Phantom



PH-39 **P.40**
Dynamic Thorax Phantom



PH-48 **P.41**
Dynamic Heart and Lung Phantom



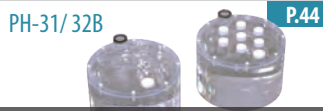
PH-40/41/42 **P.42**
Tough Phantom Series



PH-37 **P.43**
Therapy Body Phantom THRA-1



PH-38 **P.43**
Pediatric Therapy Body Phantom THRA-2



PH-31/32B **P.44**
MRI Quality Assurance Phantom MHR/JMR II



PH-72 **P.45**
MRI Breast QA phantom



PH-33 **P.45**
MRI Head Phantom NH



PH-34 **P.45**
MRI/NM Head Phantom BHC



PH-53 **P.46**
Brain Phantom IB-20 advanced



PH-27 **P.46**
Brain Phantom IB-10



PH-69 **P.47**
Thyroid Phantom UN



PH-26 **P.48**
ORINS Thyroid Phantom ITS



PH-29 **P.48**
ECT Hot Cold Phantom SP-6



PH-24 **P.49**
Myocardial Phantom HL

Kyoto Kagaku Anthropomorphic Phantoms

Our Anthropomorphic phantoms provide life like images and attenuation.
Ideal for educational training applications and help to determine and evaluate optimal scanning parameters.



We provide a variety of anthropomorphic phantoms to meet your requirements that suits you best

	NEWBORN		CHILD (5-year-old)		ADULT	
	Standard	Variations	Standard	Variations	Standard	Variations
Plain X-ray	PH-50B: P.5	PH-50 : P.5 Meconium aspiration syndrome* *Option	PH-2C : P.6 PBU-70	PH-2D : P.7 Bone fracture	PH-2B: P.8 PH-2: P.10 PH-60: P.11	PH-2E : P.9 with pathologies
CT						
Dosimetry						

The above matrix chart indicates the most recommended application/modality for use of each phantom and not necessarily means the phantom should exclusively be used with marked modalities.
All above phantoms can be imaged via both plain radiography (X-ray) and CT.
Differences in included organs or tissue substitute material provide some phantoms wider use in CT study/training than others.

Body size variations



41350-200-16 (BMI 32)/ 41350-200-17 (BMI 40)

Body Plates

[P.12 ▶](#)

For separate anatomy...



PH-61 41926-000-

Sectional Phantom Series

[P.13 ▶](#)

PH-50B | 41912-100

Newborn Whole Body Phantom "PBU-80"

Dosimetry

CT

X-ray



A brand-new neonate for CT has come into the world



SHOW MORE!



ANTHROPOMORPHIC PHANTOMS

FEATURES

- | Limbs rotate 360 degrees at shoulders and hip joints
- | Left hand is clenched and right hand is open
- | Kyoto Kagaku original human tissue substitute
- | A hole for an ion chamber
- | HU of average newborn (HU 30)

APPLICATIONS

- | CT and plain X-ray
- | Dosimetry
- | Autopsy imaging
- | Positioning: upright AP / supine AP / upright lateral / supine lateral

ANATOMY

skull / spine / clavicles / scapulae / ribs / humerus / radius / ulnae / bones of hands / femora / tibiae / fibula / bones of foot / pelvis / lungs / mediastinum / colon

DESCRIPTIONS

SET INCLUDES

- | | |
|-------------------------------------|--|
| 1 newborn whole body phantom | 1 insert for the dosimeter hole manual |
| 1 set of sample CT/X-ray data (DVD) | 1 |
| 1 storage case | |

MATERIALS

Soft tissue: urethane based resin (density: 1.07)
 Synthetic bone: epoxy resin (density: 1.31)
 *Phantom has no metal parts or liquid structure

SPECIFICATIONS

Phantom size: 53 cm 20.8 in	Phantom weight: 3.5 kg / 7.7 lb	Packing size: W57 x D44 x H29 cm W22.4 x D17.3 x H11.4 in	Packing weight: 8 kg / 17.6 lb
-----------------------------------	------------------------------------	---	-----------------------------------

PH-50 | 41912-000

Newborn Whole Body Phantom

X-ray



SHOW MORE!



ANATOMY

As per PBU-80

*Meconium aspiration syndrome can be made per custom order

DESCRIPTIONS

SET INCLUDES As per PBU-80

MATERIALS As per PBU-80

SPECIFICATIONS

Phantom height: 42 cm 16.5 in	Phantom weight: 2.8 kg / 6.2 lb	Packing size: W57 x D44 x H29 cm W22.4 x D17.3 x H11.4 in	Packing weight: 8 kg / 17.6 lb
-------------------------------------	------------------------------------	---	-----------------------------------



PH-2C | 41350-300

Pediatric Whole Body Phantom "PBU-70"



This phantom representing a five-year-old child is easy to position, and provides complete bone images for every joint



SHOW MORE!

FEATURES

- | Radiology absorption and HU number approximate to human body
- | Main joints have close-to human articulation
- | Phantom can be disassembled into 10 individual parts

APPLICATIONS

- | Plain X-ray
- | CT
- | Basic patient positioning

ANATOMY

Bony Structure

skull / spine/ clavicles / scapulae / ribs / sternum / coxal bones / humerus / antebrachial bone / bones of hand / femur / patella / lower leg bone / bones of foot

Internal organs

lung with pulmonary vessels / trachea (up to primary bronchi) / heart / liver with portal and hepatic veins

HU numbers of each organ:

- liver 70
- kidney 30

DESCRIPTIONS

SET INCLUDES

1 pediatric whole body phantom	1 screwdriver
1 head supporter	1 set of sample X-ray data (DVD)
1 hand fixture belt	1 manual

SPECIFICATIONS

Phantom height: 110 cm 43.3 in	Packing size: W86 x D60 x H32 cm W33.8 x D23.6 x H12.6 in
Phantom weight: 20 kg / 44 lb	

MATERIALS

Soft tissue: urethane based resin (density: 1.06)
Synthetic bone: epoxy resin (density: 1.31)
Skull: epoxy resin (density: 1.11)
*Phantom has no metal parts or liquid structure

OPTIONAL PARTS

41363-080 storage case for PH-2C / 2D

PUBLICATION REFERENCES Söderberg, M., & La, S. (2013). Evaluation of adaptation strengths of CARE Dose 4D in pediatric CT. SPIE Medical Imaging, 9-14. doi:10.1117/12.2001694



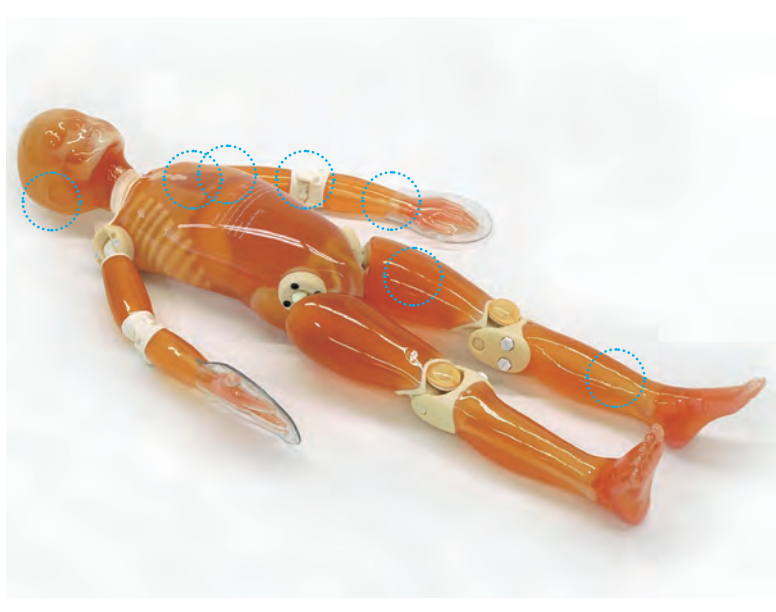
PH-2D | 41350-500

Bone Fracture Pediatric Phantom "PBU-70B"

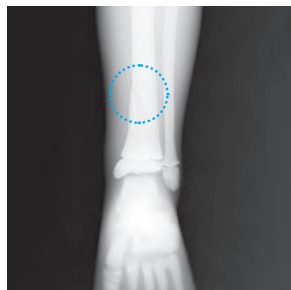
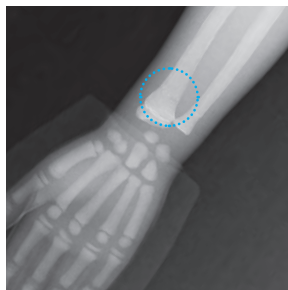


Improve skills in detecting bone fractures in children and cultivate awareness of child maltreatment.

ANTHROPOMORPHIC PHANTOMS



SHOW MORE!



FEATURES

- | Training in pediatric radiography can be enriched with clear and subtle bone fractures
- | Typical fractures resulting from child abuse are also included
- | Radiology absorption and HU number approximate to human body
- | Main joints have close-to human articulation
- | Phantom can be disassembled into 10 individual parts

APPLICATIONS

- | Plain X-ray
- | CT
- | Basic patient positioning
- | Radiographic interpretation

CONCEPT and ANATOMY - Is there sign of abuse?

Child maltreatment

Children around the world are victims to domestic violence and abuse, yet the problem is often overlooked. Noticing the signs of an abusive fracture of a child is the first step to putting an end to these maltreatments.

This phantom has been designed and developed to cultivate such observation skills in future radiologists and radiographers.

Signs of callus	A number of callus examples can be a result of abusive treatment. This particular model contains calluses in the wound healing phase 5.
Supracondylar humerus fracture	A supracondylar humerus fracture on the distal humerus above the epicondyles and is a fracture commonly observed in children, accounting for approximately 20%.
Spiral fracture	Certain causes of non-accidental pediatric injuries, such as spiral fractures, include maltreatment stimulated by anger or distress.
Back, scapula and rib fractures	Rib fractures close to the vertebrae may be potential indicators of the child being thrown.
Skull fractures	A linear skull fracture may be another indication of child maltreatment. At times, fractures display better on x-ray scans than CT imaging.

DESCRIPTIONS

SET INCLUDES

1 pediatric whole body phantom	1 screwdriver
1 head supporter	1 set of sample X-ray data (DVD)
1 hand fixture belt	1 manual

SPECIFICATIONS

Phantom height: 110 cm 43.3 in	Packing size: W86 x D60 x H32 cm W33.8 x D23.6 x H12.6 in
Phantom weight: 20 kg / 44 lb	

MATERIALS

Soft tissue: urethane based resin (density: 1.06)
 Synthetic bone: epoxy resin (density: 1.31)
 Skull: epoxy resin (density: 1.11)
 *Phantom has no metal parts or liquid structure

OPTIONAL PARTS

41363-080 storage case for PH-2C / 2D



PH-2B | 41350-200

CT Whole Body Phantom "PBU-60"



A unique, life size whole body phantom for CT provides a variety of educational application as well as visual evaluation in finding out optimal scanning conditions



SHOW MORE!



FEATURES

- | The phantom includes full internal organs with close-to-human HU for each.
- | Radiology absorption and HU approximate to human body
- | Main joints have close-to human articulation
- | Phantom can be disassembled into 10 individual parts

APPLICATIONS

- | CT
- | Plain X-ray
- | Basic patient positioning

ANATOMY

Full internal organs

Bony structure

Synthetic skull
Cervical vertebrae
Vertebrae
Clavicles
Ribs
Sternum
Scapula
Coxal bones
Femurs

Internal organs	HU number at 80KeV
Brain	
Cerebrum	40
Mesencephalon	40
Cerebellum	40
Cerebral ventricles	10
Eye balls	20
Arteries with contrast medium (left half only)	250
Lungs	-1000
Pulmonary vessels	8
Trachea	trachea wall: 8 / inside: -1000
Heart	PBU-50: 8 / PBU-60: 40
Liver	70

Internal organs	HU number at 80KeV
Portal and hepatic veins	40
Pancreas	30
Kidneys	30
Gallbladder	20
Spleen	50
Seminal vesicle	25
Aorta	40
Cava	70
Ureter	ureteral wall: 30 / inside: 10
Urinary bladder	10
Prostate	50
Rectum	rectum wall: 70 / inside: -800
Sigmoid Colon	colon wall: 70 / inside: -800

DESCRIPTIONS

SET INCLUDES

1 whole body phantom	1 hand-fixture belt
1 head supporter	1 set of sample CT/X-ray data (DVD)
1 flat head screwdriver	manual

SPECIFICATIONS

Phantom height: 165 cm 65 in	Packing size:
	W92 x D57 x H38 cm/W36 x D22 x H15 in
	W90 x D63 x H22 cm/W35 x D25 x H8.7 in
Phantom weight: 50 kg / 110 lb	Packing weight:
	80 kg / 176 lb

MATERIALS

Soft tissue: urethane based resin (density: 1.06)
 Synthetic bone: epoxy resin (density: 1.31)
 Skull: epoxy resin (density: 1.11)
 *Phantom has no metal parts or liquid structure

OPTIONAL PARTS

41363-070	storage cases (consist of 2 boxes)
41350-200-16	body plates for PH-2/2B (BMI 32)
41350-200-17	body plates for PH-2/2B (BMI 40)

PUBLICATION REFERENCES

Kim, S., & Jung, H. (2013). A Study on Performance of Low-Dose Medical Radiation Shielding Fiber (RSF) in CT Scans. International Journal of Technology, 4(2), 178-187. doi:10.14716/ijtech.v4i2.107

Storage case P.12 ▶



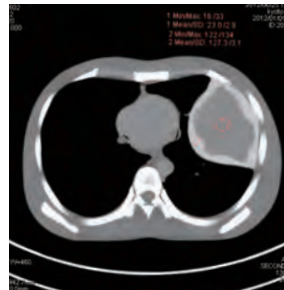
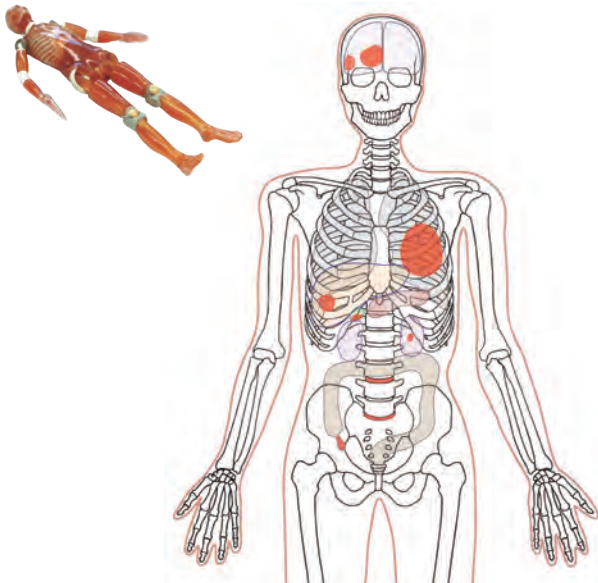
PH-2E | 41350-700

CT Whole Body Phantom with Pathologies



Implement theory with practice with pathological findings in this hands-on training phantom

ANTHROPOMORPHIC PHANTOMS



FEATURES

- | Pathological findings added to detailed anatomy of PBU-60
- | Radiology absorption and HU number approximate to human body
- | Main joints have close-to human articulation
- | Phantom can be disassembled into 10 individual parts

APPLICATIONS

- | CT
- | Plain X-ray
- | Basic patient positioning

ANATOMY and PATHOLOGY

Cases	HU number at 80KeV	Cases	HU number at 80KeV	Cases	HU number at 80KeV
Brain tumor	130	Hepatic tumor	10	Kidney stone	170
Subarachnoid hemorrhage	90	Pancreatitis	30	Appendicitis	inside: 30 / outside: 40
Pulmonary tumor	inside: 30 / outside: 130	Gall stone	170	Spondylolisthesis	-

Full internal organs

Internal organs	HU number at 80KeV
Brain	
Cerebrum	40
Mesencephalon	40
Cerebellum	40
Cerebral ventricles	10
Eye balls	20
Arteries with contrast medium (left half only)	250
Lungs	-1000
Pulmonary vessels	8
Trachea	trachea wall: 8 / inside: -1000
Heart	PBU-50: 8 / PBU-60: 40
Liver	70

Internal organs	HU number at 80KeV
Portal and hepatic veins	40
Pancreas	30
Kidneys	30
Gallbladder	20
Spleen	50
Seminal vesicle	25
Aorta	40
Cava	70
Ureter	ureteral wall: 30 / inside: 10
Urinary bladder	10
Prostate	50
Rectum	rectum wall: 70 / inside: -800
Sigmoid Colon	colon wall: 70 / inside: -800

Bony structure

Synthetic skull
Cervical vertebrae
Vertebrae
Clavicles
Ribs
Sternum
Scapula
Coxal bones
Femurs

DESCRIPTIONS

SET INCLUDES

- 1 whole body phantom
- 1 head supporter
- 1 flat head screwdriver
- 1 hand-fixture belt
- 1 set of sample CT/X-ray data (DVD) manual

SPECIFICATIONS

Phantom height: 165 cm
65 in
Phantom weight: 50 kg / 110 lb

Packing size:
W92 x D57 x H38 cm/W36 x D22 x H15 in
W90 x D63 x H22 cm/W35 x D25 x H8.7 in
W89 x D57 x H16 cm/W35 x D22 x H6.3 in

Packing weight:
80 kg / 176 lb

MATERIALS

Soft tissue: urethane based resin (density 1.06)
Synthetic bone: epoxy resin (density: 1.31)
Skull: epoxy resin (density: 1.11)
*Phantom has no metal parts or liquid structure

OPTIONAL PARTS

- 41363-070 storage cases (consist of 2 boxes)
- 41350-200-16 body plates for PH-2/2B (BMI 32)
- 41350-200-17 body plates for PH-2/2B (BMI 40)

Storage case P.12 ▶



PH-2 | 41350-000

Whole Body Phantom "PBU-50"



An essential asset for every radiography program



SHOW MORE!



