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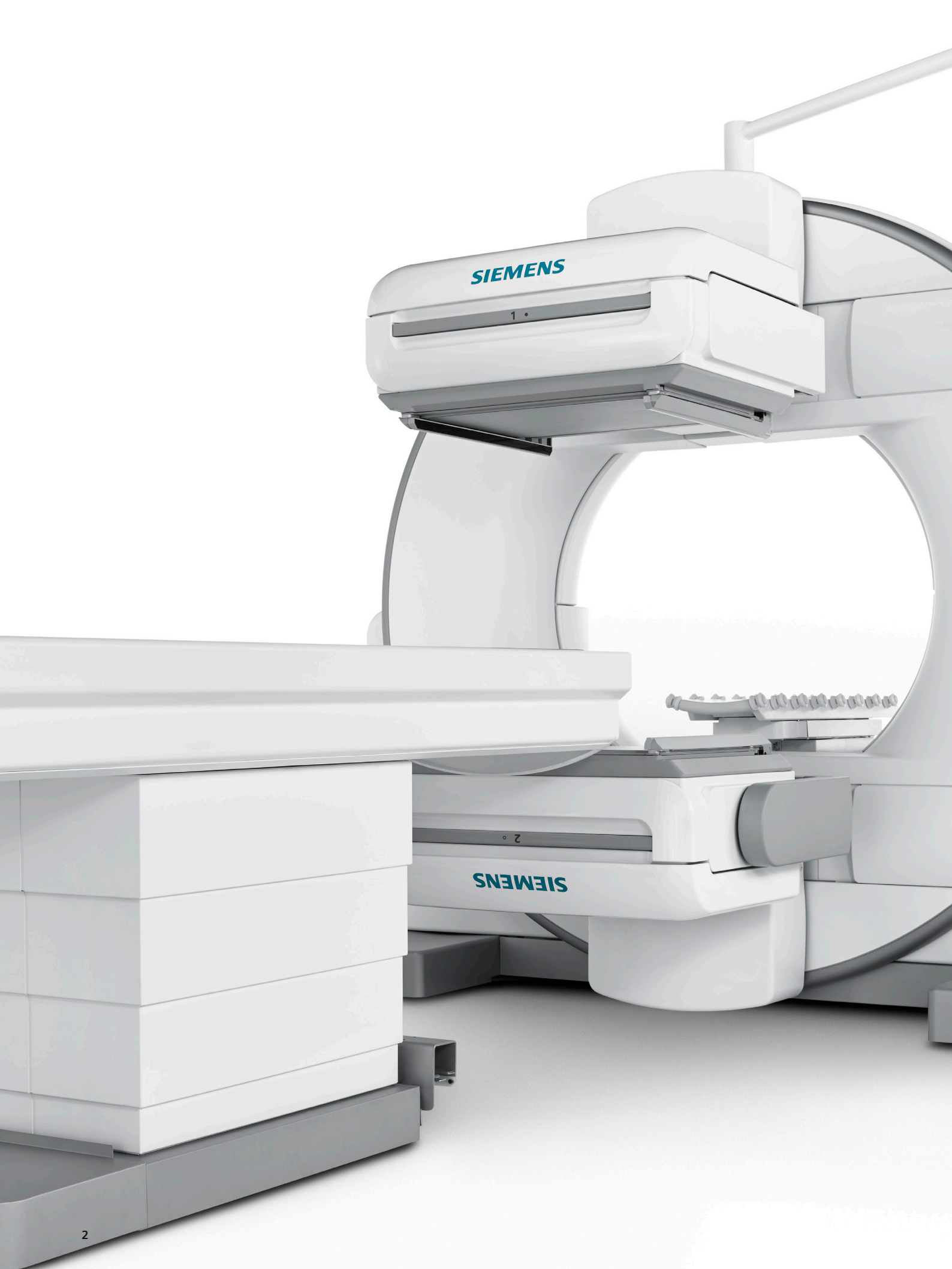
Symbia Evo
Excel

www.siemens.com/symbia-evo-excel

Symbia Evo Excel

System Specifications

Answers for life.



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Symbia Evo Excel

Small is the new big.

Small on the outside, yet big on the inside, Symbia Evo™ Excel* empowers you to image every patient** knowing you have the clinical information needed for confident decision making and a system designed to optimize your investment.

