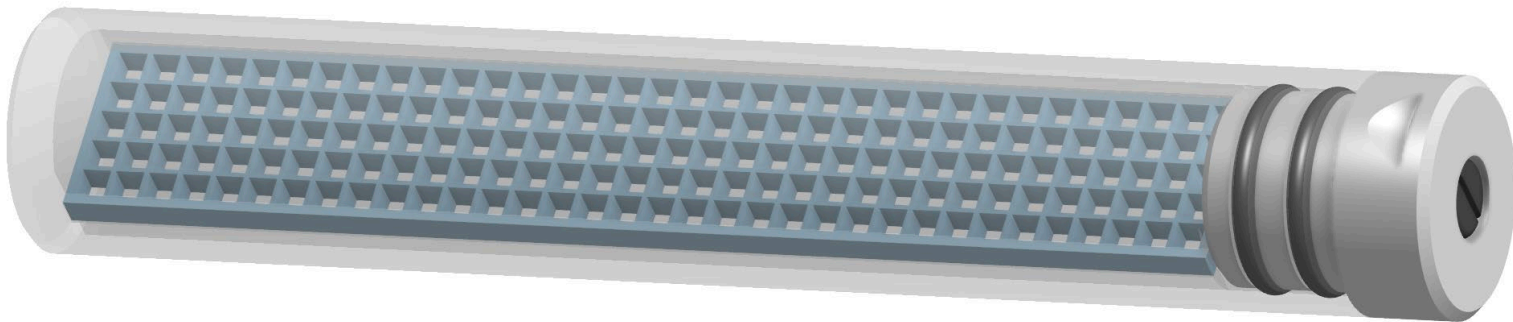


Phantech

Distortion Phantom *Technical Specifications*



INNOVATIVE HARDWARE AND SOFTWARE FOR MEDICAL IMAGING

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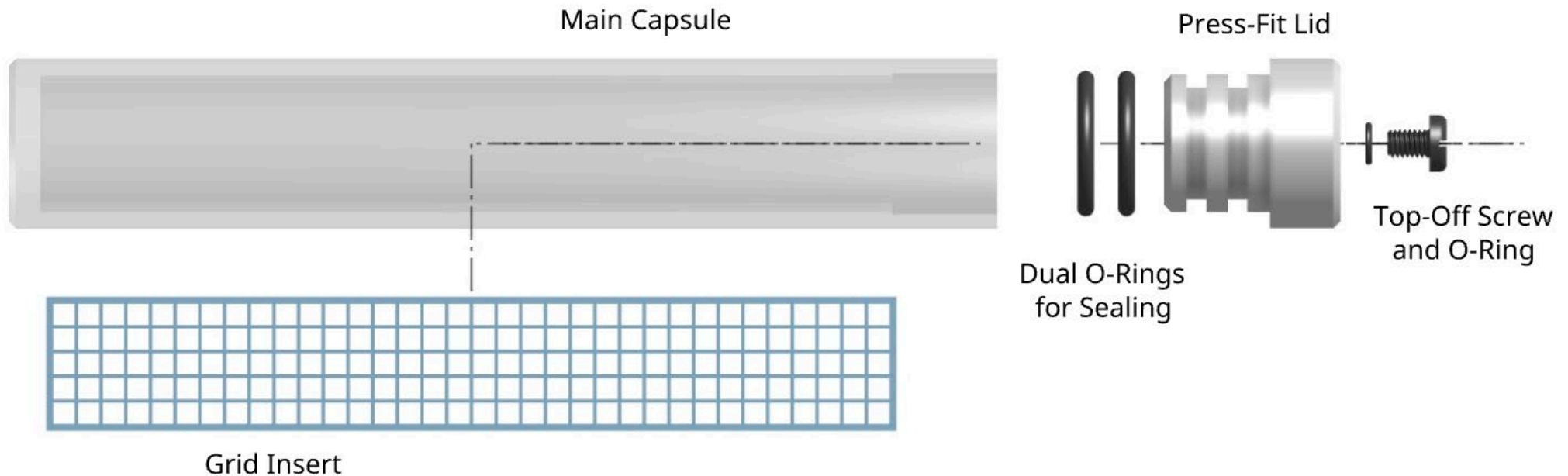
Phantech LLC
Madison, WI, USA

