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Single Photon Emission Computed Tomography System

>>>Instruction<<<

Product Introduction and Structure

The single photon emission computed tomography system (Single Photon Emission Computed Tomography System, abbreviated as SPECT) is based on a rotating γ camera and consists of one or more probes (including collimators, crystals, light guides, photomultiplier tube matrices, etc.), pulse amplitude analyzers, rotating frames, low attenuation examination beds, image processing and output equipment, etc.
The Carlson model is also the single photon emission computed tomography imaging module (SPECT).

SPECT involves injecting single photon radioactive nuclides into the human body. Through the rotation of the probe to collect information from different angles and perform image reconstruction, it can obtain images of the radioactive spatial distribution of various tomographic sections. At the same time, when applied to gamma cameras, it can acquire static, dynamic, gated and whole-body scan images.

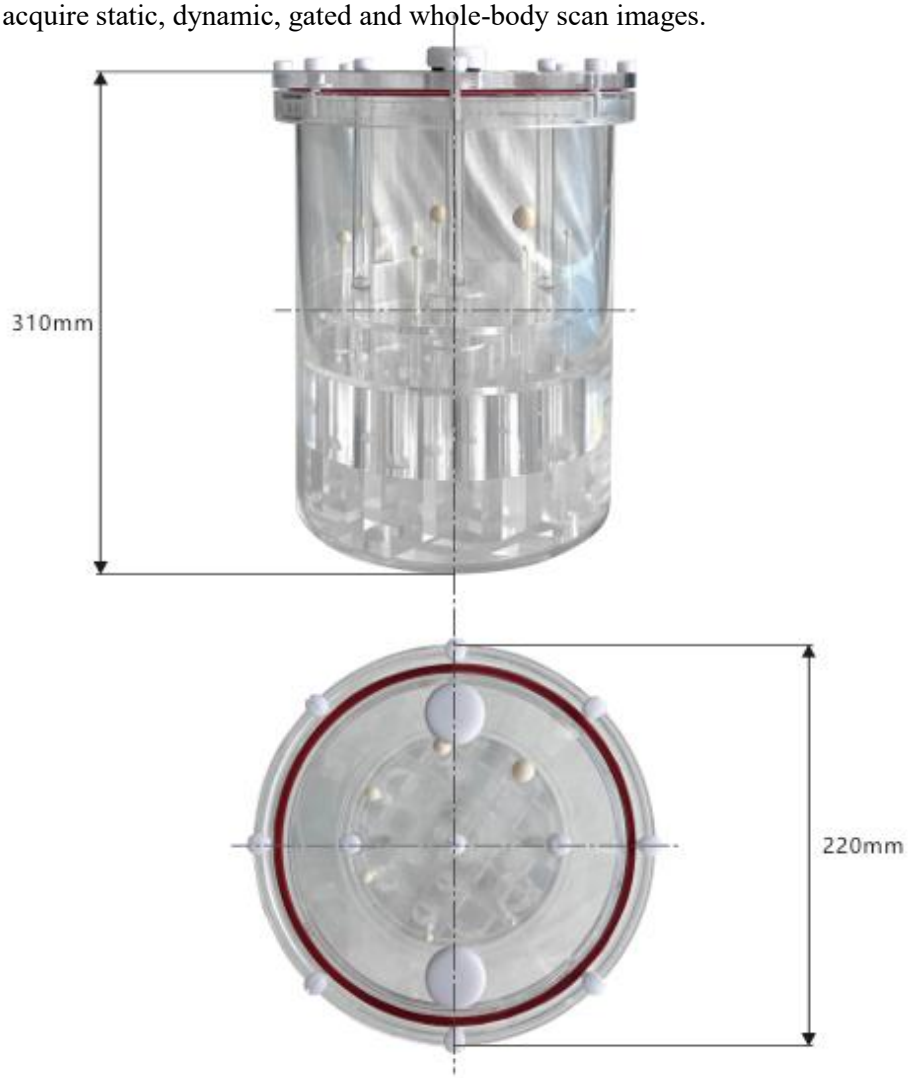


Figure A. 1 Single Photon Emission Computed Tomography Imaging Phantom

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A. 1. Cold Zone Plugin

The cold zone insert consists of 7 organic glass rods and solid balls (yellow ABS balls) (see Figure A.2). The recommended diameters of the rods are 4.7mm, 5.9mm, 7.3mm, 9.2mm, 11.4mm, 14.3mm, and 17.9mm. The balls are attached to the rods and have the same diameter as the corresponding rods.