FEATURES

- | Radiology absorption and HU number approximate to human body.
- | Main joints have close-to human articulation
- | Phantom can be disassembled into 10 individual parts

APPLICATIONS

- | Plain X-ray
- | Basic patient positioning
- | Basic CT

ANATOMY

skull / spine / clavicles / scapulae / ribs / sternum / coxal bones / lungs with pulmonary vessels / trachea (up to primary bronchi) / heart / liver with portal and hepatic veins / kidneys / humerus / antebrachial bone / bones of hand / femur / patella / lower leg bone / bones of foot

DESCRIPTIONS

SET INCLUDES

1 whole body phantom	1 hand-fixture belt
1 head supporter	1 set of sample X-ray data (DVD)
1 flat head screwdriver	manual

SPECIFICATIONS

Phantom height:	Packing size:
165 cm	W92 x D57 x H38 cm/W36 x D22 x H15 in
65 in	W90 x D63 x H22 cm/W35 x D25 x H8.7 in
Phantom weight:	W89 x D57 x H16 cm/W35 x D22 x H6.3 in
50 kg / 110 lb	Packing weight:
	80 kg / 176 lb

MATERIALS

Soft tissue: urethane based resin (density: 1.06)
 Synthetic bone: epoxy resin (density: 1.31)
 Skull: epoxy resin (density: 1.11)
 *Phantom has no metal parts or liquid structure

OPTIONAL PARTS

41363-070	storage cases (consist of 2 boxes)
41350-200-16	body plates for PH-2/2B (BMI 32)
41350-200-17	body plates for PH-2/2B (BMI 40)

Storage case P.12 ▶



PH-60 | 41925-000

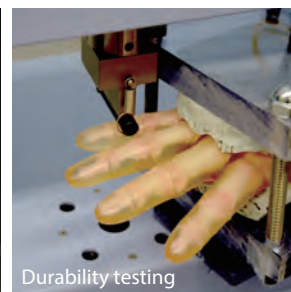
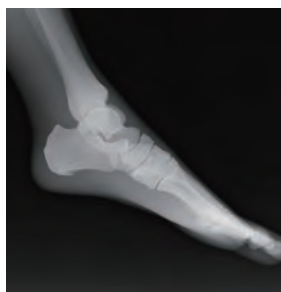
Tough Whole Body Phantom "PBU-90 RUGGED"



New phantom material is designed for rough handling, improved durability and less maintenance



SHOW MORE!



ANTHROPOMORPHIC PHANTOMS

FEATURES

- | Radiology absorption and HU number approximate to human body.
- | Main joints have close-to human articulation
- | Phantom can be disassembled into 10 individual parts

APPLICATIONS

- | Plain X-ray
- | Basic patient positioning
- | Basic CT

PBU-90 allows training scenarios that involve rough handling. Details of the bones in the hands and the feet are simplified compared to those of PBU-50/60 for increased durability.

ANATOMY

skull / spine / clavicles / scapulae / ribs / sternum / coxal bones / lungs with pulmonary vessels / trachea (up to primary bronchi) / heart / liver with portal and hepatic veins / kidneys / humerus / antebrachial bone / bones of hand / femur / patella / lower leg bone / bones of foot

DESCRIPTIONS

SET INCLUDES

1 whole body phantom	1 hand -fixture belt
1 head supporter	1 set of sample X-ray data (DVD)
1 flat head screwdriver	1 manual

SPECIFICATIONS

Phantom height: 165 cm 65 in	Packing size: W92 x D57 x H38 cm/W36 x D22 x H15 in W90 x D63 x H22 cm/W35 x D25 x H8.7 in W89 x D57 x H16 cm/W35 x D22 x H6.3 in
Phantom weight: 50 kg / 110 lb	Packing weight: 80 kg / 176 lb

MATERIALS

Soft tissue: urethane based resin (density: 1.12)
*Phantom has no metal parts or liquid structure

OPTIONAL PARTS

41363-070	storage cases (consist of 2 boxes)
41350-200-16	body plates for PH-2/2B (BMI 32)
41350-200-17	body plates for PH-2/2B (BMI 40)

Storage case P.12 ▶

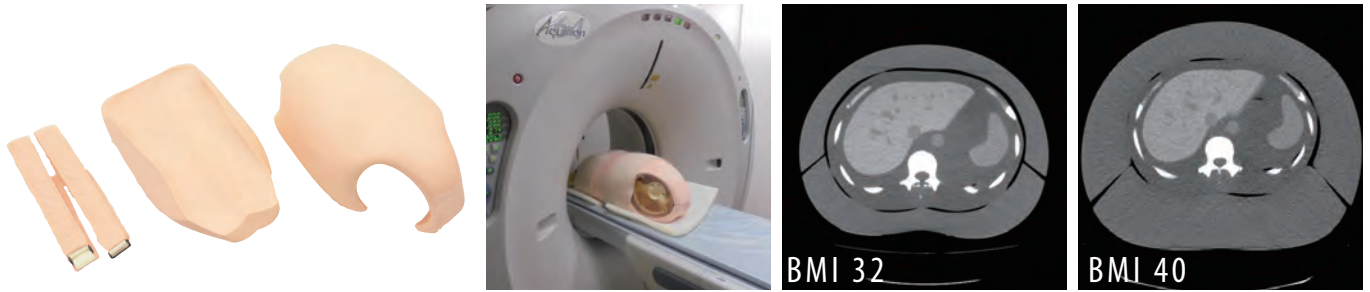


41350-200-16 (BMI 32) / 41350-200-17 (BMI 40)

Optional Parts for PH-2/2B/2E/60

Body plates

Body plates to simulate a patient of BMI 32 / BMI 40



FEATURES

For study of effect of patient size on radiation dose and image quality.

DESCRIPTIONS

SET INCLUDES

- 1 body plate (front)
- 1 body plate (back)
- 2 belts

MATERIALS

Urethane based resin (density: 1.06)

SPECIFICATIONS

Phantom size:
W41 x D45 x H28cm
W16.1 x D17.7 x H11 in

Packing size:
77 x 48 x 40 cm x 2 boxes
30.3 x 18.9 x 15.7 in x 2 boxes

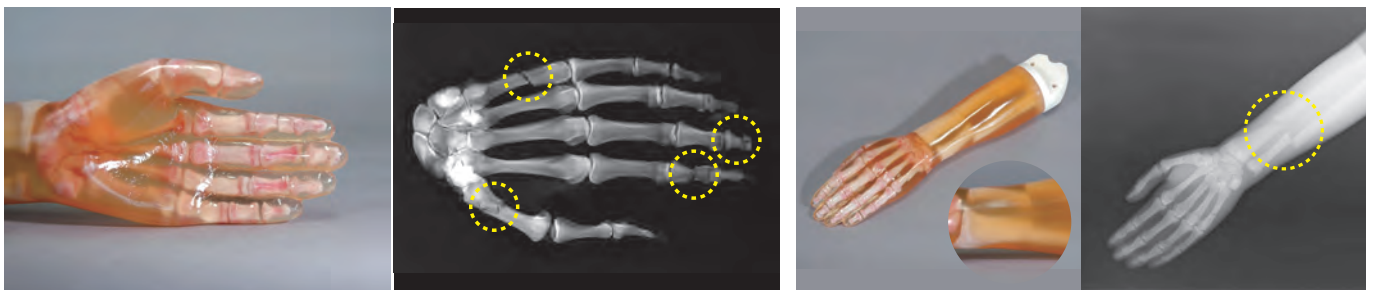
Packing weight:
41350-200-16(BMI 32): 21 kg / 46.3 lb
41350-200-17(BMI 40): 34.5 kg / 76 lb

41350-000-11

Optional Parts for PH-2/2B/2E/60

Fractured Hand/Forearm Phantom PH-2/2B

X-ray phantom for trauma evaluation



DESCRIPTIONS

Bone Fractures:

ulna, radius, first metacarpal, middle phalanx of the index finger, distal phalanx of the first finger (compressed fracture), fifth metacarpal

SET INCLUDES

- 1 fractured hand/forearm phantom

MATERIALS

Soft tissue: urethane based resin (density: 1.06)
Synthetic bone: epoxy resin (density: 1.31)
*Phantom has no metal parts or liquid structure



41363-070

Optional Parts for PH-2/2B/2E/60

Storage case 2 (a pair)

PH-61 | 41926-000-

Sectional Phantom Series



Sectional phantoms allow for imaging of individual anatomy as needed



ANTHROPOMORPHIC PHANTOMS

FEATURES

- | Opaque and transparent types for a diverse training possibility
 - Opaque: advanced version with close-to-reality challenges in imaging
 - Transparent: visible bones facilitate understanding in keys for positioning
- | Movable joints of the knee and the elbow for realistic positioning

ITEMS

REGION	NO.	PRODUCT NAME	NOTE
	41926-000	Head (Opaque)	Stand-alone design can be used with the adjustable head positioning stand to demonstrate accurate skull positioning
	41926-010	Head (Transparent)	
	41926-060	Thorax (Opaque)	Includes thoracic skeletal system with embedded mediastinal space and bronchus to provide realistic imaging. The scapulae are rotated outside of the lung fields for proper PA chest imaging
	41926-070	Thorax (Transparent)	
	41926-080	Pelvic (Opaque)	
	41926-140	Right Elbow (Opaque)	Natural flexion range allows for AP/lateral and partial flexion views with one phantom
	41926-150	Right Elbow (Transparent)	
	41926-020	Right Hand (Opaque)	
	41926-030	Right Hand (Transparent)	
	41926-040	Left Hand (Opaque)	
	41926-050	Left Hand (Transparent)	
	41926-180	Right Knee (Opaque)	Movable patella and joint with flexion allow for realistic positioning of the knee for AP, lateral, oblique, sunrise and tunnel views
	41926-190	Right Knee (Transparent)	
	41926-100	Right Foot (Opaque)	
	41926-110	Right Foot (Transparent)	
	41926-120	Left Foot (Opaque)	
	41926-130	Left Foot (Transparent)	

DESCRIPTIONS

SET INCLUDES (each)

- 1 phantom
 - 1 set of sample X-ray data (DVD)
 - 1 manual
- *Accessory of head phantom: adjustable head supporter

MATERIALS

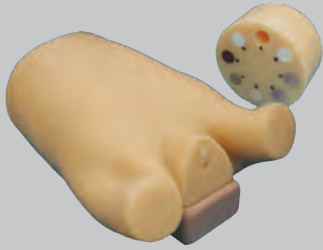
Soft tissue: urethane based resin
 Synthetic bone: epoxy resin (density: 1.31)
 Skull: epoxy resin (density: 1.2)
 *Phantom has no metal parts or liquid structure



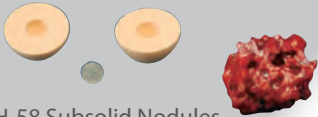
Kyoto Kagaku Chest Phantom Family

Thorax contains organs crucial for our lives, and lung cancer remains to be the top cancer. Here's a family of chest phantoms that support pursuit for better diagnosis and treatment.

Pursuit of low-dose



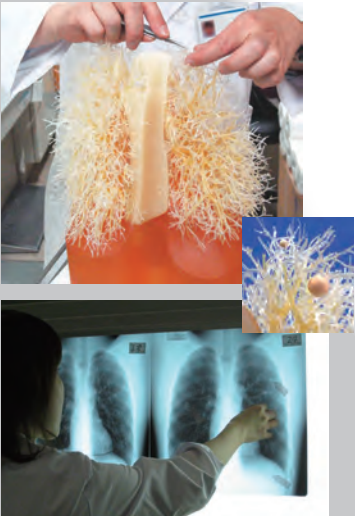
PH-8 Lung Cancer Screening CT Phantom LSCT001



PH-58 Subsolid Nodules

Extensive possibilities for study and training

Attach the simulated tumors & Improve interpretation skills



PH-1 Multipurpose Chest Phantom N1 "LUNGMAN"

Body size variation



PH-1C Pediatric Chest Phantom



Chest plates for "LUNGMAN"



Modality variation

Radiotherapy



PH-39 Dynamic Thorax Phantom



Components for Radioisotope for "LUNGMAN"



PH-63 Thorax Phantom for RI

PH-1 | 41337-000

Multipurpose Chest Phantom N1 "LUNGMAN"



PH-1 is used in a study by the FDA to create a database of CT scans with different scanners and protocols, as a resource for assessment of lung nodule size estimation method



CHEST PHANTOMS

FEATURES

- | Radiation absorption and HU number approximate to human body
- | Simulated tumors and other targets can be attached at any points in the lung fields
- | Wide variety of uses in interpretation training, anatomical education, evaluation and assessment of devices and other research
- | Arms-abducted position of the torso suits the CT

APPLICATIONS

- | CT
- | Plain X-ray
- | Radiographic interpretation

ANATOMY

Chest includes;

- | main body: synthetic bones are embedded
- | mediastinum: heart, trachea, pulmonary vessels
- | abdomen (diaphragm) block: no internal structure

Simulated tumors



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



DESCRIPTIONS

SET INCLUDES

- 1 chest torso
- 15 simulated tumors (15 variations 1 piece each)
- 1 set of sample X-ray data (DVD)
- 1 manual

MATERIALS

Soft tissue: urethane based resin (density: 1.06)
 Synthetic bone: epoxy resin (density: 1.31)
 *Phantom has no metal parts or liquid structure

SPECIFICATIONS

Phantom size:	Packing size:
43 x 20 x 48 cm, chest girth 94 cm	63 x 50 x 29 cm
17 x 8 x 18 in, chest girth 37 in	24.8 x 19.7 x 11.4 in
Phantom weight:	Packing weight:
18 kg/ 39.6 lb	25 kg / 55.1 lb

OPTIONAL PARTS

- 41337-010 Chest plates
- 41363-020 Storage case
- 41337-070 Simulated tumors



PUBLICATION REFERENCES

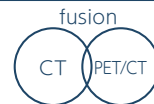
Xie, X., Zhao, Y., Snijder, R. A., van Ooijen, P. M., de Jong, P. A., Oudkerk, M., ... Greuter, M. J. (2013). Sensitivity and accuracy of volumetry of pulmonary nodules on low-dose 16- and 64-row multi-detector CT: an anthropomorphic phantom study. *European radiology*, 23(1), 139-147. doi:10.1007/s00330-012-2570-7

Gomi, T., Nakajima, M., Fujiwara, H., Umeda, T. (2011) Comparison of Chest Dual-energy Subtraction Digital Tomosynthesis Imaging and Dual-energy Subtraction Radiography to Detect Simulated Pulmonary Nodules with and without Calcifications. *Academic Radiology*, 18(2), 191-196. doi:10.1016/j.acra.2010.09.021



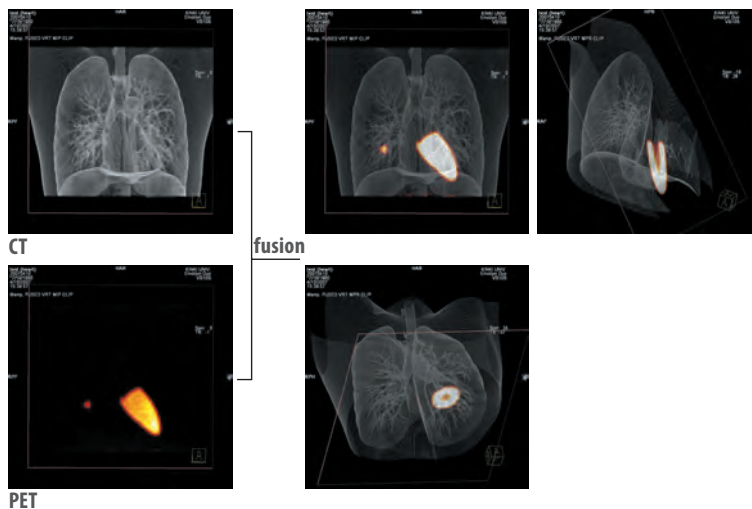
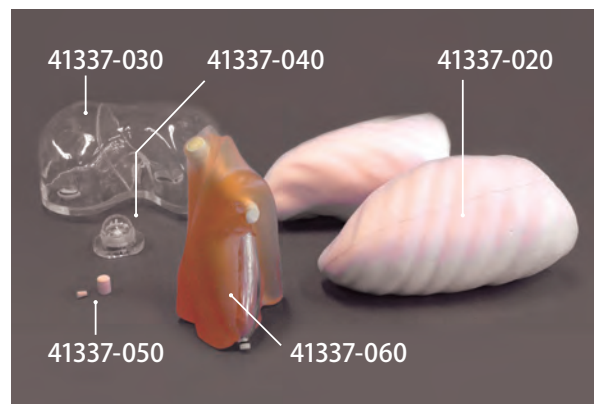
41337-020-

Optional Parts for PH-1



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



- 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

DESCRIPTIONS

MATERIALS

- Container: acrylic resin
- Liver: acrylic resin
- Heart: urethane based resin
- Lung and pulmonary nodule: urethane based resin

PH-58

Optional Parts for PH-1

Subsolid Nodules Phantom

Both mixed and pure GGO are provided in a variety of sizes and HU numbers

Subsolid Nodules Phantom is a set of simulated lesions designed for study and training in Grand-Glass Opacity (GGO) detection and interpretation. Both mixed and pure GGO are provided in a variety of sizes and HU numbers. The set also includes 3-D GGO modeled on clinical CT data. The simulated lesions can be attached to the pulmonary vessels of the Chest Phantom N1 "LUNGMAN" or in the CT Lung Phantom.