Optimize Your Investment

Engineered to manage key life-cycle costs, Symbia Evo Excel is the most cost-effective SPECT scanner in its class.*** The system design addresses space requirements, as well as maintenance and serviceability, making it an investment that works for you. With the smallest*** room size requirement in its class—up to 29%*** smaller than conventional SPECT systems—Symbia Evo Excel significantly reduces costs associated with room remodeling and expansion. Lower up-front costs equate to a faster return on investment.

Image Every Patient**

With exceptional detector flexibility, Symbia Evo Excel supports gurney and hospital bed imaging. The streamlined bed accommodates patients up to 227 kg (500 lbs) and the lowest bed position offers easy access to patients with limited mobility. Increase your scannable population and improve patient comfort with a 30% larger bore, compared to prior systems; a high-capacity, low-height patient bed; and gurney and hospital bed imaging capabilities.

Read with Confidence

Equipped with advanced high-definition detector technology, Symbia Evo Excel offers the highest*** collimator sensitivity and the best*** NEMA-reconstructed resolution. Symbia Evo Excel's industry-leading*** image quality delivers accurate and reproducible clinical information to support physicians' diagnostic confidence, potentially leading to improved clinical outcomes and reduced readmission rates.

* Symbia Evo Excel is not commercially available in all countries. Due to regulatory reasons its future availability cannot be guaranteed. Please contact your local Siemens organization for further details.

** Patients up to 227 kg (500 lbs).

*** Based on competitive literature available at time of publication.

Features

| Gantry Dimensions | | Symbia Evo Excel |
|---|--|--|
| Height | | 225 cm (7 ft 4.7 in) |
| Width | | 215.6 cm (7 ft 0.9 in) |
| Depth | | 194.7 cm (6 ft 4 in) |
| Axis of rotation (from floor) | | 104 cm (3 ft 5 in) |
| Weight* | | 2,369 kg (5,224 lbs) |
| Min./max. patient opening (HE Coll) | | 12 cm (4.7 in)/65.4 cm (25.7 in) |
| Min./max. patient opening (LEHR Coll) | | 19.2 cm (7.6 in)/72.6 cm (28.6 in) |
| Patient positioning monitor | | 38.1 cm (15 in) flat panel color LCD display |
| Tunnel opening | | 101.2 x 78.3 cm (39.8 x 30.8 in) |
| Tunnel length | | 34.1 cm (13.4 in) |
| SPECT Motions | | Symbia Evo Excel |
| Average autocontour distance | | 1.1 cm (0.45 in) |
| Max. radial and lateral | | 72 cm/min (28.3 in/min) |
| Max. lateral position left/right | | 37.5 cm (14.7 in)/10 cm (4 in) |
| Max. clockwise (CW)/counter-clockwise (CCW) rotation detector 1 | | 405°/135° |
| Ring rotation range | | 540° |
| Rotational uniformity | | Yes |
| Rotational accuracy | | 0.1° |
| Rotational speed | | 0.03-3.0 RPM |
| Center of rotation | | ≤0.25 pixel (64 x 64 matrix) |
| Max. caudal tilt | | +16°/-16° |
| Patient Bed | | Symbia Evo Excel |
| Width | | 65.2 cm (25.7 in) |
| Length | | 233.2 cm (7 ft 7.8 in) |
| Weight | | 483 kg (1,065 lbs) |
| Height | | 113.4 cm (3 ft 8.6 in) |
| Vertical motion range | | 53.9 – 103.7 cm (21.2 – 40.8 in) |
| Vertical speed | | 72 cm/min (28 in/min), maximum |
| Pallet material | | Aluminum |
| Pallet thickness | | 2.6 mm (0.10 in) |
| Pallet width | | 40.3 cm (15.8 in) |
| Attenuation at 140 keV | | <7% |
| Max. patient weight | | 227 kg (500 lbs) |
| Max. deflection of patient pallet | | <2.0 mm (<0.08 in) for 92 kg (200 lbs) patient |
| Max. scan length in whole-body mode | | 200 cm (6 ft 6.7 in) |
| Horizontal motion accuracy | | 0.7 mm (0.02 in) |
| Min./max. horizontal speed | | 3-600 cm/min (1.2-236 in/min) |

*Gantry weight: NM gantry 2,374 kg (5,224 lbs).

