# END FIRE PROSTATE PHANTOM

*Most Accurate Prostate Phantom &
Surrounding Tissues Mimicking Device
for Ultrasound, MRI, CT modalities*

Yezitronix' **radioactive seeds** implantation Model S-EF-2.3 Ultrasound Prostate Phantom is a multiple usage phantom developed for simulation and training for brachytherapy procedures.

Its ingenious and versatile design makes the S-EF-2.3 model a useful tool for simulation and training of different ultrasound rectal probes and surgical elements involved in prostate medical procedures.

The prostate phantom construct mimics the exact 3D shape and size of:

40cc Prostate
Urethra
Seminal vesicle
Ejaculatory duct
Rectal wall
Partial bladder
Fat muscle tissues
Perineal Tissue
Numerous lesions located inside the prostate.

All organs & tissues are correctly adjusted to mimic exact ultrasound echogenicity seen by surgeon during OR procedures.
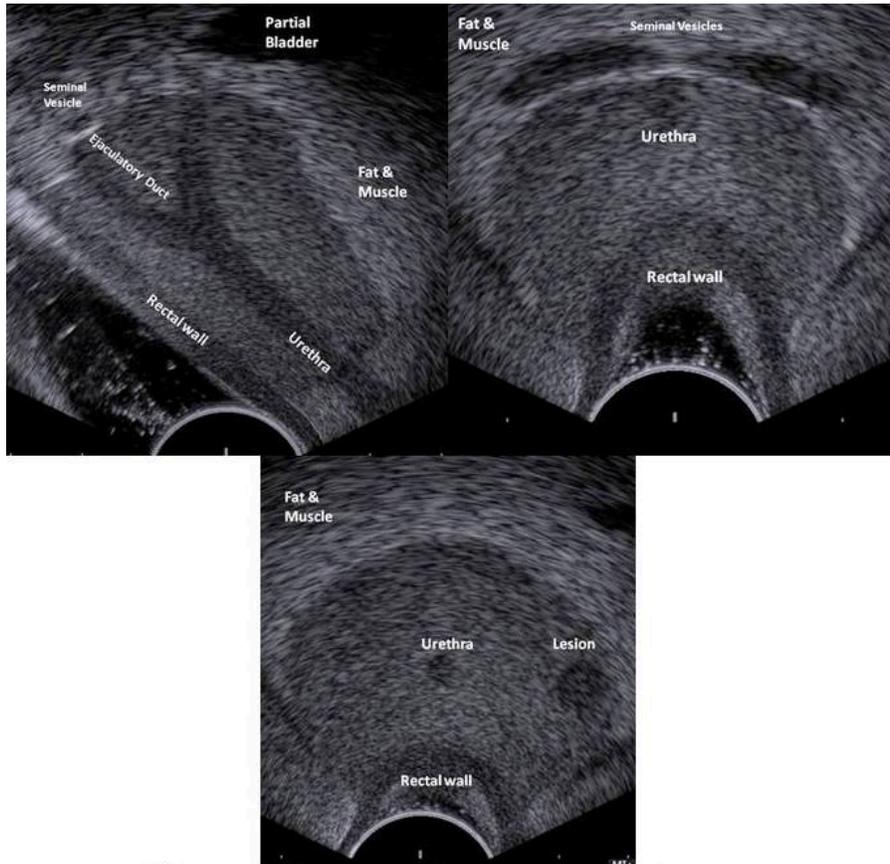
**Suitable for:**
OEMs. medical devices simulation, robotic system calibration, hospitals, clinics, med schools training and demonstrations.
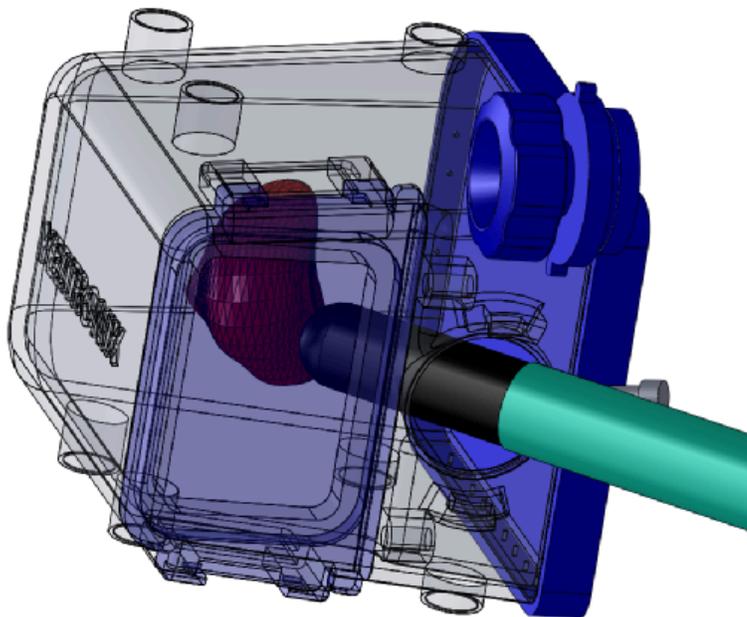
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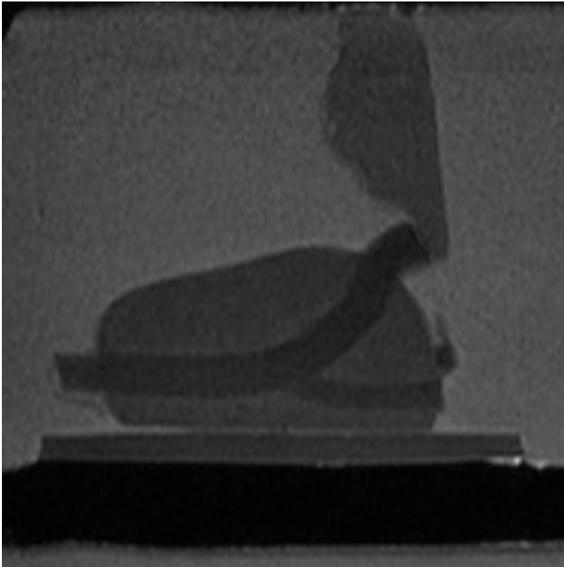
Prostate Phantom - Yezitronix Group Inc.