41923-000 No.1-7 Concentric

Item No.	GGO field		Solid field		Type
	Diameter	HU	Diameter	HU	
1	1.5 cm 0.59 in	-650	0.5 cm/0.20 in	-50	Concentric
2				0	
3				50	
4	2.0 cm 0.79 in	-650	0.3 cm/0.12 in	0	
5				0.5 cm/0.20 in	
6				0.7 cm/0.28 in	
7				0.9 cm/0.35 in	

41923-100 No.8-10 Eccentric

Item No.	GGO field		Solid field		Type
	Diameter	HU	Diameter	HU	
8	1.5 cm 0.59 in	-650	0.5 cm/0.20 in	-50	Eccentric
9				0	
10				50	

41923-200 No.11-12 Eccentric

Item No.	GGO field		Solid field		Type
	Diameter	HU	Diameter	HU	
11	2.0 cm 0.79 in	-650	0.3 cm/0.12 in 0.5 cm/0.20 in	0	Eccentric
12				0.5 cm/0.20 in 0.7 cm/0.28 in	

41923-300 No. a-h Pure GGO

Item No.	GGO field		Solid field		Type
	Diameter	HU	Diameter	HU	
a	1.5 cm 0.59 in	-750	-	-	Pure GG
b		-650	-	-	
c		-550	-	-	
d		-450	-	-	
e		-350	-	-	
f		-250	-	-	
g		-150	-	-	
h		-50	-	-	

41923-400 3D GGO

Item No.	GGO field		Solid field		Type
	Diameter	HU	Diameter	HU	
3D-GGO	1.5 x 1.5 cm 0.59 x 0.59 in	-590	-	-	



PH-1C | 41337-300

Pediatric Chest Phantom

Dosimetry

CT

X-ray



CHEST PHANTOMS

A phantom representing a five-year-old for practicing and performing imaging and dosimetry



SHOW MORE!



FEATURES

- | Two types of interchangeable lung inserts are included –lung vascular insert and lung density insert
- | Pencil-shaped ion chamber for CTDI can be set in the mediastinum
- | TLD or RPL dosimeters can be set in the thyroid block and the lung density insert
- | Detachable internal structure allows insertion of variety of pathologies and targets

APPLICATIONS

- | CT
- | Plain X-ray
- | Dosimetry
- | Radiographic interpretation

ANATOMY

Rib, clavicle, spine, mediastinum, scapula, sternum and *pulmonary vessel

*lung vascular insert only

TLD or RPL dosimeters can be set in the thyroid block



DESCRIPTIONS

SET INCLUDES

1 five-year-old chest torso	1 set of sample images
1 lung vasculature insert: mediastinum with pulmonary vessels	1 storage case
1 lung density insert: mediastinum, lung fields (L · R)	1 manual

MATERIALS

Soft tissue: urethane based resin (density: 1.06)
 Synthetic bone: epoxy resin (density: 1.31)
 *Phantom has no metal parts or liquid structure

SPECIFICATIONS

Phantom size:
 32 x 17 x 38 cm
 12.6 x 6.7 x 15 in
 Phantom weight:
 6 kg / 13.3 lb

Packing size:
 W51 x D43 x H45 cm
 W20 x D17 x 17.7 in
 Packing weight:
 14 kg / 30 lb

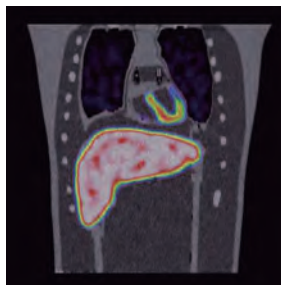


PH-63 | 41927-000

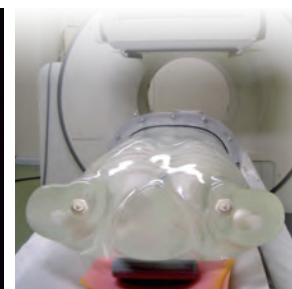
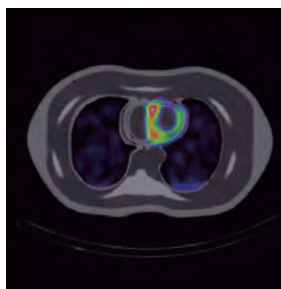
Thorax Phantom for RI

PET/ SPECT

Thorax Phantom for RI is an optimal tool for study in nuclear medicine



SHOW MORE!



FEATURES

Examination of myocardial density through SPECT imaging
 | Verification of myocardial imaging with the use of various RI solution densities
 | Can reproduce image variations of the heart by injecting RI solutions in the liver, kidney and lungs

Examination of RI solution density for simulated tumors
 | The simulated tumors can be inserted into lung, liver and breast
 | Tumors can be filled with FDG/RI solution into the spheres for evaluation of density, size and placement

APPLICATIONS

| PET
 | Quality management of NM equipment
 | RI solution density for tumor imaging

ANATOMY

- | | |
|---|---|
| <ul style="list-style-type: none"> Liver Lung (right/left) Kidney (right/left) Hot spots (liver, lungs and breast) * Hot spot for PET can be set in liver, lungs and breast. | <ul style="list-style-type: none"> Heart - Anatomical type:
right ventricle, left ventricle and myocardium - Geometric type:
left ventricle and myocardium |
|---|---|



Geometric type Anatomical type

- HU | Bone: 370HU
 | Lung: -900HU
 | Organ shell material: 100HU, and 1.16g/cm³ in density

DESCRIPTIONS

SET INCLUDES

1 thorax body	1 base	*S: Several
2 lungs (left and right)	S* plastic pins	
4 hearts	6 supporting bars	
1 liver	4 flat bar rings for base	
2 kidneys	5 tubes	
1 rib cage and spine	1 syringe	
2 breasts	S* nuts and bolts	
3 hot spots	1 water tank	
	manual	

MATERIALS

Soft tissue: transparent polyurethane
 Lungs: materials with density 0.4 g/cm³
 Bone materials: Calcium infused material to provide proper attenuation with use of RI solutions

SPECIFICATIONS

Phantom size: W44 x H69.4 cm W17.3 x H27.3 in	Phantom weight: phantom itself: 21 kg / 46.2 lb when filled with liquid: 37.5 kg / 82.6 lb
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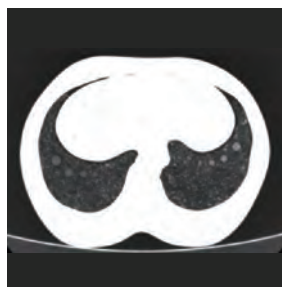
PH-8 | 41507-000

Lung Cancer Screening CT Phantom LSCT001

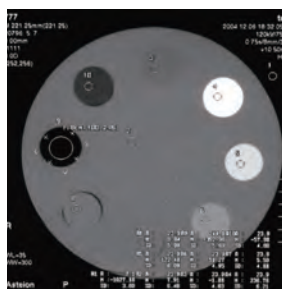
Dosimetry CT

CHEST PHANTOMS

Chest phantom for standardization studies in low dose lung cancer CT screening
Anthropomorphic structure provides life-like images allowing operators visual evaluation



SHOW MORE!



FEATURES

- | Simulated GGO type tumors with different sizes and HU numbers are prepared in the vicinity of three main sections of bilateral lungs
- | Dosimeter holder on the central axis of the phantom allows housing a pencil type ion chamber. 8-step cylindrical linearity phantom to control density curve as a scale can be attached to the chest phantom base

APPLICATIONS

- | CT image quality evaluation
- | Dosimetry
- | Evaluation of density curve

ANATOMY

- | Bones
- | Lungs
- | Mediastinum
- | Simulated tumors at three lung areas
 - Apical portion of the lungs
 - Bifurcation of the trachea
 - Base of lungs

Simulated tumors

	HU contrast with the lung back ground	size	materials
tumors in the right lung	Δ HU=100	4,6,8,10,12 mm dia. 0.16, 0.24, 0.32, 0.39, 0.47 in dia.	urethane resin
tumors in the left lung	Δ HU=270	2, 4, 6, 8, 10 mm dia. 0.08, 0.16, 0.24, 0.32, 0.39 in dia.	urethane resin

Linearity phantom targets

	HU contrast with the lung back ground	materials		HU contrast with the lung back ground	materials
A	-1000	air	E	-200	polyurethane
B	-850	polyurethane	F	100	polyurethane
C	-600	polyurethane	G	250	bakelite
D	-400	polyurethane	H	350	polyacetal resin



DESCRIPTIONS

SET INCLUDES

1 chest phantom	1 adjustment base
1 8 step linearity phantom	1 set of sample images manual
1 urethane cylinder	

MATERIALS

Chest wall: human tissue substitute
 Bones: synthetic bones
 Alveoli: styrene foam and urethane foam

SPECIFICATIONS

Phantom size:
 W44 x H69.4 cm
 W17.3 x H27.3 in

PUBLICATION REFERENCES

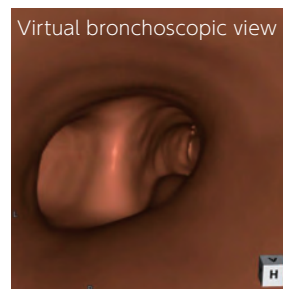
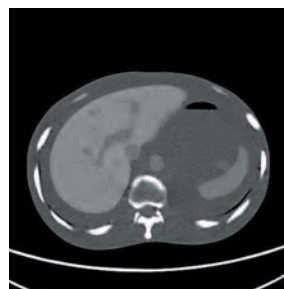
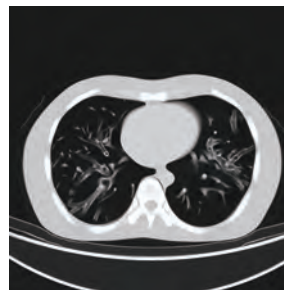
Muramatsu, Y., Tsuda, Y., Nakamura, Y., Kubo, M., Takayama, T., & Hanai, K. (2003). The Development and Use of a Chest Phantom for Optimizing Scanning Techniques on a Variety of Low-Dose Helical Computed Tomography Devices. *Journal of Computer Assisted Tomography*, 27(3), 364-374. doi:10.1097/00004728-200305000-00012

PH-4 | 41324-040

CT Torso Phantom CTU-41



A one-piece anthropomorphic torso phantom with anatomical structures allows various CT approaches including helical scanning



FEATURES

- | One-piece structure of the phantom facilitate study in volume CT scan including helical scan.
- | The phantom can be used for alignment in Image Guided Radiation Therapy (IGRT)

APPLICATIONS

ANATOMY

| Synthetic bones with cartilage
-artificial skull, vertebrae, clavicles, ribs, sternum, scapula, coxal bones, femurs

Internal organs		Hounsfield Number	Internal organs		Hounsfield Number	
Soft tissue around each organ		8	Liver	Whole	70	
Brain	Brain	40		Vein	40	
	Ventricles	10	Gallbladder		20	
Eye balls		20	Pancreas		30	
Aorta		40	Spleen		50	
Vena Cava		40	Kidney	Whole	30	
Trachea	Up to the first branch	-800			Vein	40
	The second -the third branch	8			Urethra	10
Heart		40	Urethra		10	
Pulmonary Blood Vassal		8	Urinary Bladder		10	
Cartilage in Costae		90				

DESCRIPTIONS

SET INCLUDES

- 1 CT torso phantom
- 1 set of sample X-ray data (DVD)
- 1 storage case manual

MATERIALS

Soft tissue: urethane based resin (density: 1.06)
Synthetic bone: epoxy resin (density: 1.31)

SPECIFICATIONS

Phantom height: 100 cm / 39.4 in
Phantom weight: 45 kg / 99 lb
Packing size: W119 x D53x H48 cm / W46.9 x D20.9 x H18.9 in
Packing weight: 59 kg / 130lb



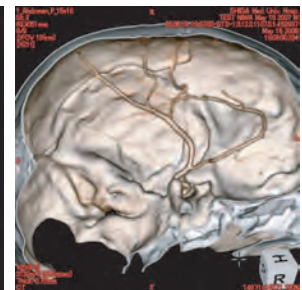
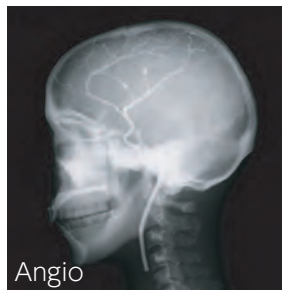
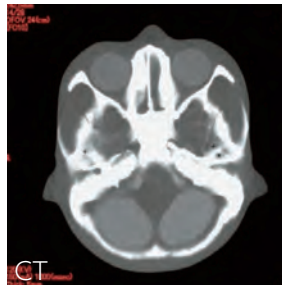
PH-3 | 41309-100 for CT/ 41309-200 for Angio/ 41309-300 for MECT



Angiographic CT Head Phantom ACS

Kyoto Kagaku's best-selling CT head phantom

A new variation added: Head Phantom for MECT, which contains arteries of innovative water equivalent material



FEATURES

- | Three variations of head phantoms with different features for arteries to meet your requirements: CT/ Angiography / Multi energy CT
- | Contrast-enhanced left cerebral arteries are three dimensionally embedded in the brain

APPLICATIONS

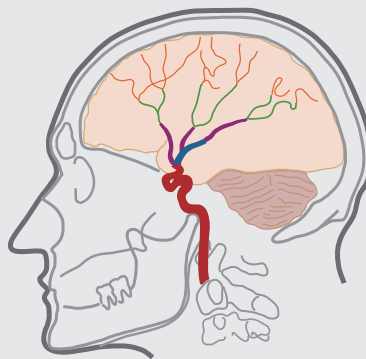
- | CT (41309-100)
- | Angiography (41309-200)
- | Multi-energy CT (41309-300)

ANATOMY

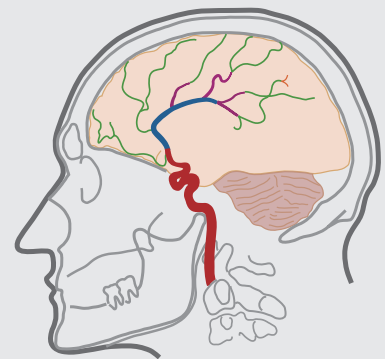
- | A synthetic skull
- | Soft tissue
- | Simulated arteries with contrast medium
 - Left anterior cerebral arteries
 - Left middle cerebral arteries
 - Internal carotid artery
 - Diameters of simulated 0.5-4.0 mm
 - *Arrangement of arteries are the same for all three types.

| HU

Soft tissue	0	Cerebellum	40
Cerebrum	40	Cerebral ventricles	10
Mesencephalon	40	Eye balls	20



Middle cerebral artery



Anterior cerebral artery

DESCRIPTIONS

SET INCLUDES

- 1 head phantom
- 1 set of sample X-ray data (DVD)
- 1 storage case manual

MATERIALS

Soft tissue: urethane based resin
Cervical vertebrae (C1-C7): epoxy resin

SPECIFICATIONS

Phantom height: 33 cm / 13 in
Phantom weight: 5.25 kg / 11.57 lb
Packing size: W46 x D31 x H32 cm / W18.1 x D12.2 x H12.6 in
Packing weight: 8 kg / 17.6 lb



PH-76 | 41301-300 (Two-way set) / 41301-500 (Mouth closed) / 41301-400 (Mouth opened)

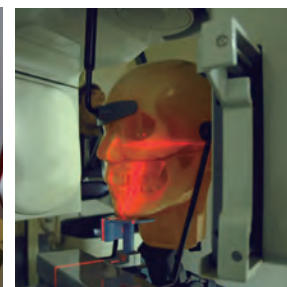
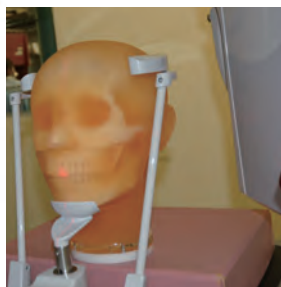
Dental Radiography Head Phantom



Open / closed mouth options and removable tongue allow a variety of application for training and research



SHOW MORE!