SPECT Specifications

| | |
|----------------------------------|---|
| Rear Pallet Support | Symbia Evo Excel |
| Width | 26.3 cm (10.3 in) |
| Length | 104.3 cm (3 ft 5.1 in) |
| Weight | 162 kg (357.1 lbs) |
| ECG Trigger | Symbia Evo Excel |
| Integration | External |
| Framing modes | Forward or forward/backward by thirds |
| Buffered beat window | Yes |
| Bad beat rejection | Yes |
| Criteria for framing images | Frames/R-R interval |
| Beat acceptance window | Automatic or manual selection |
| Collimator Exchanger Cart | Symbia Evo Excel |
| Height | 101.4 cm (3 ft 3.9 in) |
| Width | 82.8 cm (2 ft 8.6 in) |
| Depth | 120.4 cm (3 ft 11.4 in) |
| Weight | 181.4 kg (400 lbs) |
| Detector Dimensions | Symbia Evo Excel |
| Field-of-view (FoV) | 53.3 x 38.7 cm (21 x 15.25 in) |
| Diagonal FoV | 65.9 cm (25.9 in) |
| Crystal | Symbia Evo Excel |
| Size | 59.1 x 44.5 cm (23.25 x 17.5 in) |
| Diagonal | 73.9 cm (29.1 in) |
| Thickness | 9.5 mm (3/8 in) or 15.9 mm (5/8 in) |
| Photomultiplier Tubes | Symbia Evo Excel |
| Total number | 59 |
| Diameter | 53-7.6 cm (3 in) and 6-5.1 cm (2.4-2 in) |
| Type | Bialkali high-efficiency box-type dynodes |
| Array | Hexagonal |
| Detector Shielding | Symbia Evo Excel |
| Back | 9.5 mm (0.375 in) |
| Sides | 12.7 mm (0.5 in) |
| Min./max. in patient direction* | 27.9/36.4 mm (1.1/1.435 in) |
| Brain reach** | 7.6 cm (3 in) |

* For any point on the pallet at maximum 183 cm (6 ft) from the detector while the detector is at 25.4 cm (10 in) radial position.

** Distance from the edge of the detector housing to the edge of the FoV.

SPECT Specifications

| Detector* | 3/8" | 5/8" |
|--|-------------|-------------|
| Intrinsic spatial resolution | | |
| FWHM in CFOV | ≤3.8 mm | ≤4.5 mm |
| FWHM in UFOV | ≤3.9 mm | ≤4.6 mm |
| FWTM in CFOV | ≤7.5 mm | ≤8.7 mm |
| FWTM in UFOV | ≤7.7 mm | ≤8.9 mm |
| Intrinsic spatial linearity | | |
| Differential in CFOV | ≤0.2 mm | ≤0.2 mm |
| Differential in UFOV | ≤0.2 mm | ≤0.2 mm |
| Absolute in CFOV | ≤0.4 mm | ≤0.5 mm |
| Absolute in UFOV | ≤0.7 mm | ≤1.0 mm |
| Intrinsic energy resolution | | |
| FWHM in CFOV | ≤9.9% | ≤9.9% |
| Intrinsic flood field uniformity (uncorrected) | | |
| Differential in CFOV | ≤2.5% | ≤2.5% |
| Differential in UFOV | ≤2.7% | ≤2.7% |
| Integral in CFOV | ≤2.9% | ≤2.9% |
| Integral in UFOV | ≤3.7% | ≤3.7% |
| Multiple window spatial registration | ≤0.6 mm | ≤1.0 mm |
| Intrinsic count rate performance in air | | |
| Maximum count rate | 310 kcps | 310 kcps |
| Intrinsic spatial resolution at 75 kcps | | |
| FWHM in UFOV | ≤4.1 mm | ≤4.6 mm |
| FWTM in UFOV | ≤7.8 mm | ≤8.9 mm |
| Intrinsic flood field uniformity at 75 kcps (uncorrected) | | |
| Differential in CFOV | ≤2.5% | ≤2.5% |
| Differential in UFOV | ≤2.7% | ≤2.7% |
| Integral in CFOV | ≤2.9% | ≤2.9% |
| Integral in UFOV | ≤3.7% | ≤3.7% |
| Detector with Collimator* | 3/8" | 5/8" |
| System spatial resolution without scatter (LEHR at 10 cm) | | |
| FWHM in CFOV | ≤7.5 mm | ≤7.8 mm |
| FWTM in CFOV | ≤13.6 mm | ≤14.9 mm |
| System spatial resolution with scatter (LEHR at 10 cm) | | |
| FWHM in CFOV | ≤8.3 mm | ≤8.9 mm |
| FWTM in CFOV | ≤18.6 mm | ≤19.5 mm |
| System planar sensitivity (LEHR at 10 cm) | | |
| Absolute | 202 cpm/μCi | 225 cpm/μCi |
| System planar sensitivity (ME at 10 cm) | | |
| Absolute ¹¹¹ In | 430 cpm/μCi | 565 cpm/μCi |

