

# The Breathing Phantom

## Dynamic Anatomical Respiring Humanoid Phantom with Incorporated Target Motion

**APPLICATION:** Image guidance and respiratory gated systems calibrated to known motion.

The breathing phantom torso mannequin is a complex plastic simulation of a humanoid torso including lungs, ribcage/chest-wall bone, skin and sub-dermis, and an independently movable tumor within one of the lung volumes. Under the programmed application of increasing and decreasing air pressure, the phantom lungs fill and empty of air to replicate humanoid lung function. Chest movement of one cm and more can be programmed. As the lungs expand and contract, the simulated ribcage bones also move as does the anterior and antero-lateral skin surface. Under the independent programmed application of air pressure to one of several industry standard pneumatic motion actuators, target motion within one lung is accomplished. The materials and composition of the phantom are devised to be a faithful simulation of the physical form of a human thorax and to the radiological image properties. A CT shows a device that looks similar to a human thorax.

### Features

- Electro-pneumatic motion controller
- The Breathing Phantom thoracic mannequin
- Target fixtures for imaging and radiation dosimetry
- Individual thorax and target motions & rates:  $\sin 2$ ,  $\sin 4$ ,  $1-\sin 4$ ,  $1-\sin 6$ , 5-20 breath/min

- Microsoft Windows (2000, XP, VISTA) hosted Phantom Control Software
- USB attached Control Hardware with 150 foot vault cabling

**Breathing Phantom** ..... 5250-0142