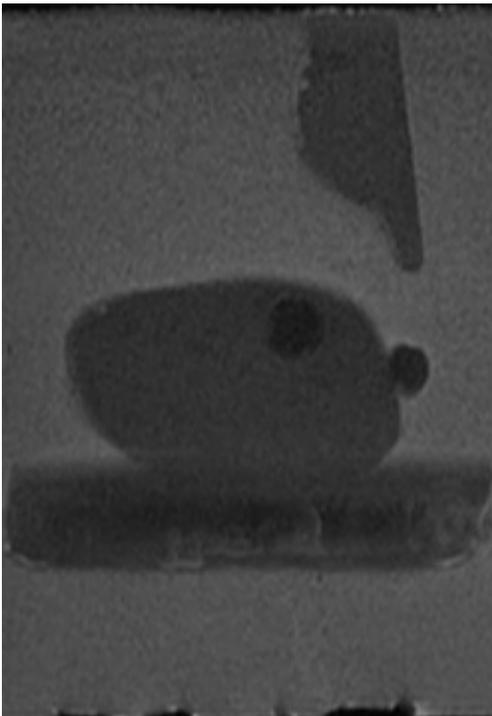**Prostate Phantom - Yezitronix Group Inc.**

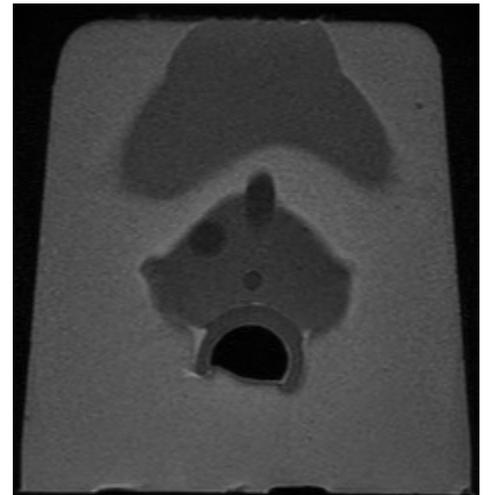**Ultrasound images of the prostate phantom**