* Values are determined at the manufacturer's facility using methods described in NEMA Standards Publications NU 1-2007 "Performance measurements of Scintillation Cameras." The specialized phantoms and software required to reproduce these measurements are available from Siemens.

SPECT Specifications

| Detector with Collimator Tomographic* | 3/8" | 5/8" |
|---|--|----------|
| Reconstructed spatial resolution without scatter at 15 cm radius (LEHR) | Filtered back projection | |
| Central transaxial | ≤10.2 mm | – |
| Central axial | ≤10.8 mm | – |
| Peripheral radial | ≤9.8 mm | – |
| Peripheral tangential | ≤8.4 mm | – |
| Peripheral axial | ≤9.0 mm | – |
| Reconstructed spatial resolution without scatter at 15 cm radius (LEHR) | Flash 3D iterative reconstruction | |
| Central transaxial | ≤4.4 mm | – |
| Central axial | ≤4.4 mm | – |
| Peripheral radial | ≤4.0 mm | – |
| Peripheral tangential | ≤3.9 mm | – |
| Peripheral axial | ≤4.2 mm | – |
| Reconstructed spatial resolution with scatter (LEHR) | Filtered back projection | |
| Center | ≤10.7 mm | ≤11.5 mm |
| Radial | ≤10.9 mm | ≤12.0 mm |
| Tangential | ≤7.9 mm | ≤8.8 mm |
| Reconstructed spatial resolution with scatter (LEHR) | Flash 3D iterative reconstruction | |
| Center | ≤5.8 mm | – |
| Radial | ≤5.0 mm | – |
| Tangential | ≤4.1 mm | – |
| Average volume sensitivity per axial centimeter | | |
| LEHR, ^{99m} Tc | 12,000 (cts/sec)/(MBq/cm ²) | – |
| Detector-to-detector sensitivity variation | | |
| LEHR, ^{99m} Tc | ≤5.0% | – |
| Detector with Collimator Whole-body Scanning | 3/8" | 5/8" |
| Whole-body system spatial resolution without scatter at 10 cm/min scan speed (LEHR at 10 cm) | | |
| FWHM perpendicular | ≤7.5 mm | – |
| FWHM parallel | ≤7.9 mm | – |
| FWTM perpendicular | ≤14.0 mm | – |
| FWTM parallel | ≤14.2 mm | – |

* Values are determined at the manufacturer's facility using methods described in NEMA Standards Publications NU 1-2007 "Performance measurements of Scintillation Cameras." The specialized phantoms and software required to reproduce these measurements are available from Siemens.

SPECT Specifications

| Collimators | LEHR | LEAP | LEUHR | LEFB | ME | HE |
|--------------------------------|----------------------------|------------------------|----------------------------------|---------------------|---------------------|------------------|
| | Low Energy High Resolution | Low Energy All Purpose | Low Energy Ultra-High Resolution | Low Energy Fan Beam | Medium Energy | High Energy |
| Isotope | ^{99m} Tc | ^{99m} Tc | ^{99m} Tc | ^{99m} Tc | ⁶⁷ Ga | ¹³¹ I |
| Hole shape | Hex | Hex | Hex | Hex | Hex | Hex |
| Number of joles (x1000) | 148 | 90 | 146 | 64 | 14 | 8 |
| Hole length | 24.05 mm | 24.05 mm | 35.8 mm | 35 mm | 40.64 mm | 50.8 mm |
| Septal thickness | 0.16 mm | 0.2 mm | 0.13 mm | 0.16 mm | 1.14 mm | 2 mm |
| Hole diameter across the flats | 1.11mm | 1.45 mm | 1.16 mm | 1.53 mm | 2.94 mm | 3.4 mm |
| Sensitivity at 10 cm* | 202 cpm/μCi | 330 cpm/μCi | 100 cpm/μCi | 280 cpm/μCi | 275 cpm/μCi | 135 cpm/μCi |
| Geometric resolution at 10 cm* | 6.4 mm | 8.3 mm | 4.6 mm | 6.3 mm | 10.8 mm | 12.6 mm |
| System resolution at 10 cm | 7.5 mm | 9.4 mm | 6.0 mm | 7.3 mm | 12.5 mm | 14.5 mm |
| Septal penetration | 1.5% | 1.9% | 0.8% | 1.0% | 1.2% | 3.5% |
| Exit surface | N/A | N/A | N/A | 44.5 mm | N/A | N/A |
| Weight | 22.6 kg (49.8 lbs) | 22.6 kg (49.8 lbs) | 28 kg (61.8 lbs) | 28.4 kg (62.5 lbs) | 63.5 kg (140.1 lbs) | N/A |

