

Fetal Phantom (KST-3D01)

The KST-3D01 fetal ultrasound phantom is designed with a 7-month-old simulated fetus suspended in a simulated amniotic fluid environment. It is used for surface contour presentation and 3D reconstruction in 3D scanning demonstration of ultrasound imaging systems. The simulated amniotic fluid exhibits an anechoic (echo-free) characteristic in ultrasound imaging, while the simulated fetus shows a distinctly hyperechoic (bright echo) characteristic.

2. Basic Structure

1. The housing consists of two plastic side walls, an inner bottom made of acrylic (PMMA), and sides made of plastic with a 23 cm × 32 cm thin-film acoustic window.
2. External dimensions: cylindrical shape, 31 cm in diameter × 16 cm in height.
3. The bottom plate has a circular hole of 3.6 cm diameter, sealed with a thin rubber layer, for injection of maintenance fluid and de-gassing.
4. A full-shape simulated fetus of 7 months gestational age is suspended in the background simulated amniotic fluid TM material.
5. Total weight: approximately 8 kg.



3. Technical Specifications

According to the national standard GB10152-2009, the technical parameters of the fetal ultrasound phantom are as follows:

1. Background simulated amniotic fluid TM material:

Sound velocity: (1540 ± 10) m/s ($23 \text{ }^\circ\text{C} \pm 3 \text{ }^\circ\text{C}$)

Slope of attenuation coefficient: $< 0.1 \pm 0.02$ dB/(cm·MHz) ($23 \pm 3 \text{ }^\circ\text{C}$)

2. Simulated fetal TM material:

Sound velocity: (1540 ± 10) m/s ($23 \text{ }^\circ\text{C} \pm 3 \text{ }^\circ\text{C}$)

Slope of attenuation coefficient: 0.50 ± 0.05 dB/(cm·MHz) ($23 \pm 3 \text{ }^\circ\text{C}$)