Product supervision:
Akitoshi Katsumata, D.D.S., Ph.D. Professor
Asahi University, School of Dentistry

FEATURES

APPLICATIONS

- | Separately modeled each tooth has a three-layer structure of enamel, dentin and pulp cavity
- | Each hard tissue (enamel, dentin, cortical bone and cancellous bone) has a particular HU number and X-ray absorption rate
- | Jaws and tongue are detachable to allow access to the oral cavity, pharyngeal cavity and maxillary sinus. Sensors, simulated lesions, or residue can be set in these cavities
- | Carotid arteries are prepared as lumens to accommodate simulated calcifications

- | Dental radiography
- panoramic (41301-500)
- intra-oral (41301-400)

ANATOMY and PATHOLOGY

- Synthetic skull with
- nasal cavity, maxillary sinus, mandible alveolar, maxillary alveolar, cervical vertebrae and hyoid bone, teeth with enamel, dentin and pulp cavity.
 - Tongue, oral cavity, pharyngeal cavity and carotid arteries

DESCRIPTIONS

SET INCLUDES

1 main head unit	1 fixation base (including screws)
1 upper jaw (alveolar bone)	1 tripod
1 lower jaw (alveolar bone)	1 set of sample X-ray data (DVD)
1 tongue	1 storage case
	1 manual

SPECIFICATIONS

Phantom size:
W20 x D21 x H29 cm
W7.8 x D8.2 x H11.4 in
Phantom weight:
4.8 kg / 10.6 lb

Packing size:
W66 x D54 x H34 cm
W44 x D21 x H13.3 in
Packing weight:
12 kg / 26.4 lb

MATERIALS

Soft tissue: urethane based resin (density: 1.06)
Synthetic bone: epoxy resin (density: 1.31)

REPLACEMENT PARTS

- 41301-400-01 lower jaw (mouth opened) for PH-76
- 41301-500-01 lower jaw (mouth closed) for PH-76
- OPTIONAL PARTS**
- 41301-200-01 lower jaw with implant *mouth closed type



PUBLICATION REFERENCES

Kitai N, Mukai Y, Murabayashi M, Kawabata A, Washino K, Matsuoka M, Shimizu I, Katsumata A. Measurement accuracy with a new dental panoramic radiographic technique based on tomosynthesis. Angle Orthodontist. 2013; 83, No 4.
Read more: <http://www.ncbi.nlm.nih.gov/pubmed/22612390>

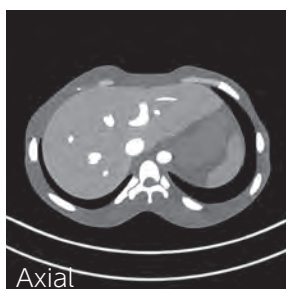


PH-5 | 41360-000 for CT / 41360-100 for MECT



CT Abdomen Phantom

The phantom facilitates study of image fusion between CT and ultrasound in combination with US-1 Echozy*.
New variation for MECT has been added



SHOW MORE!



FEATURES

- Two variations to meet your requirements:
 - CT type (no contrast enhancement),
 - MECT type (vessels with 13mgI/ml** iodine and the liver of multi-energy CT compatible material)

APPLICATIONS

- CT
- Multi energy CT

**Concentration of iodine can be custom-ordered.

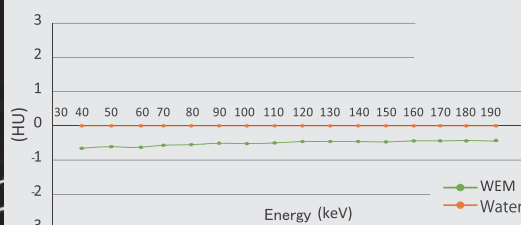
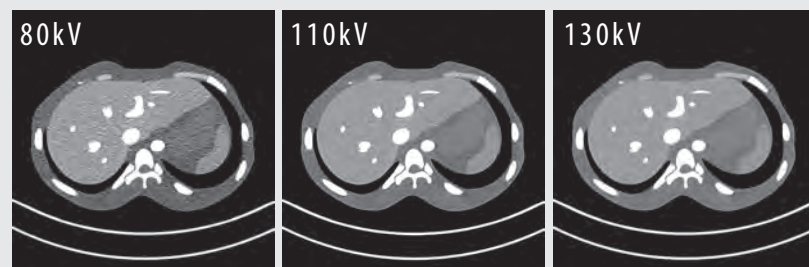
ANATOMY

- | | | |
|-------------------------------|----------------|---------------|
| lungs (no internal structure) | hepatic vein | aorta |
| heart (no internal structure) | hepatic artery | IVC |
| liver | kidneys | spinal column |
| portal vein | pancreas | ribs |
| gallbladder | spleen | |

*Vessels and organs with a contrast agent can be included as a special order.

IMAGES of Multi-Energy CT

Liver and contrast enhanced vessels are of multi-energy compatible water equivalent material (WEM).->see P 28 for more information.
The below right graph shows WEM's high water-equivalency through wide energy range



DESCRIPTIONS

SET INCLUDES

- 1 abdomen phantom
- 1 set of sample X-ray data (DVD)
- 1 storage case manual

SPECIFICATIONS

Phantom size:
W27 x D16 x H30 cm
W10.6 x D16 x H11.8 in

Phantom weight:
12 kg / 26.4 lb

Packing size:
W44 x D39 x H42 cm
W17.3 x D15.3 x H16.5 in

MATERIALS

Soft tissue: urethane based resin (density: 1.06)
Synthetic bone: epoxy resin (density: 1.31)

Packing weight:
19 kg / 42 lb

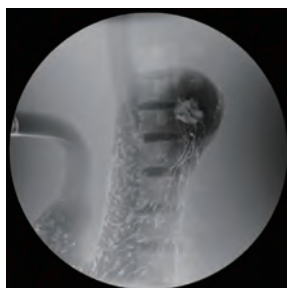


PH-18 | 41311-000

Stomach Phantom BMU-1



Stomach phantom for double contrast gastrography



FEATURES

- | Life-size distended stomach with lesions modeled from real specimens
- | Barium can be poured in the stomach for imaging
- | Pathology includes early cancer and gastric ulcer

APPLICATIONS

- | Double contrast gastrography

DESCRIPTIONS

SET INCLUDES

- 1 stomach phantom
- 1 storage case

SPECIFICATIONS

Phantom size:
W30 x D20 x H33 cm
W11.8 x D7.9 x H13 in

Phantom weight:
16 kg / 35.3 lb

Packing size:
W51 x D39 x H51 cm
W20 x D15.3 x H20 in

Packing weight:
20 kg / 44 lb

MATERIALS

Soft tissue: urethane based resin (density: 1.31)

PH-19 | 41312-010

Rotation Stomach Phantom TMP-R



Rotational phantom to simulate double contrast gastrography



FEATURES

- | Rotation system to simulate the movement of patient
- | Life-size distended stomach with lesions modeled from real specimens
- | Barium can be poured in the stomach for imaging
- | Pathology includes early cancer and gastric ulcer

APPLICATIONS

- | Double contrast gastrography

DESCRIPTIONS

SET INCLUDES

- 1 stomach phantom
- 1 rotation unit
- 1 controller
- 1 phantom holder
- 1 model of lesions
- 1 storage case

SPECIFICATIONS

Phantom size:
W25 x D18 x H28 cm
W9.8 x D7.1 x H11 in

MATERIALS

Urethane based resin / epoxy resin

OPTIONAL PARTS

41312-010-01 Extension bar



PH-46 | 41362-000

CT Prostate Phantom



Excellent phantom for therapy planning of prostate cancer



SHOW MORE!



FEATURES

- | For alignment in Image Guided Radiation Therapy (IGRT)
- | Organs with close-to-human HU facilitate training in CT scanning

APPLICATIONS

| CT and Corn beam CT

organs	HU at 80KeV
Prostate	50
Seminal vesicles	25
Bladder surface	30
Bladder inside	10
Rectal surface	70
Rectal inner cavity	-800

ANATOMY

- | Prostate, urinal bladder with simulated internal fluid, seminal vesicles and rectum
- | Bones: L3,L4 and L5, pelvis and femurs (partial)

DESCRIPTIONS

SET INCLUDES

- 1 phantom
- 1 set of sample X-ray data (DVD)
- 1 storage case
- 1 manual

MATERIALS

Soft tissue: urethane resin (density: 1.06)
 Synthetic bone: epoxy resin (density: 1.31)

SPECIFICATIONS

Phantom height: 35 cm / 13.7 in
 Packing size: W44 x D39 x H42 cm / W17.3 x D15.3 x H16.5 in
 Packing weight: 27 kg / 59.5 lb

PH-71 | 41935-000

Knee Ligament Phantom



Detailed knee anatomy with HU of each bone, cartilage, and ligament



SHOW MORE!



FEATURES

- | Anthropomorphic knee phantom that allows visualization of ligaments and cartilage
- | Close-to-human radiation absorption and HU for each anatomical structure as well as realistic artifacts

APPLICATIONS

| Plain X-ray
 | CT

ANATOMY

femur / tibia / fibula / patella / articular cartilage of patella / meniscus / cruciate ligament / medial collateral ligament / fibular collateral ligament / articular cartilage

DESCRIPTIONS

SET INCLUDES

- 1 knee phantom
- 1 storage case
- 1 manual

MATERIALS

Soft tissue: urethane based resin (density: 1.06)
 Synthetic bone: epoxy resin (density: 1.31)

SPECIFICATIONS

Phantom size: 14 dia. x 45(H) cm
 5.5 dia. x 17.7(H) in
 Phantom weight: 4.5 kg / 10 lb



PH-49 | 41910-000

CT Colonography Phantom NCCS

Dosimetry

CT

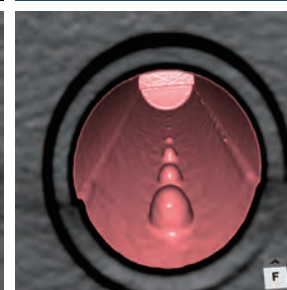
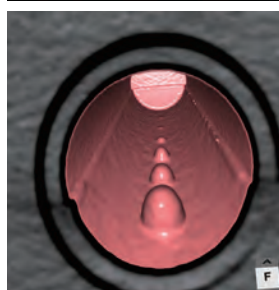
STORAGE CASE

Innovative study tool for safe and effective CT Colon screening

Product supervision:
National Cancer Center (Japan)



SHOW MORE!



FEATURES

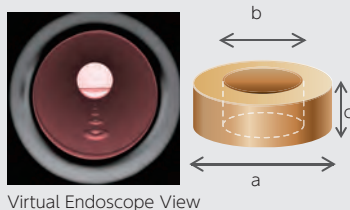
- | Cylindrical colon units with targets that represent polyps can be set at the position of ascending colon, descending colon and rectum in the life-size lower torso phantom
- | Four types of colon units are included for evaluation. Each unit has six targets lining in sequence on the inner wall of the unit
- | Contrast agent can be poured into the colon units for tagging
- | Pencil shaped ion chambers can be inserted in the center of the phantom for CTDI measurement

APPLICATIONS

- | Virtual colonography
- | Visualization and detection of targets
- | Study on optimal dose for low dose CT colonography
- | Evaluation of accuracy of measurement (size, volume)
- | Study on optimal density of contrast media

VARIATION of Simulated Tumors

Depressed type
-2 variations-



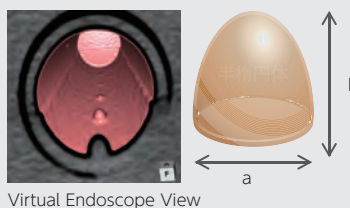
Depressed I: fixed diameter

a: Outer diameter	b: Inner diameter	c: Height
0.7 cm/ 0.27 in	0.35 cm/ 0.13 in	0.2 cm/0.07 in
		0.15 cm/0.06 in
		0.1 cm/0.03 in
		0.05 cm/0.02 in
		0.025 cm/0.01 in
		0.015 cm/0.005 in

Depressed II: fixed height

a: Outer diameter	b: Inner diameter	c: Height
1.0 cm/0.39 in	0.5 cm/0.2 in	0.1 cm/ 0.03 in
0.7 cm/0.27 in	0.35 cm/0.13 in	
0.5 cm/0.20 in	0.25 cm/0.1 in	
0.3 cm/0.11 in	0.15 cm/0.06 in	
0.2 cm/0.07 in	0.1 cm/0.03 in	
0.1 cm/0.03 in	0.05 cm/0.02 in	

Projection type
-2 variations-



Projection I: fixed diameter

a: Diameter	b: Height
1.0 cm/ 0.4 in	0.7cm/0.27 in
	0.5 cm/0.20 in
	0.3 cm/0.11in
	0.2 cm/0.07 in
	0.1 cm/0.03 in
	0.05 cm/0.02 in

Projection II: fixed ratio

a: Diameter	b: Height
1 cm/0.4 inch	1.0 cm/0.39 in
0.7 cm/0.27 in	0.7 cm/0.27 in
0.5 cm/0.2 in	0.5 cm/0.20 in
0.3 cm/0.11in	0.3 cm/0.11in
0.2 cm/0.07 in	0.2 cm/0.07 in
0.1 cm/0.03 in	0.1 cm/0.03 in

DESCRIPTIONS

SET INCLUDES

- | | | |
|------------------------|------------------------------|----------------|
| 1 lower torso phantom | 3 plugs for colon unit hole | 1 base holder |
| 1 acrylic container | 1 plug with ion chamber hole | 1 storage case |
| 4 types of colon units | 1 plug for ion chamber hole | 1 manual |
| | 1 holder for colon unit | |

SPECIFICATIONS

Packing size: W63 x D50 x H29 cm
W24.8 x D19.6 x H11.4 in

Packing weight: 32 kg / 70.5 lb

MATERIALS

Soft tissue: urethane based resin (density: 1.06)
Synthetic bone: epoxy resin (density: 1.31)



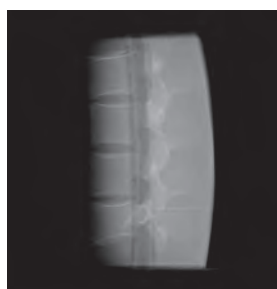
PH-51 | 41913-000



Lumbar Spine Fluoroscopy Training Phantom

Ideal training tool for hands-on workshop of vertebroplasty
The phantom has two types of interchangeable and replaceable inserts with radio-opaque lumbar spine

Product supervision:
 Dr. David Wilson MBBS, BSc, MFSEM, FRCP, FRCR
 Consultant Radiologist St Luke's Hospital Oxford
 Senior Clinical Lecturer University of Oxford



"I have tested the final product with various different manufacturing kits and would have no hesitation in recommending these phantoms to clinicians who wish to teach any of the technical vertebroplasty procedures."

DR DAVID J WILSON MBBS BSc MFSEM FRCP FRCR
 CONSULTANT MUSCULOSKELETAL INTERVENTIONAL RADIOLOGIST

FEATURES

- | Two types of replaceable training block: vertebroplasty block and anesthesia block
- | Lumbar spine L2-L5 can be visualized under X-ray.
- | True-to-life sensation when penetrating tissue and bones

TRAINING SKILLS

- | Recognition of fluoroscopic anatomy and landmarks
- | Vertebroplasty
- | Fluoroscopy guided epidural anesthesia: needle placement in facet joint injection, root block and discogram.

ANATOMY

- | Lumbar spine (L2-L5)
- | Spinal canal
- | Epidural space (anesthesia block only)

DESCRIPTIONS

SET INCLUDES

1 lumbar torso	1 syringe
1 vertebroplasty block	1 irrigation bag
1 anesthesia block	1 storage case
1 skin cover	manual

MATERIALS

Soft tissue: urethane based resin (vertebroplasty block)
 silicone (anesthesia block)
 Synthetic bone: epoxy resin

SPECIFICATIONS

Phantom size: W33 x D21 x H30 cm W13 x D8.2 x H11.8 in	Packing size: W52 x D44 x H30 cm W20.4 x D17.3 x H11.8 in
--	---

REPLACEMENT PARTS

41913-000-01	anesthesia block
41913-000-02	vertebroplasty block
11348-150	skin cover

RELATED PRODUCTS



M43E/ 11348-500 Ultrasound Compatible Lumbar Puncture/Epidural Simulator
 | Ultrasonic anatomy and needle access training



Kyoto Kagaku New Lineup Multi-Energy CT Phantoms

For Quality Assurance and Research

OVERVIEW

Multi-Energy CT (MECT) or Dual Energy CT (DECT) is a new frontier of rapidly advancing medical imaging, and now entering clinical practices in hospitals.