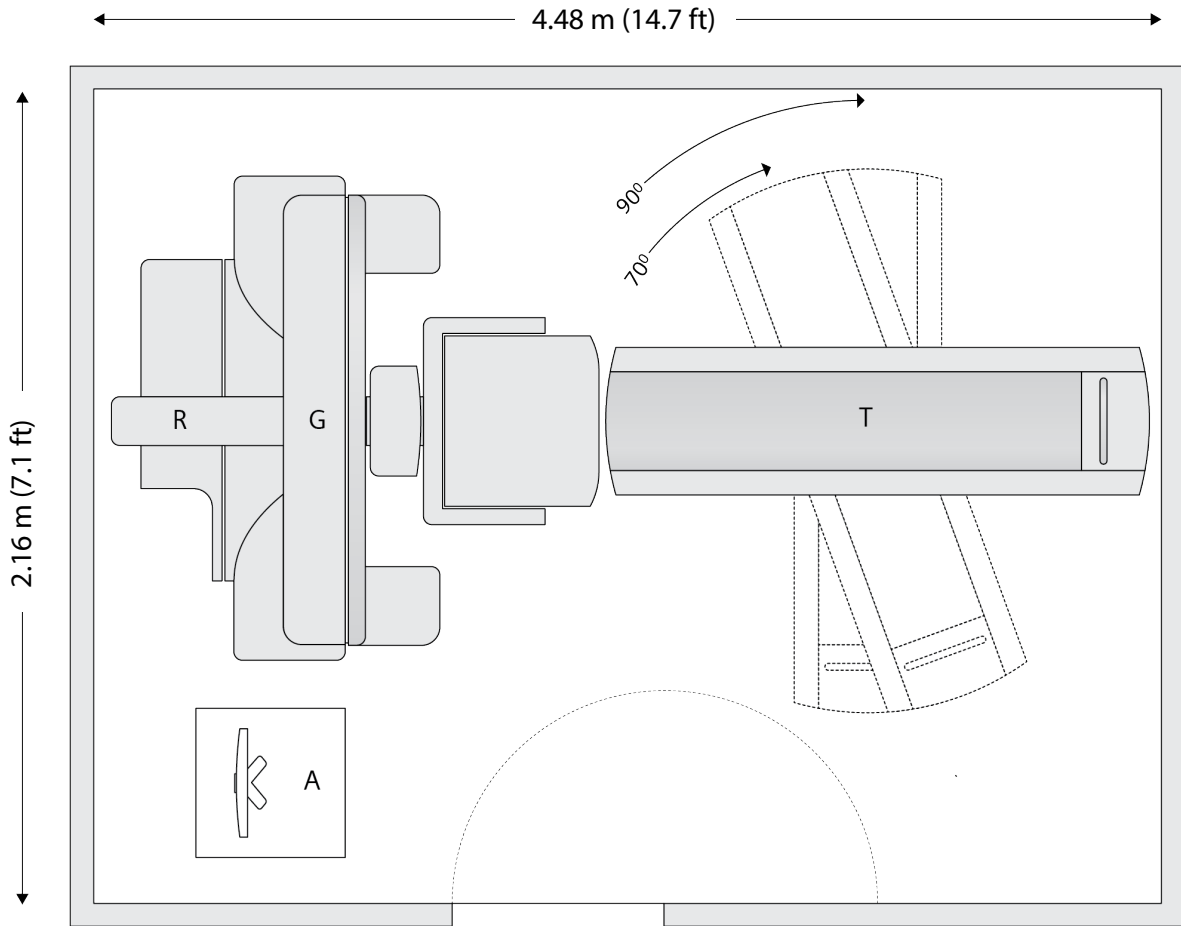
* Values measured in accordance with NEMA Standards Publication NU-1 2007 using 3/8" crystal.

