

# Sono403™ Multi-Purpose Phantoms

Ensure accurate screening,  
diagnosis and monitoring.

- Perform efficient QA testing of ultrasound systems and transducers
- Use across a variety of applications, including General Radiology, Musculoskeletal, Cardiology, Emergency, Pediatrics, Radiotherapy and Surgical
- Meet or exceed ACR, AIUM, EFSUMB, IAC, IEC, IPEM, WHO and other QA standards/guidance



Sono403 Phantoms, with patented HE (High Equivalency) Gel™, provide advanced technology for measuring image quality of small parts and intra-cavity ultrasound scanning systems.

The Sono403 offers:

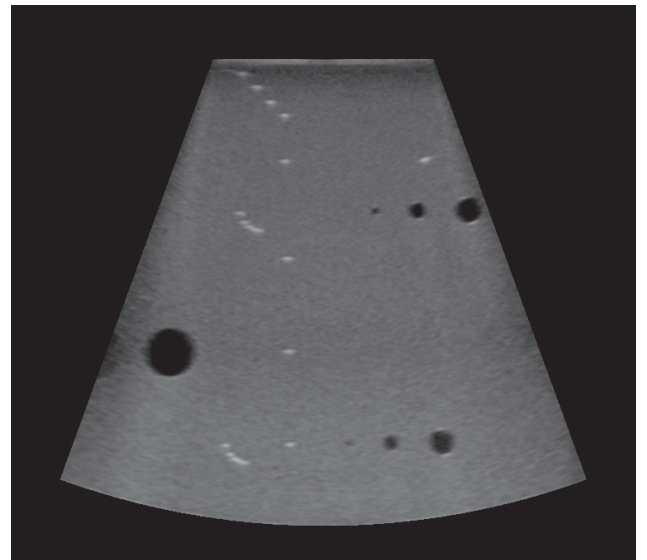
- A near-linear response of attenuation-to-frequencies between 2 to 18 MHz, due to our HE Gel
- Response of attenuation-to-frequencies over 8 MHz to support accurate axial resolution and penetration depth representative of human tissue<sup>1,2</sup>

Performance measures:

- Image uniformity
- Artifact survey
- Axial and lateral resolution
- Horizontal and vertical distance
- Dead zone
- Depth of penetration
- Signal-to-noise ratio
- Anechoic and echogenic mass resolution
- Gray scale contrast resolution
- Measurement accuracy

*"The tissue-like properties in these ultrasound phantoms make them ideal for testing the performance of scanners."*

James A. Zagzebski, Ph.D., FAAPM  
Professor Emeritus, Retired Chair  
Department of Medical Physics,  
Wisconsin Institutes for Medical Research



Our proven Sono403 Phantoms have precision-placed targets.

## Sono403 Multi-Purpose Phantoms

- Designed for QA testing of ultrasound systems and transducers in General Radiology, Musculoskeletal, Cardiology, Emergency, Pediatrics, Radiotherapy and Surgical applications
- Rejuvenate and re-certify your phantom any time to strengthen your investment
- HE Gel offers high uniformity and a nonlinearity parameter (B/A) equivalent to human liver

## Specifications

Attenuation Coefficient <sup>1</sup>	0.5 dB/cm/MHz
Variation of Attenuation with Frequency <sup>2,3</sup>	$f^{1.08}$ at 0.5 dB/cm/MHz
HE Gel Freezing Point	< 0°C
HE Gel Melting Point	>100°C
Frequency Range	2 - 18 MHz
Speed of Sound	1540 m/s
Scanning Surface	Composite Film
Pin Target Material	Nylon monofilament
Case Material	Extruded ABS Plastic
Weight	2.8 kg (6 lbs. 5 oz)
Dimensions	23.2 x 8.25 x 18.5 cm (9.25 x 3.25 x 7.25 in.)

## Target Specifications

### Cystic Targets

Diameters	2, 4, 6, and 10 mm
Placement	3, 6, 8, and 14 cm deep

### Grey Scale Targets

Dimensions	10 mm Diameter
Placement	6 cm deep
SOS	1540 ±10 m/s
SOS <sup>TD</sup>	1.5 m/s/°C
Contrast	-6dB, +6dB, high scatter relative to background

### Pin Targets

Diameter	0.1 mm
Vertical Spacing	2 cm at 2 to 16 cm deep
Horizontal Spacing	3 cm at 2 and 12 cm deep

### Resolution Target Groups

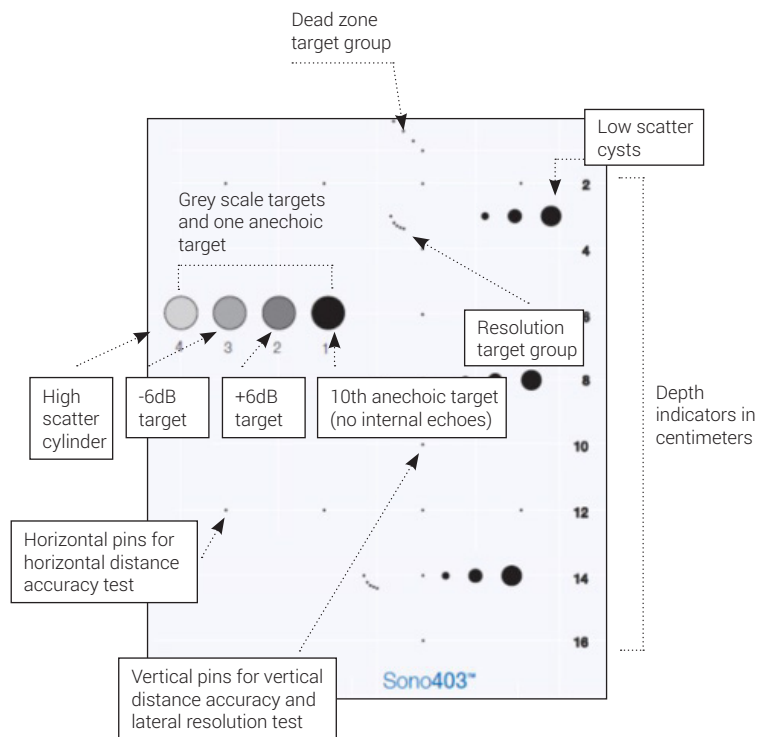
Depth	3, 8, and 14 cm deep
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## Accessories

- Precision Sono Transducer Holder
  - Securely holds a transducer in a precise location for reproducible tests over time
  - Fits most Sun Nuclear B-Mode & Doppler Flow phantoms
- Padded travel case with shoulder strap



## Target Schematic



<sup>1</sup> An attenuation coefficient of 0.5 dB/cm/MHz represents healthy human liver tissue and 0.7 dB/cm/MHz represents fatty liver tissue.

<sup>2</sup> Browne, J., Ramnarine, K., Watson, A., Hoskins, P., Assessment of the Acoustic Properties of Common Tissue-mimicking Test Phantoms. *Ultrasound in Medicine and Biology*, Vol. 29 (7), pp. 1053-1060, 2003.

<sup>3</sup> Near-linear responses of attenuation with frequencies between 2 to 18 MHz support accurate axial resolution and penetration depth representative of human tissue.