Product: Distortion Phantom

Overview

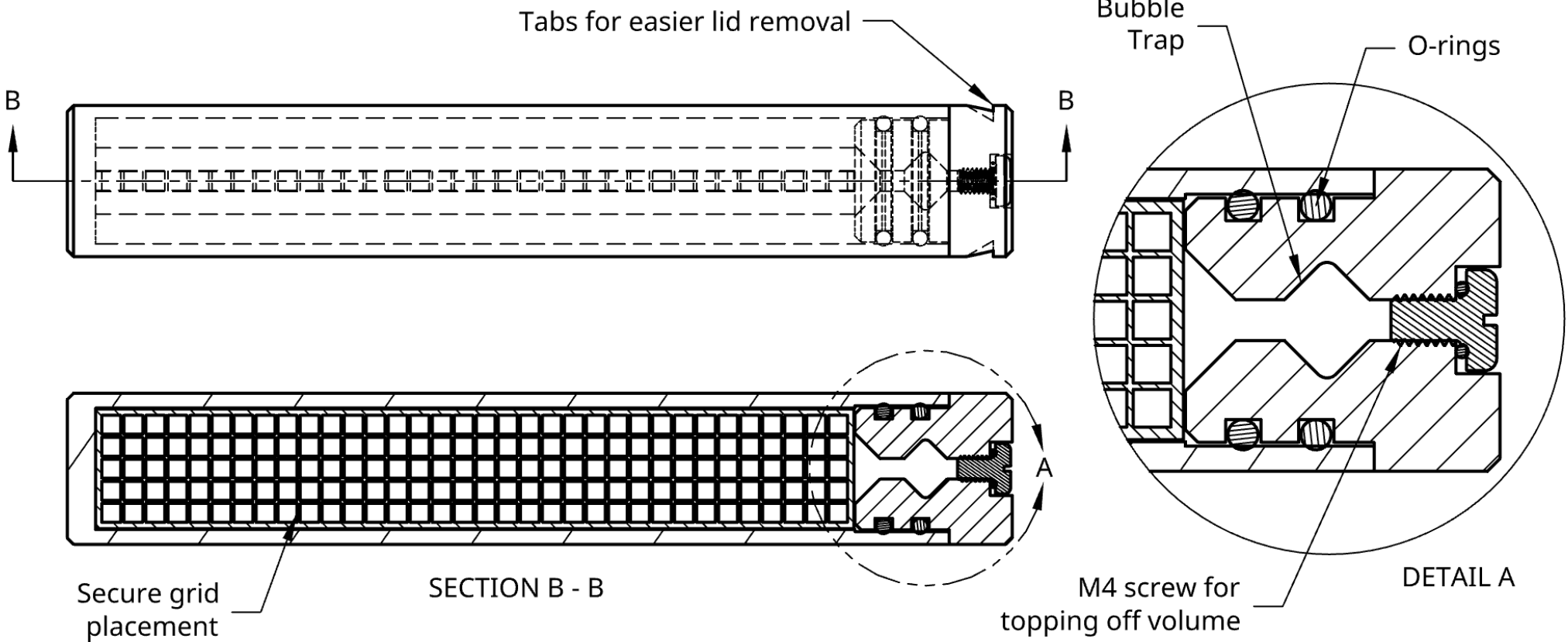
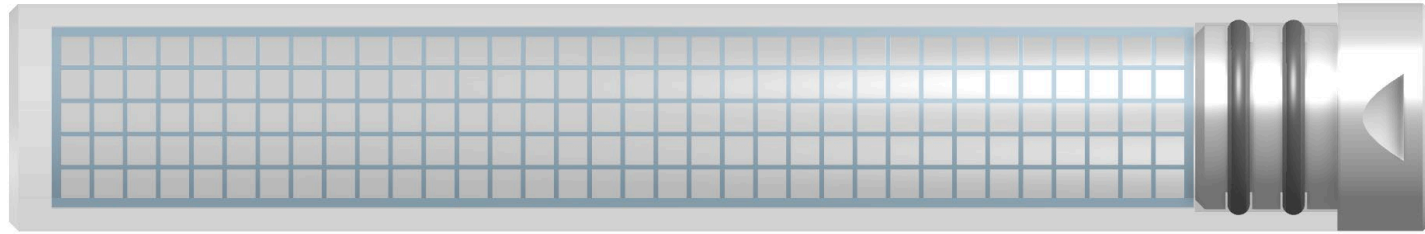
Phantech's Distortion Phantom is designed to test the distortion of the image at the boundaries of the field of view. By imaging a uniform grid and viewing how the grid distorts, the user can get an idea of the edge distortion. Our phantom features a fillable chamber with a grid insert that is removable for cleaning. The lid features a press-fit design for easy operation, with two separate o-rings to ensure a water-tight seal during operation. The top off screw in the center of the lid allows you to bulk fill the chamber, seal the phantom and then top off the chamber, ensuring a quality fill with minimal bubbles. **Our standard size is detailed in the following schematics, but the chamber and grid size are both customizable for a variety of scanner sizes and applications.**