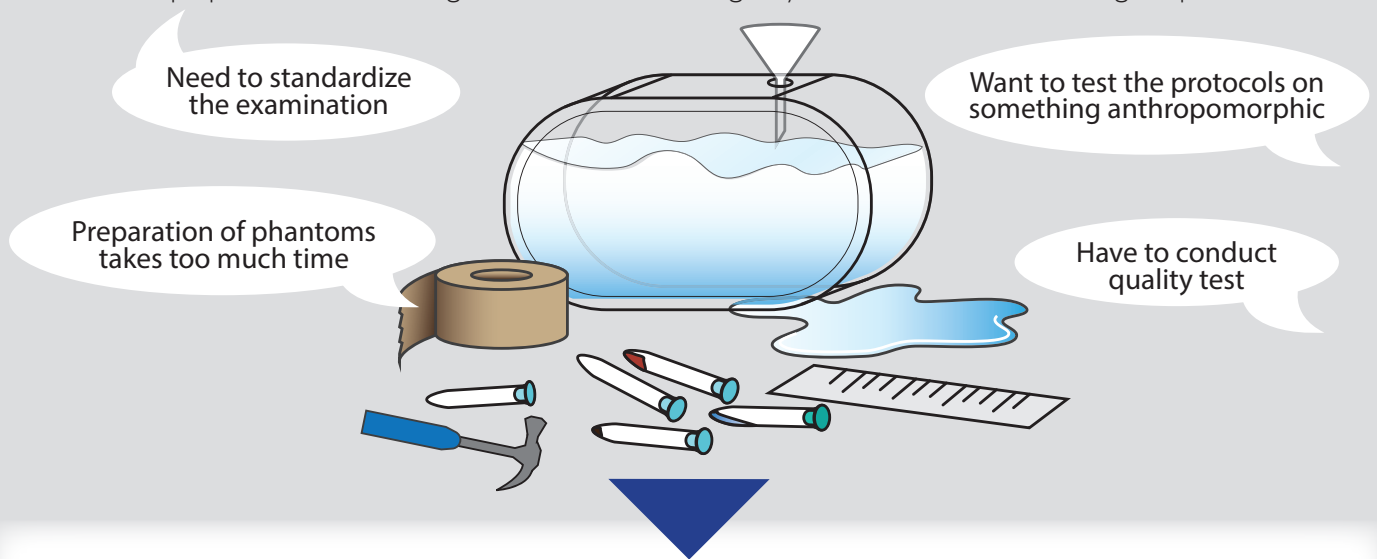
The technology enables material differentiation, elemental decomposition and material quantification. Such features are expected to bring us better diagnosis, improved image quality, reduction of radiation exposure, reduction of contrast agent volume and opens possibility of functional imaging.

Meanwhile, further studies are awaited in various field such as quality management of CT equipment, verification of protocols, expansion of clinical application, to derive the maximum benefits from the technology.

Kyoto Kagaku supports researchers and clinicians with up-to-date innovative phantoms.

BACKGROUND

In many MECT/DECT studies, water phantoms have been used. However, using real water can impose considerable work in preparation and handling. At the same time, using acrylic containers limits the design of phantoms.



New lineup of Kyoto Kagaku Multi-Energy CT phantoms assists you promptly, saving your time and energy

PRODUCT LINEUP

Phantoms can be made in complex and detailed shapes including anatomical structures



Angiographic CT Head Phantom ACS
Head with MECT compatible arteries
P.21 ▶



CT Abdomen Phantom
Abdomen with MECT compatible vessels and liver
P.23 ▶



Sample product
Gout Foot Phantom

Iodine concentrations can be custom-ordered
Contact us!



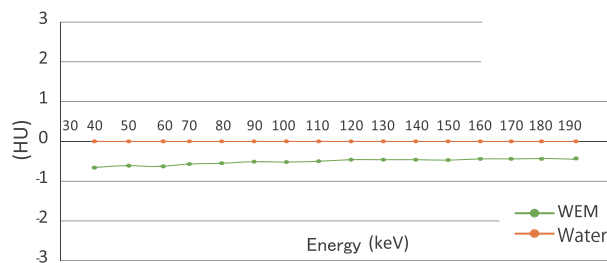
Multi Energy CT Quality Assurance Phantom
P.30 ▶ Phantom for quality assurance.
A variety of research samples can be inserted using small containers.

Vital factor for Multi-Energy-CT Phantom "Water Equivalent Material"

About Water Equivalent Material (WEM)

WEM has high equivalency to water in diagnostic energy ranges(40-190KeV)

Co-developed with; Professor Ichikawa Katsuhiro, Faculty of Health Sciences, Institute of Medical, Pharmaceutical and Health Sciences, Kanazawa University, Japan



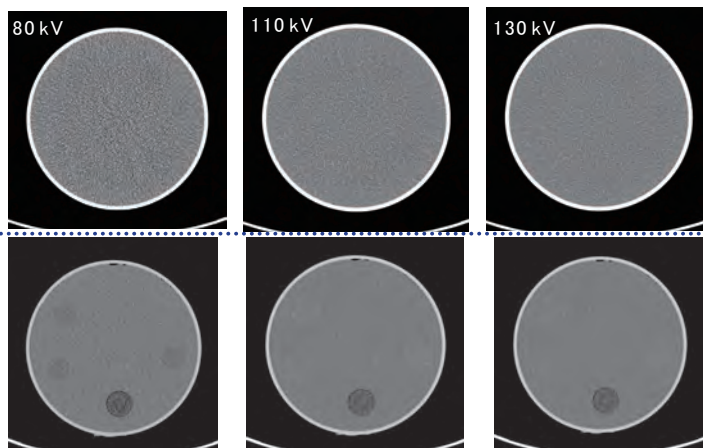
Experiment

Place the material inserts on water tank

Rods are not shown in the CT images!!

WEM

Nine rods of WEM are "invisible" under CT



conventional materials

Two rods of WEM and for conventional materials for phantoms

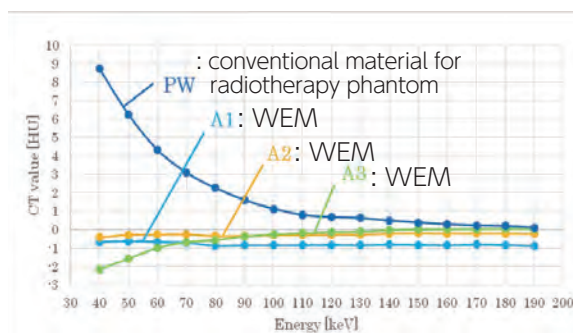
Supports iodine quantification and material-decomposition

Unlike conventional "water substitute" materials the Water Equivalent Material maintain water equivalency under low energy range. This feature support studies that involve iodine quantification.

Save time and trouble for study and expand possibilities

Save time, costs and efforts to design and produce custom acrylic water phantoms.

Unlike water phantoms, phantoms with solid materials reduce the troublesome process to change water and inside rods.



Ryota Matsui, Ishikawa Katsuhiro, Hiroki Kawashima, "Development of highly precise Water Equivalent phantom for CT machine" Ichikawa Lab, Kanazawa Univ. <http://ichiken.w3.kanazawa-u.ac.jp/img/file2.pdf> (cited 2019-05-20)

CONCLUSION

1. Kyoto Kagaku Multi-Energy CT phantoms may save time and cost of preparing custom made phantoms for the researchers.
2. Water Equivalent Material (WEM) enable to create phantoms with innovative designs while ensuring credibility of water phantoms.

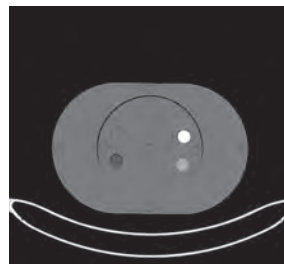
PH-75B | 41941-100 (TR-I) PH-75A | 41941-000 (TR-J)

Multi Energy CT Quality Assurance Phantom

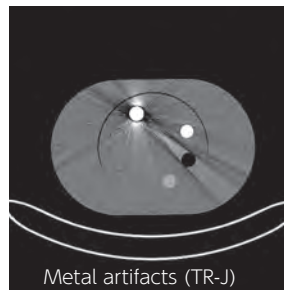


Water Equivalent Material, various inserts and empty bottles enable to verify the appropriate Multi-Energy CT settings

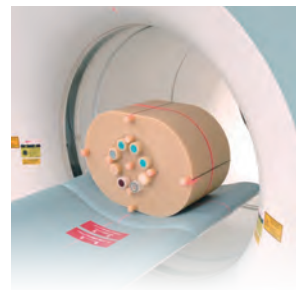
Co-developed with:
Katsuhiro Ichikawa, Ph.D.,
Institute of Medical,
Pharmaceutical and Health Sciences,
Kanazawa University



Contrast evaluation (TR-J)



Metal artifacts (TR-J)



FEATURES

- | Phantom using innovative Water Equivalent Material
- | Empty bottles enable to put various items and check how they react to Multi Energy CT
- | Save time and efforts to produce custom-made water phantoms
- | Two different sizes of body. (TR-I, TR-J)

APPLICATIONS

- | Study for ME-CT image analysis protocol
- | Metal artifact reduction
- | Reduction of contrast media

Inserts

Color	Name	Size	Qty
Silver	Water Equivalent Material Inserts	φ20mm	8
Red	Titanium Insert	φ12mm	1
Blue	Soft tissue (equivalent to liver)	φ20mm	1
Blue	Iodine concentration 4mgI/mL	φ20mm	1
Blue	Iodine concentration 8mgI/mL	φ20mm	1
Transparent	Iodine concentration 12mgI/mL	φ20mm	1
	Water container	φ20mm	1
	Empty bottle with spacer *for experiment		20

EVALUATION PARAMETERS

- | Uniformity
- | Signal-to-noise ratio (SNR)
- | Image contrast
- | CT dose index (CTDI)

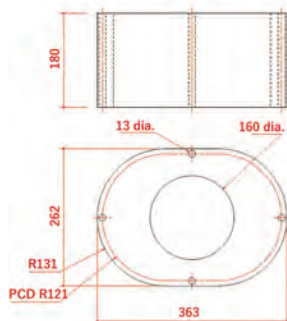
DESCRIPTIONS

SET INCLUDES

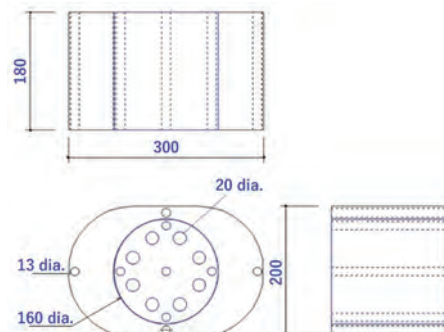
1 truck phantom	1 soft tissue insert
1 internal cylindrical phantom	1 water container inserts
9 Filling inserts for dosimeter holes	20 empty bottles
8 WEM inserts	8 spacers for empty bottles
3 Iodine inserts (4, 8, 12mgI/mL)	manual
1 titanium insert	

SPECIFICATIONS

Phantom size (TR-I):



Phantom size (TR-J):

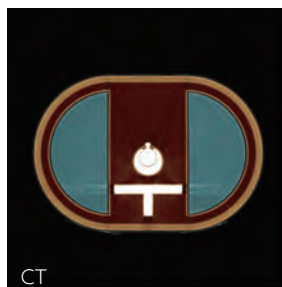


PH-74 | 41938-000

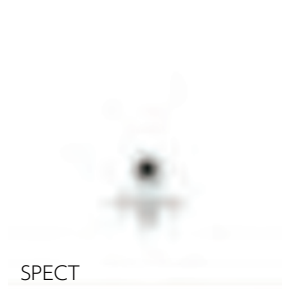
Bone Scintigraphy Quality Assurance Phantom



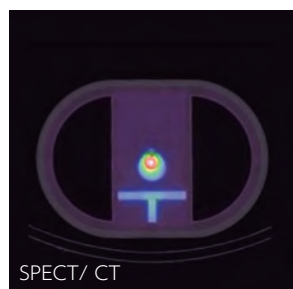
The world first standard QA phantom for Bone Scintigraphy, Bone SPECT/CT and NaF-PET



CT



SPECT



SPECT/CT

FEATURES

| The phantom can represent either thoracic or lumbar region by changing the filling of side cavities

APPLICATIONS

| Bone scintigraphy
| Bone SPECT/CT
| NaF-PET

EVALUATION PARAMETERS

Visual Evaluation

| Tumor detectability
| Image distortion
| Artifact

Quantitative Evaluation

| Contrast and count ratio between vertebral body and tumor
| Concentration linearity and recovery coefficient in the tumor
| Statistical noise
| FWHM at the spinous process (relative index of resolution)

Other

| Verification of scattering correction and attenuation correction



CT



SPECT



SPECT/CT

DESCRIPTIONS

SET INCLUDES

1 phantom	1 petroleum jelly
1 screwdriver	1 needle
1 funnel	1 manual

MATERIALS

Acrylic resin
Tough lung (PVA acetal compound)

SPECIFICATIONS

Phantom size:
OD: W310 x D210 x H355 mm ID: W290 x D190 x H300mm
W12.2 x D8.2 x H14 in W11.4 x D7.5 x H11.8 in

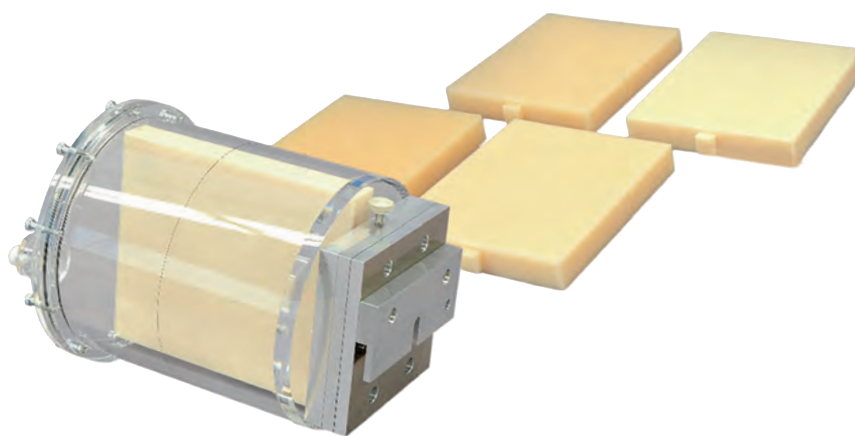


PH-55 | 41920-100

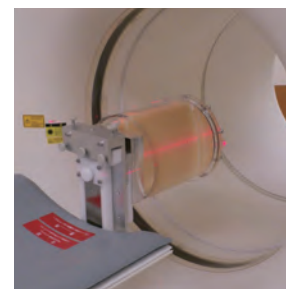
CT ERF Phantom HIT



A phantom designed for physical evaluation of iteratively reconstructed images under low CNR



SHOW MORE!



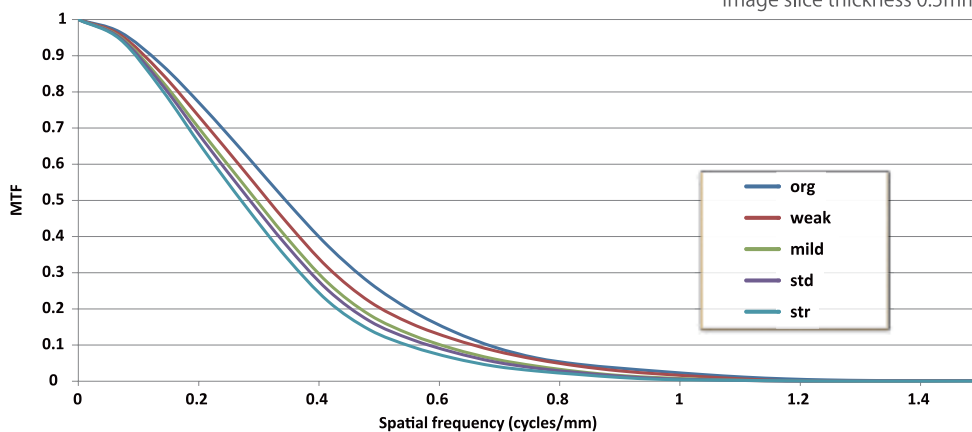
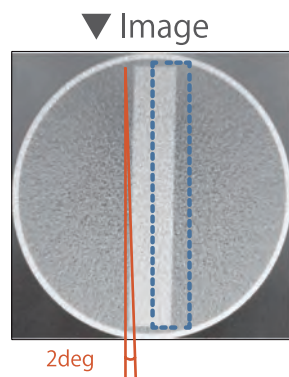
FEATURES

APPLICATIONS

- | The phantom is designed to physically and quantitatively evaluate iteratively reconstructed images in the low CNR area, such as abdomen, where MTF of PSF is less useful
- | The phantom uses edge spread function (ESF) to calculate MTF of the low CNR images, which facilitate assessing performance properties of iteratively reconstructed images under low CNR

| CT

▼ Modulation Transfar Funcion
image slice thickness 0.5mm



DESCRIPTIONS

SET INCLUDES

- | | |
|---------------------------------------|---|
| 1 cylindrical container (200 mm dia.) | 1 fixture for the cylindrical container |
| 5 measurement plates | 1 philips screw driver |
| 1 rotation holder | extra screws |
| 1 petroleum jelly | 1 storage case |
| 1 angle adjustment holder | manual |

SPECIFICATIONS

Phantom size:
20 dia. x 25 cm
7.8 dia. x 9.8 in

Phantom weight:
4.5 kg / 10 lb

MATERIALS

Acrylic resin, polyurethane



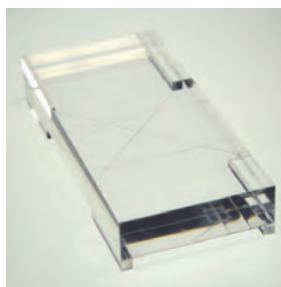
41919-010
Angle adjustment holder (table-top type)
*included in the set
Compatible with PH-9



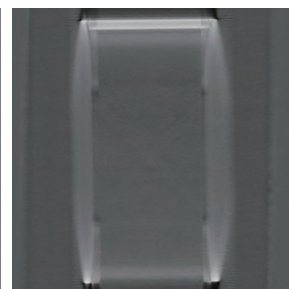
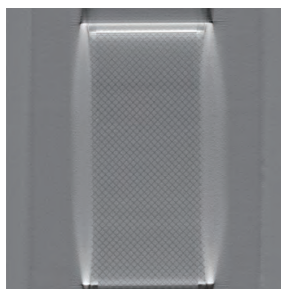
PH-56 | 41921-000

Tomosynthesis Phantom NS

Allowing evaluation of reconstruction slices and uniformity
in the measurement of slice thickness through showing the images numerically and graphically



SHOW MORE!