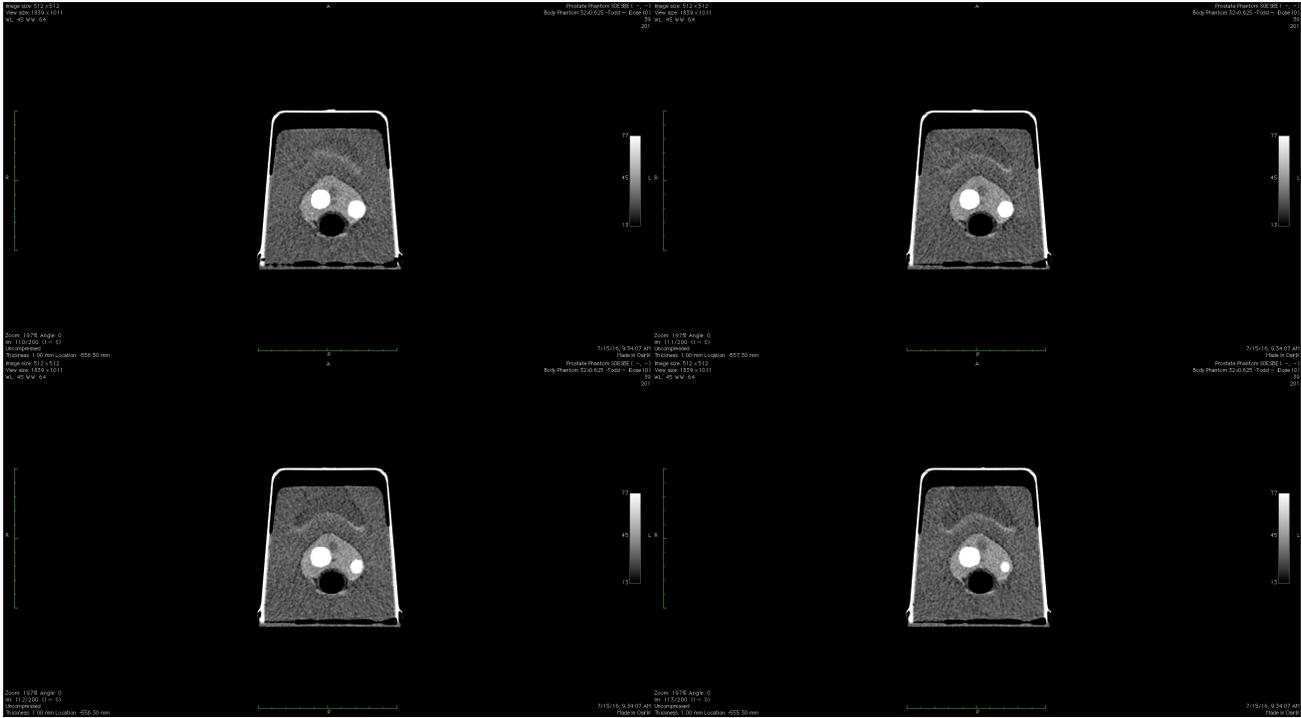A left lateral decubitus position for TRUS (End fire biopsy mode)

**Sagittal MRI view of the Prostate Phantom**
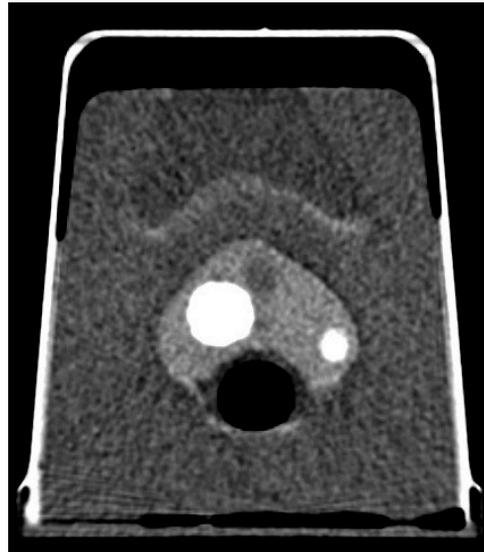


**Sagittal MRI view of the Prostate Phantom**



**Prostate Phantom MRI Transverse**

**Prostate Phantom CT Transverse Scans**



**Enlarged Prostate Phantom CT**

All phantom tissues' mechanical properties are approximated to human tissues. All prostate phantom layers mimic the tissue behaviour (dynamics) when pierced.