After injecting radioactive solution into the mold, the rods and spheres become the cold zone.

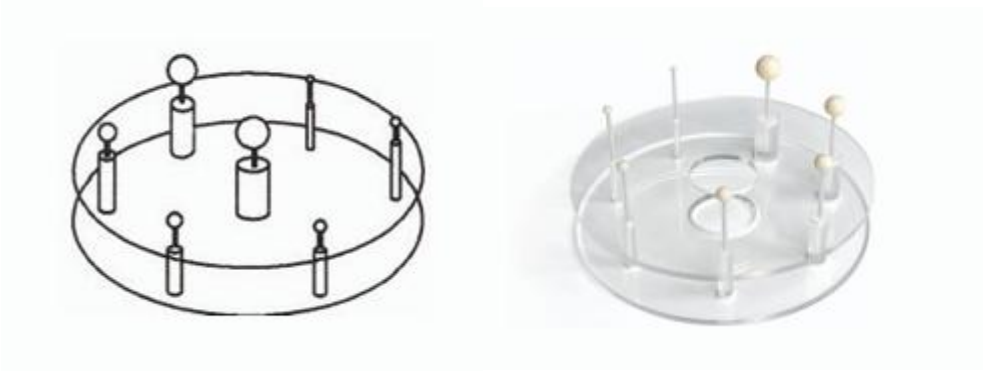


Figure A. 2 Cold Zone Plugin

A.2. Heat Zone Plugin

The heat zone plug consists of 8 pairs of circular holes in the acrylic sheet (as shown in Figure A. 3). The recommended hole diameters are 4.7 mm, 5.9 mm, 7.3 mm, 9.2 mm, 11.4 mm, 14.3 mm, 17.9 mm, and 22.4 mm.
After injecting radioactive solution into the mold, the area inside the circular hole becomes the hot zone.

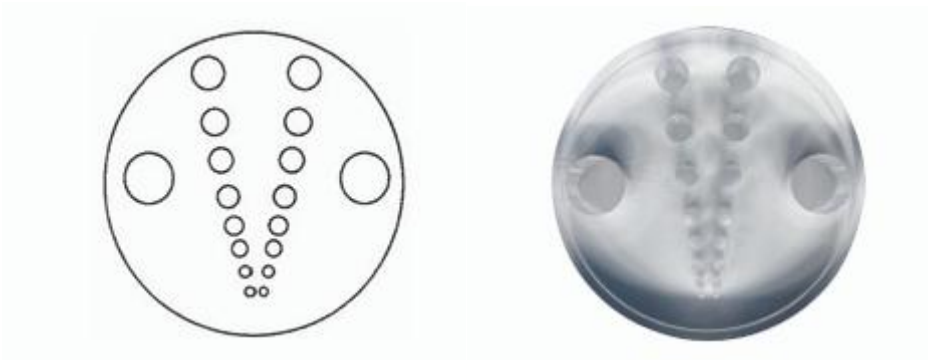


Figure A. 3 Heat Zone Plugin

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A. 3. Spatial Linearity and Uniformity Plugin

The spatial linear and uniformity plugin consists of interlaced grid organic glass blocks, which are composed of 32 square holes (see Figure A.4).

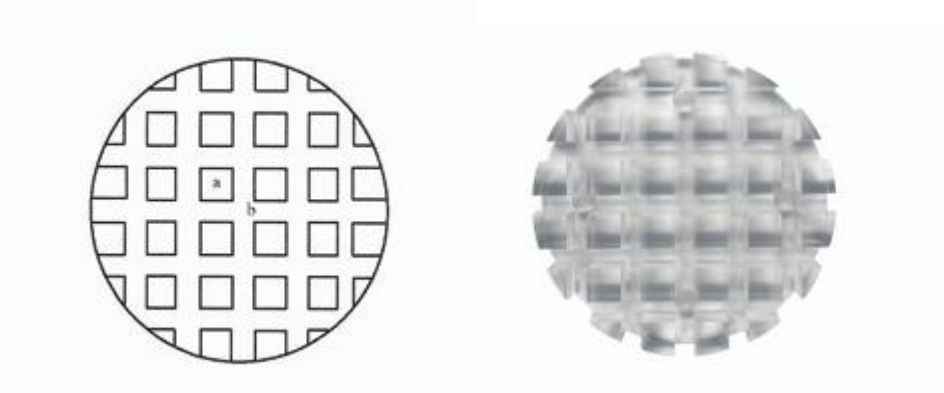


Figure A.4 Spatial Linear and Uniformity Plugin

(a represents the cold zone, b represents the hot zone)