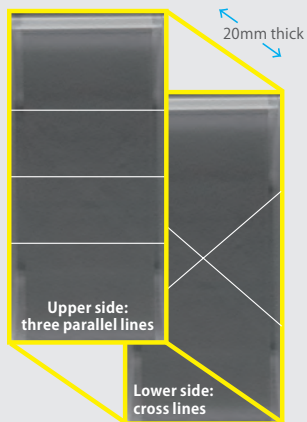
APPLICATIONS

| Tomosynthesis

EVALUATION PARAMETERS

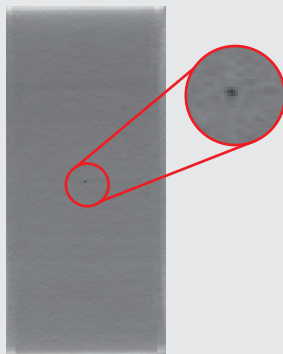
| Verification of reconstruction interval
| Slice thickness
| Uniformity

Reconstruction interval unit



For verification of the spatial interval in reconstruction
Stainless steel line: 0.1 mm/0.004 in dia.

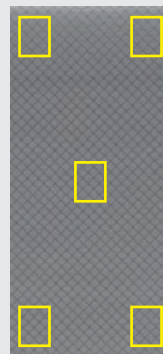
Slice thickness unit



For calculation of slice thickness using FWHM

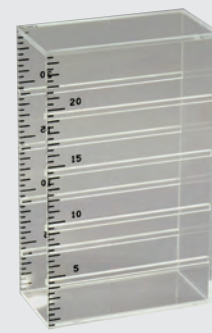
Hole: 1.0 mm/0.04 in dia.
Aluminum plate: 0.5mm/0.02 in thick
Acrylic plate 5mm/0.2 in thick.
*the aluminum plate is sandwiched between layers of Acrylic
70 x 150 mm/2.8 x 5.9 in

Uniformity unit



For evaluation of uniformity and tilting of the examination table
70 x 150 mm/2.8 x 5.9 in

Height setting rack



Test units can be set in the aluminum supporting box at 10, 15 or 20 mm (0.4, 0.6 or 0.79 in) height

DESCRIPTIONS

SET INCLUDES

- 1 reconstruction positioning unit
- 1 slice thickness unit
- 1 uniformity unit
- height setting rack manual

MATERIALS

Acrylic resin, bakelite, aluminum, copper, stainless

SPECIFICATIONS

Phantom size:
W7 x D15 x H25 cm / W2.7 x D6 x H9.8 in

Packing size:
W46 x D31 x H17 cm / W18.1 x D12.2 x H6.7 in

Packing weight:
2 kg / 4.4 lb

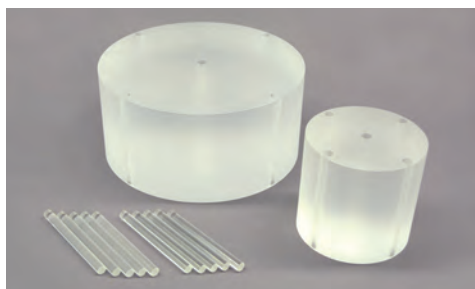


PH-59 | 41924-000

CT-DI Phantom (Head and Body Phantom)



A set of phantoms for CTDI-100, conforming to requirements described in 21 CFR 1020.33, IEC 61223-3-5: 2004, and IEC 61223-2-6: 2006 as consistency test



A set with different type of tissue substitute can be custom-ordered

SHOW MORE!

FEATURES

- | Represent adult head and body as well as pediatric body
- | Can be used for initial and follow-up QA tests

Evaluation Parameters

- | Computed Tomography Dose Index (CTDI)
- | Dose profile

DESCRIPTIONS

SET INCLUDES

- 1 head phantom
- 1 body phantom
- 10 filling rods manual

SPECIFICATIONS

Phantom size:
 Body phantom: 32 dia. x 15 cm / 12.6 dia. x 5.9 in
 Head phantom: 16 dia. x 15 cm/ 6.3 dia. x 5.9 in

Phantom weight:
 15kg/ 33lb
 4kg/ 8.8lb

MATERIALS

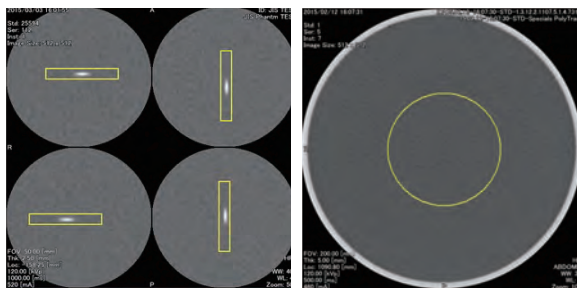
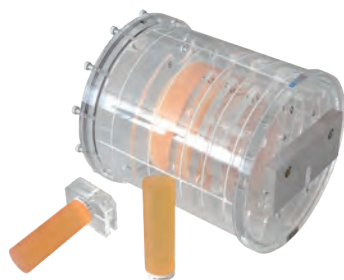
Acrylic resin

PH-54 | 41919-000

CT QA Phantom JCT II



Renovated CT QA phantom for initial test at the time of reception, as well as follow-up periodical quality check of CT scanners



SHOW MORE!

FEATURES

- | The phantom can be used for initial and follow-up QA tests listed below, described in JIS Z 4752-3-5: 2008 (IEC 61223-3-5: 2004) and Z 4752-2-6: 2012 (IEC 61223-2-6: 2006)
- | Conforming to JIS Z 4923:2015

EVALUATION PARAMETERS

- | Axial scan:
 Slice thickness / spatial resolution / low contrast resolution / noise / mean HU number / uniformity
- | Helical scan:
 Slice thickness



*System requirements of software : OS Windows 7 (64 bit), Windows 8.1 Pro (64 bit), memory 4GB, HDD 250 GB

DESCRIPTIONS

SET INCLUDES

- 1 cylindrical container (fixing screw)
- 1 slice thickness unit (axial)
- 1 spatial resolution unit
- 1 repeated pattern unit
- 1 low contrast resolution unit
- 2 slice thickness unit (helical)
- 1 fixture for the slice thickness unit
- 1 fixture for the cylindrical container
- 1 Vaseline
- 1 set of screws (spare)
- 1 angle adjustment holder(table top type) manual

MATERIALS

Acrylic resin, polyurethane, stainless

SPECIFICATIONS

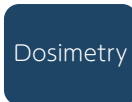
Phantom size:
 20 dia. x 20 cm / 7.9 dia. x 7.9 in

Phantom weight:
 3 kg / 6.6 lb

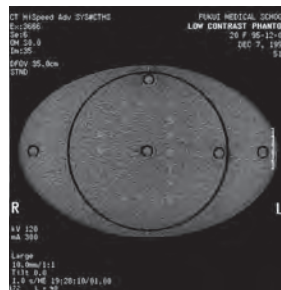
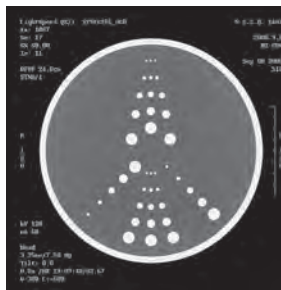
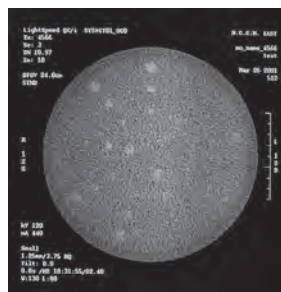


PH-9 | 41334-100

Multi Slice CT Phantom MHT



The phantom can be used for features of CT evaluation such as high and low contrast resolutions, feed direction and CTDI



FEATURES

- | Non-aqueous/Easy Set-up enables liquid-free evaluation session | CT
- | The phantom is designed to allow evaluation in volume scanning

APPLICATIONS

EVALUATION PARAMETERS

- | CTDI
- | Contrast resolution
- | Sensitivity profile
- | Contrast-to-Noise Ratio (CNR) evaluation
- | Evaluation of effective slice thickness
- | SSPz evaluation

DESCRIPTIONS

SET INCLUDES

- | | |
|----------------------------------|--|
| 1 low contrast phantom | 1 micro disc phantom |
| 1 high contrast phantom | 1 angle adjustment holder (table top type) |
| 1 elliptical absorber | 1 storage case |
| 1 low contrast phantom with CTDI | 1 manual |

MATERIALS

Acrylic resin, polyurethane

OPTIONAL PARTS

41334-110 sliding phantom holder

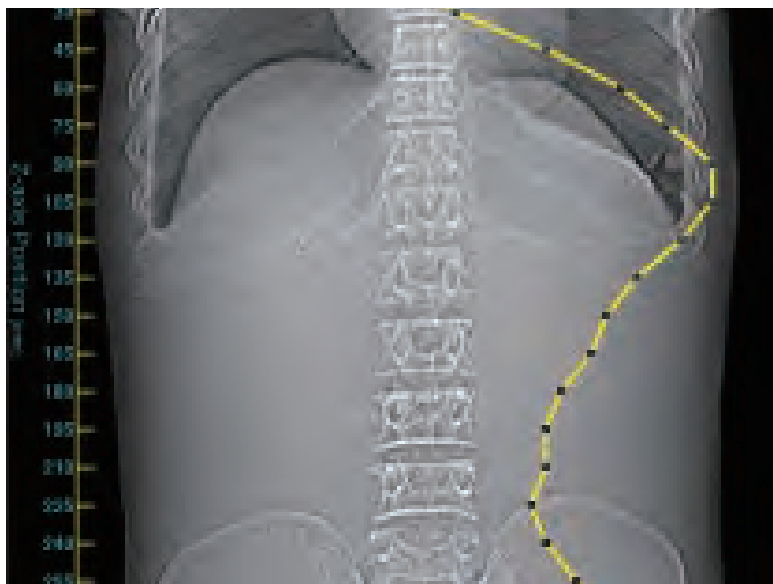


PH-7 | 41339-010-

CT-AEC Phantoms



Four types of phantoms designed to evaluate CT-AEC performance



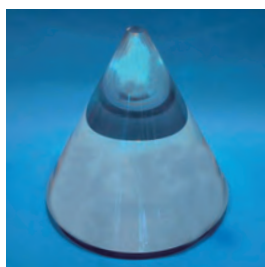
SHOW MORE!

FEATURES

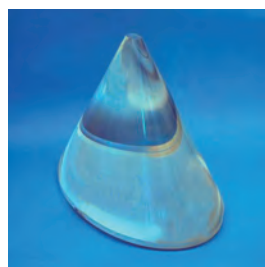
APPLICATIONS

Image quality can be evaluated by noise and S.D. on the phantom section images | CT-AEC

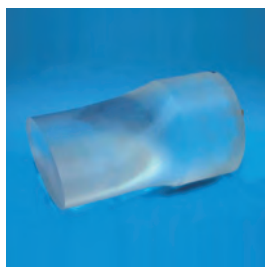
VARIATIONS



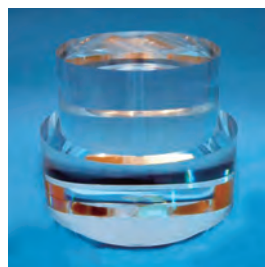
Cone Phantom:
evaluates performance of AEC for different patient sizes and gradual size changes in size along the axis



Elliptical Cone Phantom:
in combination with the Cone phantom facilitates evaluation of XY AEC



Variable-XY Phantom:
evaluates performance of XY AEC as cross section changes from circular to elliptical



Stepped Phantom:
evaluates the performance of the AEC to sudden changes in patient's cross section

DESCRIPTIONS

SET INCLUDES (per each)

- 1 phantom with an attachment bracket

MATERIALS

Acrylic resin

PRODUCT VARIATIONS

- 41339-010 Cone (Apollo Phantom)
- 41339-020 Elliptical Cone Phantom
- 41339-030 Stepped Cylinder Phantom
- 41339-040 Variable XY Phantom

*each phantom can be ordered individually

PUBLICATION REFERENCES

Muramatsu, Y., Ikeda, S., Osawa, K., Sekine, R., Niwa, N., Terada, M., . . . Miyazaki, S. (2007). Performance evaluation for CT-AEC(CT automatic exposure control)systems. Japanese Journal of Radiological Technology, 63(5), 534-545. doi:https://doi.org/10.6009/jjrt.63.534



PH-6C | 41310-030

Dynamic Cardiac CT Phantom SKK II



For evaluation and research in ECG gated cardiac CT



FEATURES

- | The phantom represents physical movement and volumetric change of the left ventricle
- | The heart phantom is made of human tissue substitute for CT
- | Various types of coronary arteries including stenosis, contrast enhances and anatomical
- | The phantom generates pulses that are synchronized with the cardiac movement for ECG gating
- | Controllable parameters; pulse rate (30-120 bpm) and ejection volume (0-100%)
- | Three kinds of arrhythmic mode
- | Operation with the tablet PC is simple and easy

DESCRIPTIONS

SET INCLUDES

1 drive unit	1 set of simulated coronary arteries
1 heart phantoms	1 controller
1 protective cover	1 storage case

APPLICATIONS

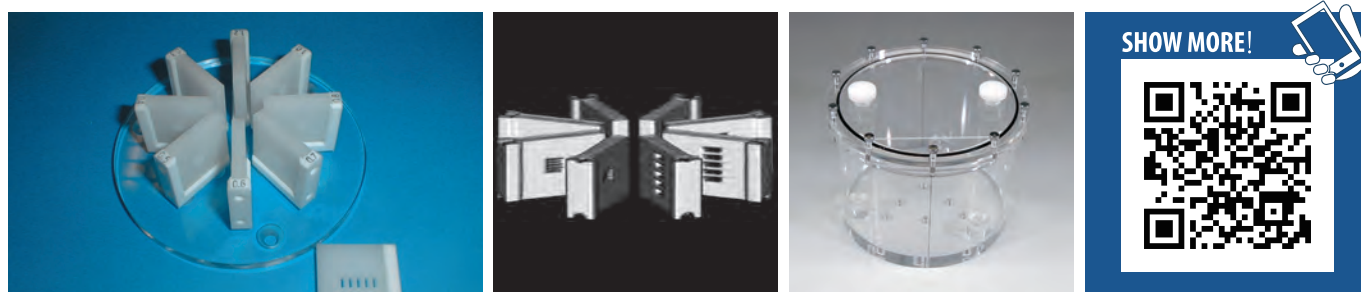
- | Measurement of the left ventricle volumetric change
- | Image quality evaluation of coronary arteries

PH-9-2 | 41334-130

Ladder Phantom



Evaluation of spatial resolution of simulated contrast enhanced vessels in CT



FEATURES

- | On each plate phantom of 5 mm thickness, five slits of 5 mm length are made to represent vessels
- | Nine variations of vessel width are prepared

APPLICATIONS

- | Evaluation of spatial resolution of simulated contrast enhanced vessels in CT

DESCRIPTIONS

SET INCLUDES

1 outer phantom	1 angle adjustment holder (table top type)
9 ladder phantoms	
1 storage case	

MATERIALS

Measurement region: epoxy resin, hydroxyapatite
Base: acrylic resin

SPECIFICATIONS

Vessel width: 0.3, 0.4, 0.6, 0.7, 0.8, 1.0, 1.2, 1.5 mm
0.012, 0.016, 0.024, 0.028, 0.032, 0.039, 0.047, 0.059 in

Vessel length: 5 mm/ 0.19 in
(5 mm thick, with 5 lines of vessels each)

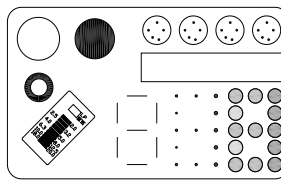
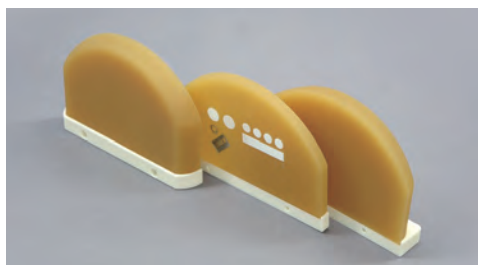


PH-13 | 41329-010



Digital Mammographic Phantom NCCE

Four types of phantoms designed to evaluate CT-AEC performance
Image quality can be evaluated by noise and S.D. on the phantom section images



FEATURES

| Outer shape of the phantom simulates a compressed breast of D shape
| Targets includes simulated microcalcifications, nylon fibrils, acrylic disks, an aluminum ring, Teflon disks, a Teflon ruler (slope) and a resolution test chart

EVALUATION PARAMETERS

| Contrast resolution
| Frequency enhancement
| Noise and contrast transfer function

DESCRIPTIONS

SET INCLUDES

- 1 phantom
- 1 storage case

PH-10 | 41322-000



BMD Chart Phantom UHA

Bone Mineral Density chart for microdensitometry (MD) method



FEATURES

| 21 steps with different hydroxyapatite content
| Steps range from 0 to 400 mg/cm², with 20mg/cm² difference each

APPLICATIONS

| microdensitometry

DESCRIPTIONS

SET INCLUDES

- 1 chart phantom
- 1 storage case



PH-17 | 41317-000

Water Body Phantom WAC



Image evaluation in plain X-ray



SHOW MORE!