When for example a needle is piercing the Multi-Layer Prostate Phantom construct, it will generate a "Haptic Feedback (tactile)" to the user, simulating the real human tissue during biopsy or Brachytherapy procedure.
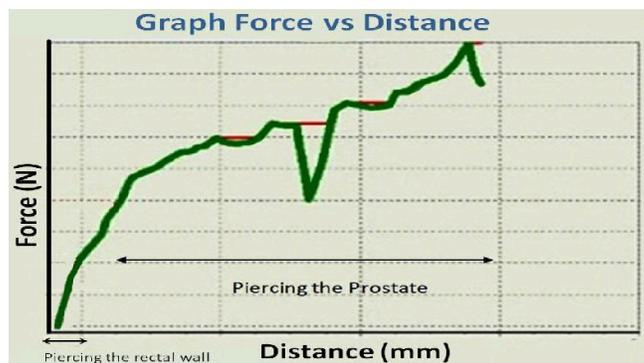


Real time graph (Prostate phantom device test bed) - of force as function of needle depth penetration
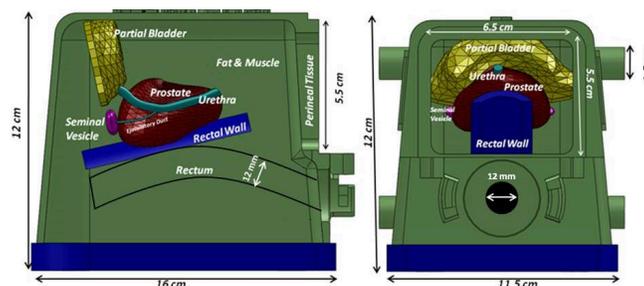


Internal tissues setup of the prostate phantom End fire model.

**Specifications :**
Multi-layer material : each tissue or organ is
independent and has its own characteristics
defined by a real 3D shape, echogenicity level
and mechanical properties.
There are 4 embedded lesions in the prostate to
help simulate biopsies or brachytherapies
procedures.
Multiple usage of the same packaged phantom
over an extended period of time.

**Enclosure :**
16(L) x 11.5(W) x 12(H), Material . PVC, PC and metal latches. Front upper window 6.5(W) x 5.5
(H), Probe input diameter . 3.5 (all units in cm)

**Perineal Tissue :**
65(W) x 55 (H) x 3mm thick, approximate mechanical response of human tissue

**Fat & Muscles :**
Approximate mechanical response of human tissue

**Urethra :**
6mm diameter and 61mm(L)

**Ejaculatory duct :**
4mm diameter 28mm (L)

**Seminal vesicles :**
2 of 25(L)x6(W)x 4mm(Thick)

**Prostate gland :**
40cc, approximate mechanical response of human tissue.

**Rectal wall :**
81(L)x 75(W)x2.5(thick)mm, approximate mechanical response of human tissue.

**Partial bladder :**
13.4cc

**Lesions :**
4 Elliptic 0.3cc

**Template:**
13 columns and 11 rows.
ø: 2 mm

**Available Models :**

- Bi-plane (Side Fire) : S-BP-2.3

- End fire mode : S-EF-2.3

- Multi-modality mode (Ultrasound, CT, MRI) : S-MM-2.3

- Without lesions : S-WL-2.3

- Coloured components (Bladder, Urethra, Seminal Vesicles, Ejaculatory Duct) for Biopsy training : S-CC-2.3

- With hollow Urethra for catheter insertion : S-HU-2.3

- Custom design according to customer specifications : S-CD-2.3

Technology developed with the collaboration of the scientists from NRCC-National Research Council of Canada and surgeons at the department of urology at the London Health Sciences Centre in Ontario, Canada.
**Patent Pending.**

All components are based on Yezitronix' new unique MajesticMix material.
Speed of propagation ~1540m/s