- Distortion Phantom Key Features:**
- Quick & easy to fill
 - Simple snap-on, double O-ring lid
 - Bubble trap
 - Chamfers to prevent bubbles
 - Top off filling hole
 - Custom sizing available
 - MRI and multi-modality imaging compatibility
 - Video provided for step-by-step guidance



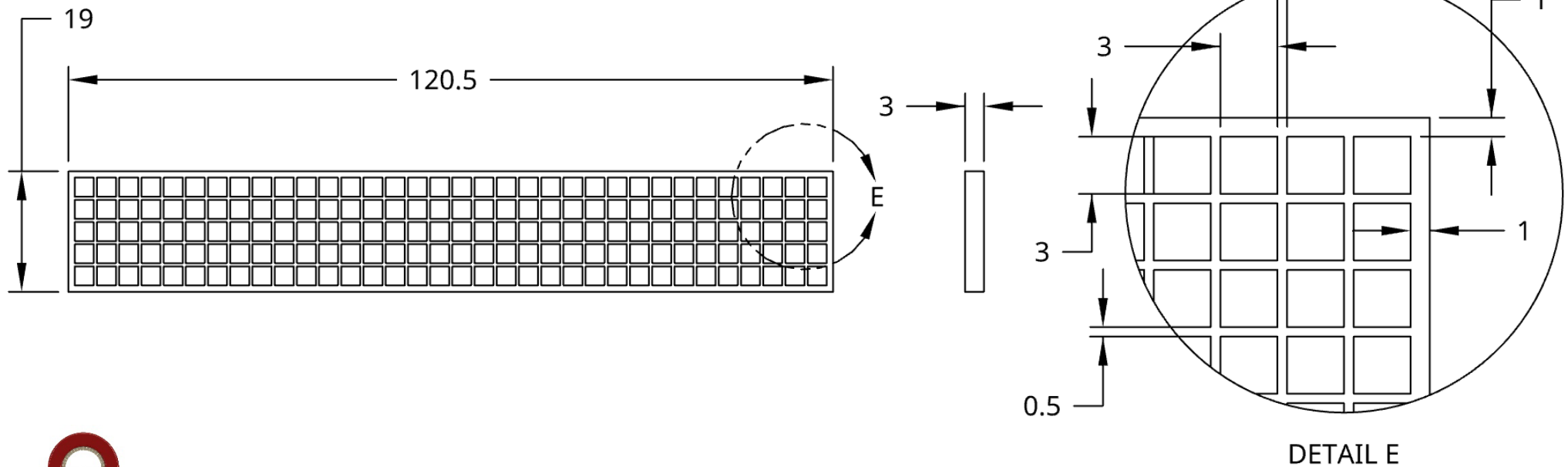
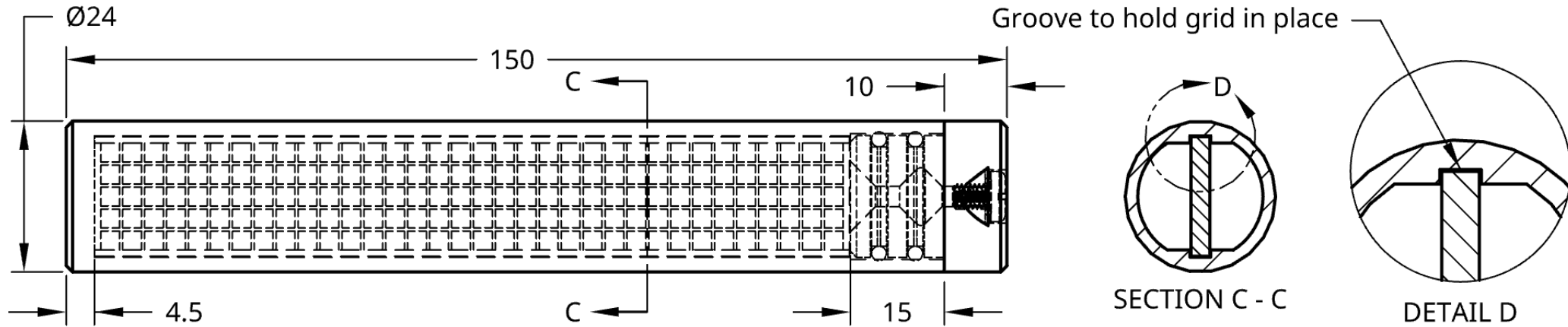
Product: Distortion Phantom