FEATURES

Water body phantom represents human chest and abdomen to serve as radiation absorber and scatterer.

DESCRIPTIONS

SET INCLUDES

- 1 body phantom
- 1 storage case

SPECIFICATIONS

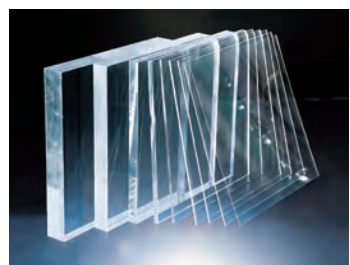
Phantom size:
W30 x D20 x H45 cm
W11.8 x D7.9 x H17.7 in

PH-14 | 41430-000-

Acrylic Phantom XAC



Slab phantoms for radiation absorption and scattering measurement



SHOW MORE!



VARIATIONS

XAC-01	41430-000	30 x 30 x 0.1 cm/11.8 x 11.8 x 0.04 in
XAC-02	41431-000	30 x 30 x 0.2 cm/11.8 x 11.8 x 0.08 in
XAC-03	41432-000	30 x 30 x 0.3 cm/11.8 x 11.8 x 0.12 in
XAC-04	41433-000	30 x 30 x 0.4 cm/11.8 x 11.8 x 0.16 in
XAC-05	41434-000	30 x 30 x 0.5 cm/11.8 x 11.8 x 0.2 in
XAC-08	41435-000	30 x 30 x 0.8 cm/11.8 x 11.8 x 0.3 in
XAC-1	41436-000	30 x 30 x 1 cm/11.8 x 11.8 x 0.4 in
XAC-2	41437-000	30 x 30 x 2 cm/11.8 x 11.8 x 0.8 in
XAC-3	41438-000	30 x 30 x 3 cm/11.8 x 11.8 x 1.2 in
XAC-4	41439-000	30 x 30 x 4 cm/11.8 x 11.8 x 1.6 in
XAC-5	41440-000	30 x 30 x 5 cm/11.8 x 11.8 x 2.0 in
XAC-8	41441-000	30 x 30 x 8 cm/11.8 x 11.8 x 3.1 in
XAC-10	41442-000	30 x 30 x 10 cm/11.8 x 11.8 x 3.9 in

PH-16 | 41318-000,010 / 41319-000,010

Contrast Detail Phantom



Image evaluation in plain X-ray



SHOW MORE!



FEATURES

Four types of phantoms with different sizes and target types

- Hole 15: 41318-000
- Rod 15: 41319-000
- Hole 10: 41318-010
- Rod 10: 41319-010

DESCRIPTIONS

SIZE

- Hole 15: 15 x 15 holes of depth range from 1.0 to 8.0 mm (0.4 to 3.1 in)
- Rod 15: 15 x 15 rods of height range from 1.0 to 8.0 mm (0.4 to 3.1 in)
- Hole 10: 10 x 10 holes of depth range from 1.0 to 5.5 mm (0.4 to 2.2 in)
- Rod 10: 10 x 10 rods of height range from 1.0 to 5.5 mm (0.4 to 2.2 in)

SET INCLUDES

- 1 chart phantom
- storage case

PH-39 | 41326-000

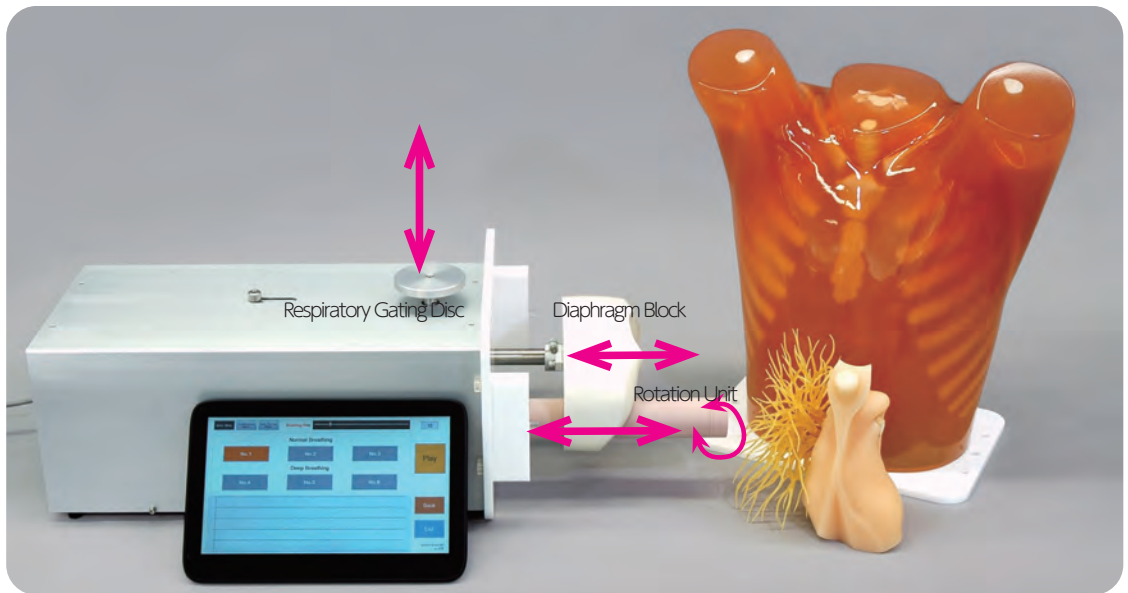
Dynamic Thorax Phantom

Dosimetry

CT

STORAGE CASE

Anthropomorphic chest phantom for respiratory gating



FEATURES

- | The phantom represents the movement of human lungs.
- | A male chest torso phantom with human tissue substitute materials.
- | Simple operation with the wireless tablet.
- | The pulmonary nodule and the diaphragm move independently with the respiratory cycle.
- | Three dimensional movement of the pulmonary nodule (linearly and rotationally).
- | TLD can be inserted to simulate the nodule.
- | Six respiratory patterns are preset.
- | Respiratory patterns can be modified and saved.
- || Up to three different respiratory patterns can be run in sequence.
- Three operation modes: basic, combination and user mode.

APPLICATIONS

- | Respiratory gating CT
- | Dosimetry
- | Radiation therapy

DESCRIPTIONS

SET INCLUDES

1 drive unit	1 diaphragm block
chest phantom	1 set of simulated nodules
mediastinum phantom	1 controller
with right pulmonary vessels	1 storage case
nodule rotation unit	manual

CONTROLLABLE PARAMETERS

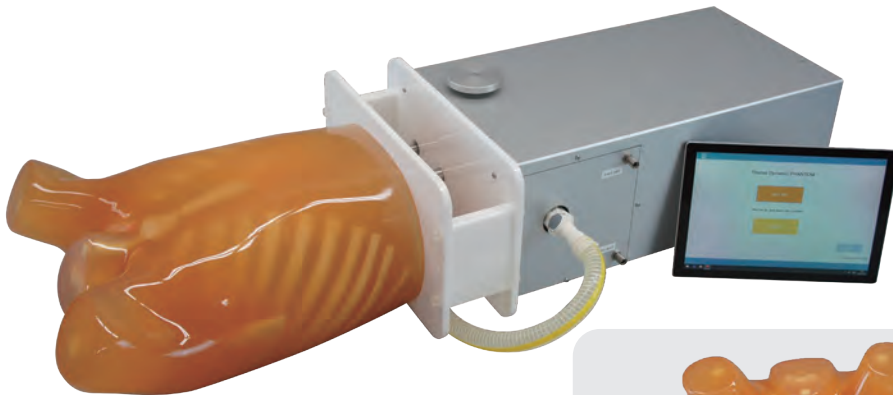
- | Respiratory rate: 6-24 cycles/min.
- | Movement of diaphragm: 0-38 mm/0-1.5 in
- | Linearly movement of nodule unit: 38-64 mm/ 1.5-2.5 in
- | Rotation of nodule unit: 50-70 degrees

PH-48 | 41327-000

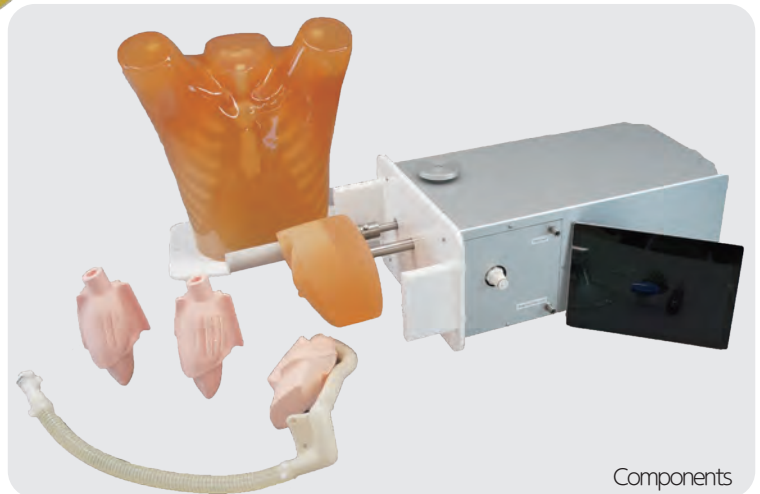
Dynamic Heart and Lung Phantom

Dosimetry CT STORAGE CASE

The motion of diaphragm and tumor, and the realistic heart motions provide various solutions for clinical research



SHOW MORE!



ECG Gated



Non-ECG Gated



ECG Gated



Non-ECG Gated

FEATURES

- | The phantom represents movement of the heart, lungs and pulmonary nodule
- | The pulmonary nodule and diaphragm move independently with the respiratory cycle
 - Three dimensional movement of the pulmonary nodule (linearly and rotationally)
 - Motion disc represents respiratory movement of abdomen
- | The elastic heart represents systolic and diastolic motion
- | The coronary arteries including stenotic examples are shown
 - The phantom can be connected to ECG for ECG gating

ANATOMY

- | Synthetic bones of the chest
- | Diaphragm
- | Heart with coronary artery

DESCRIPTIONS

SET INCLUDES	1	drive unit	1	set of simulated tumors (15 types)
	1	nodule rotation unit	1	tablet PC
	1	diaphragm block	1	storage case
	1	chest phantom		manual
	3	types of heart unit		

APPLICATIONS

- | Respiratory gating chest CT
- | Tumor tracking in radiotherapy
- | ECG gating cardiac CT

PATHOLOGY

- | Pulmonary nodule
- | stenosis of coronary arteries

CONTROLLABLE PARAMETERS

- | Heart rate: 30-120 times/min
- | Ejection volume: 60, 70, 80, 90, 100ml
- | ef rate: 30%, 35%, 40%, 45%, 50%, 55%, 60%
- | Respiratory rate: 6-24 cycles/min
- | Linear movement of nodule unit: 8-64mm / 0-1.5 in
- | Rotation range of nodule unit: 50-70 degrees

PH-40/ 41/ 42

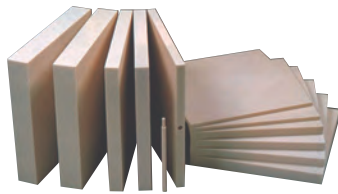
Tough Phantom Series

A stable, high quality and shatter-free phantom for radiotherapy

PH-40

Tough Water Phantom WD

Human tissue substitute phantoms with water equivalent physical properties



SHOW MORE!



VARIATIONS

WD-3002	300 x 300 x 2 mm/ 12 x 12 x 0.08 in	WD-4003	400 x 400 x 3 mm/ 16 x 16 x 0.12 in
WD-3003	300 x 300 x 3 mm/ 12 x 12 x 0.12 in	WD-4005	400 x 400 x 5 mm/ 16 x 16 x 0.2 in
WD-3005	300 x 300 x 5 mm/ 12 x 12 x 0.2 in	WD-4010	400 x 400 x 10 mm/ 16 x 16 x 0.4 in
WD-3010	300 x 300 x 10 mm/ 12 x 12 x 0.4 in	WD-4015	400 x 400 x 15 mm/ 16 x 16 x 0.6 in
WD-3015	300 x 300 x 15 mm/ 12 x 12 x 0.6 in	WD-4020	400 x 400 x 20 mm/ 16 x 16 x 0.8 in
WD-3020	300 x 300 x 20 mm/ 12 x 12 x 0.8 in	WD-4025	400 x 400 x 25 mm/ 16 x 16 x 1.0 in
WD-3025	300 x 300 x 25 mm/ 12 x 12 x 1.0 in	WD-4030	400 x 400 x 30 mm/ 16 x 16 x 1.2 in
WD-3030	300 x 300 x 30 mm/ 12 x 12 x 1.2 in	WD-4040	400 x 400 x 40 mm/ 16 x 16 x 1.6 in
WD-3040	300 x 300 x 40 mm/ 12 x 12 x 1.6 in	WD-4050	400 x 400 x 50 mm/ 16 x 16 x 2.0 in
WD-3050	300 x 300 x 50 mm/ 12 x 12 x 2.0 in		
WD-4002	400 x 400 x 2 mm/ 16 x 16 x 0.08 in		

MATERIAL

Epoxy resin

PH-41

Tough Bone Phantom BE-T, BE-H, BE-NWD

Human bone substitute phantoms to simulate body structure in combination with PH-40 and PH-42



SHOW MORE!



VARIATIONS

BE-T-2005	Compact Bone 200x200x5mm/ 8x8x0.2 in	BE-N-2020	Inner Bone 200x 200x20 mm/ 8x 8x0.8 in
BE-T-2010	Compact Bone 200x200x10mm/ 8x8x0.4 in	BE-H-3005	Cortical Bone 300x300x 5 mm/ 12x 12x0.2 in
BE-T-2020	Compact Bone 200x200x20mm/ 8x8x 0.8 in	BE-H-3010	Cortical Bone 300x300x 10mm/ 12x 12x0.4 in
BE-H-2005	Cortical Bone 200x200x5 mm/ 8x8x0.2 in	BE-H-3020	Cortical Bone 300x300x20mm/ 12x 12x0.8 in
BE-H-2010	Cortical Bone 200x200x10mm/ 8x8x0.4 in	BE-N-3005	Inner Bone 300 x 300 x 5 mm / 12 x 12 x 0.2 in
BE-H-2020	Cortical Bone 200x200x20mm / 8x8x0.8 in	BE-N-3010	Inner Bone 300x300x 10mm/ 12x 12x0.4 in
BE-N-2005	Inner Bone 200x200x5 mm/ 8x8x0.2 in	BE-N-3020	Inner Bone 300x300x20mm/ 12x 12x0.8 in
BE-N-2010	Inner Bone 200x200x10 mm/ 8x8x0.4 in		

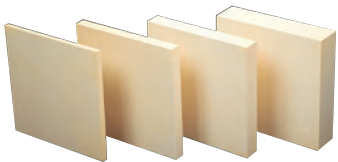
MATERIAL

Epoxy resin

PH-42

Tough Lung Phantom LP

Human lung substitute phantoms to simulate body structure in combination with PH-40 and PH-41



SHOW MORE!



VARIATIONS

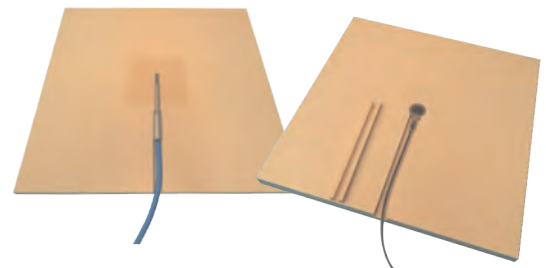
LP-3010	300 x 300 x 10 mm / 12 x 12 x 0.4 in
LP-3020	300 x 300 x 20 mm / 12 x 12 x 0.8 in
LP-3030	300 x 300 x 30 mm / 12 x 12 x 1.2 in
LP-3050	300 x 300 x 50 mm / 12 x 12 x 2.0 in

MATERIAL

Phenolic resin

Dosimetry cavities

Tough series phantoms can be ordered with cavities and plugs. Specify your chamber's manufacturer and model number. Let us have dimensional drawings of the chambers you are using to estimate cost.