SPECT Specifications

| Pinhole Collimator* | Isotope | | |
|---|---------------------|---------------------|---------------------|
| | ^{99m} Tc | ¹²³ I | ¹³¹ I |
| Hole shape | Round | Round | Round |
| Number of holes | 1 | 1 | 1 |
| Cone aperture | 4 mm, 6 mm, 8 mm | 4 mm, 6 mm, 8 mm | 4 mm, 6 mm, 8 mm |
| Cone length | 219.3 mm | 219.3 mm | 219.3 mm |
| Diameter at base of cone (approximate) | 220 mm | 220 mm | 220 mm |
| Sensitivity at 10 cm with 4 mm | 123 cpm/μCi | 111 cpm/μCi | 67 cpm/μCi |
| Sensitivity at 10 cm with 6 mm | 271 cpm/μCi | 243 cpm/μCi | 133 cpm/μCi |
| Sensitivity at 10 cm with 8 mm | 478 cpm/μCi | 426 cpm/μCi | 221 cpm/μCi |
| Geometric resolution at 10 cm with 4 mm | 6.2 mm | 6.3 mm | 7.5 mm |
| Geometric resolution at 10 cm with 6 mm | 9.3 mm | 9.3 mm | 10.6 mm |
| Geometric resolution at 10 cm with 8 mm | 12.3 mm | 12.4 mm | 13.6 mm |
| System resolution at 10 cm with 4 mm | 6.6 mm | 6.6 mm | 7.6 mm |
| System resolution at 10 cm with 6 mm | 9.5 mm | 9.5 mm | 10.7 mm |
| System resolution at 10 cm with 8 mm | 12.5 mm | 12.5 mm | 13.7 mm |
| Weight | 80.3 kg (177 lbs) | 80.3 kg (177 lbs) | 80.3 kg (177 lbs) |

* Values measured in accordance with NEMA Standards Publication NU-1 2007 using 3/8" crystal.

Symbia Evo Excel – Minimum Room Size



| | |
|---------------------|-----------------------------------|
| Room size | 3.60 m (11.8 ft) x 4.57 m (15 ft) |
| Ceiling height | 2.44 m (8 ft 0 in) |
| Hung ceiling height | 2.29 m (7.5 ft) |
| System length | 4.48 m (14.7 ft) |
| System width | 2.16 m (7.1 ft) |

Example layout. Please request site-specific plans for your project.

Installation Specifications

| Label | Item Name | Weight | Heat Output |
|-------------------------------|-----------------------------------|---|------------------------|
| G | Symbia Evo Excel gantry | 2,369 kg (5,224 lbs) | 3,400 BTU/h, 1.0 kW |
| T | Symbia Evo Excel imaging table | 483 kg (1,065 lbs) | – |
| R | Symbia Evo Excel rear PHS | 162 kg (357.1 lbs) | – |
| A | Acquisition computers | – | 1,000 BTU/h, 0.3 kW |
| Power Requirements | | | |
| SPECT input voltage | | Single-phase 200/208/220/230/240 VAC~ 50/60Hz | |
| Electrical supply | | Single phase 200/208/220/230/240 VAC~ 50/60 Hz, 3.0 kVa | |
| Environment | | | |
| Ambient operating temperature | | 18-30° C (64-86° F) | |
| Allowable temperature change | | 4.4° C (8° F) per hour | |
| Humidity range | | 20-80% non-condensing | |
| Floor loading* | | 3.37 kg/sq cm (48 lbs/sq in) maximum under the gantry | |
| Heat dissipation** | | 6,500 BTU/hr | |
| Temperature range | | 18° -30° C (64° - 86° F) | |
| Maximum temperature gradient | | 4.4° C/hour (8° F/hour) | |

* Floor loading based on utilization of a floor plate.

** Includes gantry, detectors, patient bed, acquisition workstation, LCD monitor, PPM and UPS. Values in idle mode and operating mode would produce higher values.

Detector Versatility



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