Specifications



Product: Distortion Phantom

Specifications (Continued)



Product: Distortion Phantom

Filling & Cleaning

Filling Instructions

- The main chamber has a volume of roughly 36 mL
 - We suggest filling the chamber about 1/2 to 2/3 of the way full before slowly adding the grid insert
- Tapping or shaking the phantom gently can force any bubbles trapped around the grid to the surface
- To lower water surface tension and prevent bubbles, a small amount (<1% v/v) of a surfactant can be used

Filling steps:

1. Remove cap (inspect O-rings).
 2. Fill the container with 20-25 mLs of water/solution
 3. Slowly submerge the grid insert into the container
 4. Light tapping, shaking, flicking or vortexing can be used to force bubbles to the top
 5. Remove the center top-off bolt from the lid, and then attach the lid to the container by pressing it into the chamber
 6. Using a pipette or syringe, fill the remaining air volume with solution to near the top of the bubble trap
 7. Reinstall the center micro-filling bolt and O-ring
 8. Wrap phantom in Parafilm and then scan
- Emptying: Remove the top-off bolt and using a syringe or pipette, remove some water or solution until the water level is below the lid. Then you can remove the lid, pull out the grid phantom, and invert the chamber to empty the remaining liquid.
 - Cleaning: flush the phantom with saline followed by several passes of air. Leave the phantom disassembled to allow the parts to completely dry. **WARNING: Do NOT use organic solvents such as acetone, EtOH, isopropyl alcohol, denatured alcohol or other harsh chemicals to fill or clean Phantech phantoms; these chemicals may compromise their integrity.** Use saline for filling and cleaning. Neutral pH of filling solution is recommended but slightly acidic solutions are tolerated for short-time use with radiometals, for example. Empty the phantom as soon as possible after use and then store them in a protective case in a dry location. Do NOT autoclave. If applicable, inspect O-rings before each use. Replace O-rings if they appear dried or cracked.