Specify the type of processing

1. Sandwich type (for pencil type)
2. Cylinder hole type (for pencil type)
3. Shallow type (for plain parallel type)

Specify your chamber's manufacturer and model number

Phantoms for therapeutic energy range

Comparison of Physical Properties

ICRU publication 23 (Reference man)

	human soft tissue	muscle	fat	cartilage	lung
electron density (x10 ²³ e/g)	3.29	3.31	3.34	3.28	3.31
effective atomic number	7.03	7.45	6.33	7.89	7.49
specific gravity	1.00	1.05	0.95	1.10	0.26

	water	acryl	Tough Water Phantom WD	Tough Bone Phantom BE-T	Tough Bone Phantom BE-H	Tough Bone Phantom BE-N	Tough Lung Phantom LP
electron density (x10 ²³ e/g)	3.343	3.248	3.265	3.108	3.154	3.213	3.211
effective atomic number	7.417	6.467	7.328	13.179	11.697	9.141	7.242
specific gravity	1.000	1.180	1.018	1.730	1.500	1.240	0.370

	Tough Water Phantom WD	Tough Bone Phantom BE-T	Tough Bone Phantom BE-H	Tough Bone Phantom BE-N	Tough Lung Phantom LP
H	8.63	3.69	5.11	6.97	7.00
C	68.89	29.22	42.45	60.03	50.20
N	2.18	1.19	1.73	2.45	—
O	17.88	32.66	28.13	21.79	35.10
P	—	10.24	7.00	2.30	0.10
Cl	0.15	0.06	0.09	0.13	1.00
Ca	2.27	22.92	15.49	6.33	—
Al	—	—	—	—	1.50
Si	—	—	—	—	5.00

PH-37 | 41480-000

Therapy Body Phantom THRA-1

Dosimetry



THRA-1 is an anthropomorphic, cross sectional dosimetry for therapeutic energy range



SHOW MORE!



FEATURES

- | This phantom is a therapy planning phantom made of Tough Phantom Series human tissue substitutes
- | Sizes and spacing of dosimeter cavities and slice thickness may be custom ordered

DESCRIPTIONS

SET INCLUDES

- 1 phantom
- 1 supporting frame
- insert rods for dosimeter holes

- 1 storage case
- manual

MATERIALS

- Body: Tough Water WE-211 (epoxy resin)
- Bone: Tough Bone BE-303
- Lung: Tough Lung LP-430

SPECIFICATIONS

Phantom height: 80 cm / 31.6 in Phantom weight: 33 kg / 72.7 lb Slice thickness: 3 cm / 1.2 in Dosimeter holes: in lattice-like pattern of 3 x 3 cm / 1.2 x 1.2 in

PH-38 | 41480-010

Pediatric Therapy Body Phantom THRA-2

Dosimetry



SHOW MORE!



FEATURES

- | Unlike conventional radiotherapy phantoms, synthetic bones with unified size are used so that there are no differences of size by using human bones
- | Easy to compare data between facilities
- | Tumor targets can be attached as options

DESCRIPTIONS

SET INCLUDES

- 1 phantom
- 1 supporting frame
- insert rods for dosimeter holes

- 1 storage case
- manual

MATERIALS

- Body: Tough Water WE-211 (epoxy resin)
- Bone: Tough Bone BE-303
- Lung: Tough Lung LP-430

SPECIFICATIONS

Phantom height: 60 cm / 23.6 in



PH-31/ 41330-000 | PH-32B/ 41330-030

MRI



MRI Quality Assurance Phantom MHR/ JMR II

This QA phantom for MRI allows to evaluate the slice thickness, spatial resolution, uniformity and geometric distortion as well as contrast

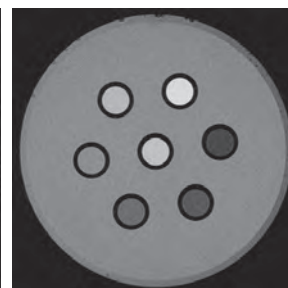
PH-31 MHR: compiled with NEMA standards



PH-32B JMR 2



SHOW MORE!



FEATURES

- | Uniformity is maintained under the high magnetic field of 3.0 Tesla | MRI
- | Uniformity provides high precision evaluation for other parameters

APPLICATIONS

EVALUATION PARAMETERS

PH-31 MHR

- | Signal-to-noise ratio (SNR)
- | Image uniformity
- | RF uniformity
- | Spatial resolution
- | Spatial linearity (image distortion)
- | Slice thickness
- | Slice position / separation
- | Image contrast
- | Image artifact

PH-32B JMR 2

- | Signal noise ratio (SNR)
- | Image uniformity
- | Slice thickness
- | Spatial resolution
- | Geometric distortion
- | Ghost
- | Image contrast

DESCRIPTIONS

PH-31 MHR

SET INCLUDES

1 phantom unit A	1 funnel
1 phantom unit B	1 petroleum jelly
1 liquid paraffin	1 screwdriver
1 spout	1 extra screws
5 NiCl 50ml (5, 10, 15, 20, 25 mmol)	1 storage case
7 sample bottle (13.5ml)	manual

MATERIALS

acrylic resin, MRI contrast solution: nickel dichloride (NiCl)

SPECIFICATIONS

Dimensions: 22 dia. × 14(H) cm × 2 types
8.7 dia. × 5.5 in

PH-32B JMR 2

SET INCLUDES

1 phantom unit A	1 funnel
1 phantom unit B	1 petroleum jelly
1 liquid paraffin	1 screwdriver
1 spout	1 extra screws
3 NiCl 50ml (5, 10, 15 mmol)	1 storage case
3 sample bottle (9ml)	manual

MATERIALS

Acrylic resin, MRI solution:

SPECIFICATIONS

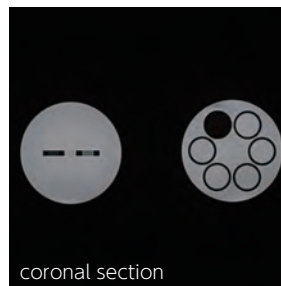
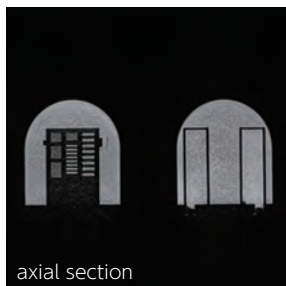
Dimensions: 18 dia. × 16(H) cm
7.1 dia. × 6.3 in

PH-72 | 41936-000

MRI Breast QA phantom



An innovative phantom with shape of breasts for detailed QA in Breast MRI



FEATURES

APPLICATIONS

- Quantitative evaluation of Breast MRI with breast coils
- Adjustable height of the phantoms in the range of 10cm to fit the depth of the coils
- Horizontal position of the phantoms can be set arbitrarily on the 30cm length slit

| MRI

DESCRIPTIONS

TEST SUMMARY

SET INCLUDES

- 2 breast MRI evaluation unit (2 types, 1 each)
- 1 adjustment bolt
- 1 supporting plate
- 1 storage case

MATERIALS

Acrylic resin

SPECIFICATIONS

Phantom dimensions: 30 x 40 x 26 cm, 5kg
11.8 x 15.7 x 10.2 in, 11 lb

| Spatial resolution

| Quantitative evaluation of ADC on test pieces of tissue substitute

PH-33 | 41330-010

MRI Head Phantom NH



Life-size head phantom to assess uniformity



APPLICATIONS

- | MRI
- | SPECT / CT
- | CT

DESCRIPTIONS

SET INCLUDES

- 1 head phantom
- 1 nickel chloride solution
- 1 spout
- 1 storage case
- manual

MATERIALS

Acrylic resin

COMPLIES WITH

JIS Z 4924

SPECIFICATIONS

Phantom size:
W17 x D22 x H30 cm
W6.7 x D8.6 x H11.8 in

PH-34 | 41501-000

MRI/NM Head Phantom BHC



Simulate life-size head images in MRI and NM



APPLICATIONS

- | MRI
- | SPECT / CT
- | CT

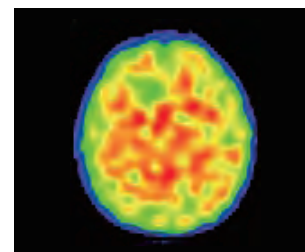
DESCRIPTIONS

SET INCLUDES

- 1 head phantom
- 2 simulated tumors
- 1 nickel chloride solution
- 1 storage case

SPECIFICATIONS

Phantom height:
33 cm / 12.9 in



PH-53 | 41918-000

Brain Phantom IB-20 advanced



For uptake ration calibrations and studying the L-123DaTSCAN scatter correction techniques



FEATURES

| This brain phantom of the striatal region with replicated skull densities of a male and female is useful for uptake ratio calibrations and studying the I-123 DaTSCAN scatter correction techniques.

APPLICATIONS

| SPECT, PET
| EVALUATION PARAMETERS:
common with IB-20

DESCRIPTIONS

SET INCLUDES

- 2 bone scatterer cases
adult male: equivalent HU750
elderly female: equivalent HU530
- 1 brain striatum phantom
- 1 screwdriver

- 1 velcro tape
- 1 petroleum jelly
- 1 storage case manual

SPECIFICATIONS

Phantom size:
W21 x D15 x H8 cm
W8.2 x D5.9 x H3.1 in

MATERIALS

Brain striatum: epoxy resin
Brain striatum container: urethane resin
Cerebral ventricle: urethane resin
Brain stratum phantom cover: acrylic
Bone scatterer case: epoxy resin

PH-27 41530-000

Brain Phantom IB-10

Dual- fluid system to vary the absorption rate, and 5 cm thickness for the vertical setting of the camera



SHOW MORE!



APPLICATIONS

| SPECT, PET

EVALUATION PARAMETERS

- | Homogeneity evaluation
- | Cross calibration
- | Gamma ray absorption rate by a skull
- | Detectivity of gray matter and white matter
- | Spatial resolution of negative images (IB-10 set only)
- | Radioactive concentration and linearity of SPECT value (IB-10 set only)

DESCRIPTIONS

SET INCLUDES

- 1 brain unit
- 1 skull container unit
- 1 J-Jack phantom
- 1 section phantom

MATERIALS

Acrylic resin/ urethane resin

SPECIFICATIONS

Phantom size:
W21 x D15 x H8 cm / W8.2 x D5.9 x H3.1 in



PH-69 | 41930-000

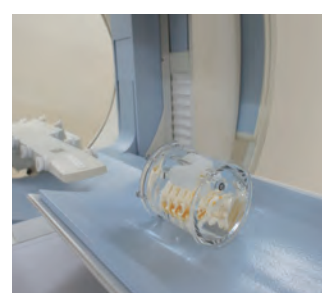
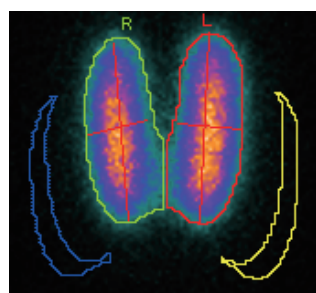
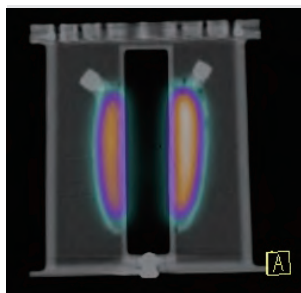
Thyroid Phantom UN



Five kinds of thyroid volume containers for measurement purposes



SHOW MORE!



FEATURES

APPLICATIONS

The set of the phantoms facilitate evaluation of the RI uptake of the thyroid and the assessment of its function. The phantom also serves for dosimetry study in internal exposure.

- 5 kinds of thyroid grand (40,30,21,17,15 cc)
- Synthetic cervical vertebrae as a scatteration
- Infusing radiopharmaceuticals

ANATOMY

Cervical spine C3 to C7

	Volume
Thyroid 1	14.7 ml
Thyroid 2	16.7 ml
Thyroid 3	20.7 ml
Thyroid 4	30.2 ml
Thyroid 5	39.0 ml

DESCRIPTIONS

SET INCLUDES

1	outer phantom	1	cervical spine
5	thyroid containers	1	trachea tube
1	thyroid (cold spot)	1	storage case
		1	manual

MATERIALS

Container: acrylic resin
 Synthetic bone: epoxy resin
 Thyroid: acrylic resin

SPECIFICATIONS

phantom size: 13 dia. x H11.6 cm
 5.1 dia. x H4.6 in
 phantom weight: 0.85 kg
 1.87 lb



PH-26 | 41503-000

ORINS Thyroid Phantom ITS



A phantom by the ORINS standards



SHOW MORE!



FEATURES

- | Oak Ridge Institute for Nuclear Studies type phantom for measurement of thyroid radionuclide uptake
- | Cavities for iodine-131 are prepared in the neck phantom

APPLICATIONS

- | SPECT

DESCRIPTIONS

SET INCLUDES

- 1 petroleum jelly
- 1 screwdriver
- 1 storage case
- 1 manual

MATERIALS

Acrylic resin

SPECIFICATIONS

Phantom size:
12.5 dia. x 12.5 (H) cm/4.9dia. x 4.9(H) in

PH-29 | 41540-030

ECT Hot Cold Phantom SP-6



Volumetric measurement phantom for PET/SPECT



SHOW MORE!



FEATURES

- | Five sphere containers with different sizes can be filled with RI solution
- | Volume of sphere phantoms are:
50 mm/2 in (100%), 80%, 60%, 40% and 20%

DESCRIPTIONS

SET INCLUDES

- 1 phantom
- 1 storage case

MATERIALS

Acrylic resin

SPECIFICATIONS

Phantom size:
21 dia. x 16 (H) cm / 8.2 dia. x 6.2 (H) in

APPLICATIONS

- | SPECT, PET

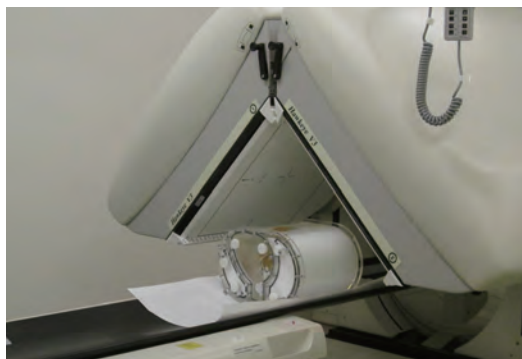


PH-24 | 41333-000

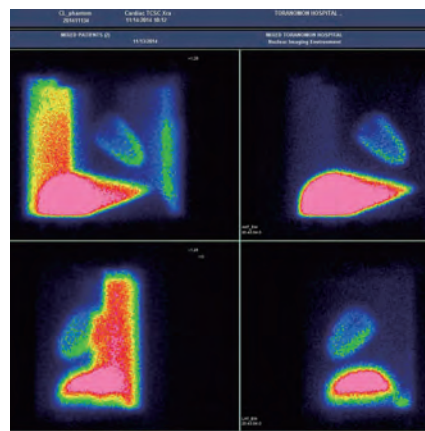
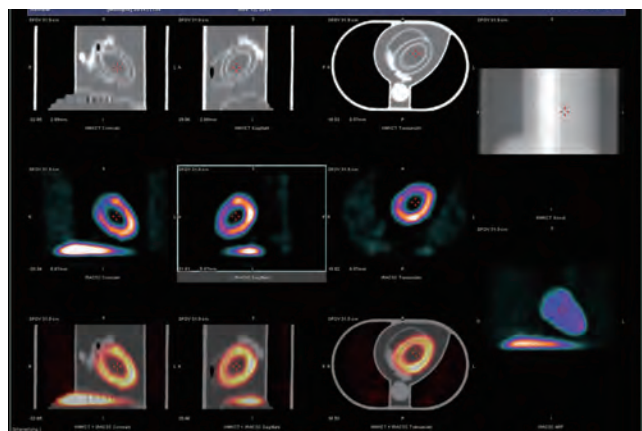
Myocardial Phantom HL



For the study of high radio accumulation interference in the liver with the myocardial SPECT images



SHOW MORE!



FEATURES

- | Allows the study of RI liver intake and its effect on the myocardial SPECT
- | Cold defect can be set in the left cardiac muscle
- | Background can be set individually in lung field, mediastinum and right ventricle

APPLICATIONS

- | SPECT

DESCRIPTIONS

SET INCLUDES

1 main phantom body	1 stomach
1 right lung	1 heart
1 left lung	1 work base
1 mediastinum	1 screwdriver
1 liver	1 petroleum jelly
	1 storage case

MATERIALS

Main Container: Acrylic Resin
 Spine: Epoxy Resin (similar to human in HU)
 Heart: Acrylic Resin, Acrylic resin
 Lung: Foamed Resin, Water
 Screw: Polyacetal Resin

SPECIFICATIONS

Phantom size:
 W32 x D22 x H31 cm / W12.5 x D8.6 x H12.2 in
 Phantom weight:
 7.1 kg / 15.6 lb
 Packing size:
 W44 x D39 x H42 cm
 W17.3 x D15.3 x H16.5 in
 Packing weight:
 12.5 kg / 27.5 lb



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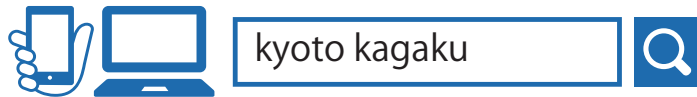
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