



**System specifications**

# Symbia Evo SPECT

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# Symbia Evo SPECT

## System specifications

System hardware (standard)	System hardware (optional)
Open gantry design (101.1 x 78.2 cm (39.8 x 30.8 in))	Dedicated reconstruction system with 64-bit architecture
Two high-definition digital SPECT detectors	Caudal tilt
Low-profile 3/8" or 5/8" detectors	Low-energy, high-resolution collimator
Detector configuration, including 180°, 90°, 76°, gurney, standing, sitting, out-facing	Low-energy, all-purpose collimator
Automatic body contouring	Low-energy ultra-high-resolution collimator
Detector touchpad sensors	Medium-energy collimator
Lightrail sensors and lightrail touchpads	Low-penetration, high-resolution collimator
Circular and non-circular orbit	Fan beam collimator
Patient positioning monitor (PPM)	High-energy collimator
– Patient positioning with window and persistence adjustment	Pinhole collimator (4, 6, or 8 mm aperture)
– Acquisition parameter display (elapsed time, time remaining, view number, count rate)	IQ•SPECT™ with SMARTZOOM™ collimator
– Detector and bed position information	IQ•SPECT armrest
– Gantry control (reconfiguration, collimator change, offset, zoom)	Integrated Collimator Changer (ICC)
Patient bed with rail-free gurney and wheelchair access	Automatic Collimator Changer (ACC)
Patient bed with 227 kg (500 lb) capability	Collimator cart
Patient bed pivot for rail-free access of sitting/standing patients, wheelchairs, imaging tables, gurneys, and hospital beds	Automatic Quality Control (AQC)
Integrated calibration source holder	AutoQC source kit
Rear bed with pallet flex prevention	Internal ECG for Symbia™ scanners
Aluminum pallet	External ECG gate with strip chart recorder
Patient comfort accessories (SPECT head holder and cushion, SPECT armrest, whole-body armrest, set of patient restraint straps)	Patient handling system (PHS) extended pivot
Acquisition workplace with multilingual graphical user interface, monitor, keyboard, and mouse plus full DICOM archiving, CD/DVD storage, external USB 2.0 disk support, and printing functionality	Extra hand controller
Intuitive hand controller with easy-to-use descriptive controls	Dual monitor
Monitor, 19" LCD DICOM (standard monitor, 19"/48 cm flat screen, 1,280 x 1,024 resolution, 1,024 x 1,024 image display matrix, and 0.29 mm pixel size)	e.Media for PPM
Operator manuals	Mammography pallet
	Pediatric pallet
	Under- or over-floor PHS cable
	Seismic installation kit

# System specifications

System software (standard)
Multimodality viewing software
Planar (static) acquisition
Dynamic acquisition
Whole-body acquisition
General SPECT acquisition
Whole-body SPECT acquisition
Gated acquisition
Gated SPECT acquisition
Dynamic SPECT acquisition
Filtered back projection
Flash 3D iterative reconstruction
Scatter correction
Cardiac half-time imaging
Remote diagnostic services
Gated study beat normalization
Automatic and manual motion correction
<i>syngo</i> <sup>®</sup> archiving and network
Video capture and editing tool
SPECT DICOM structured dose report <sup>1</sup>
Dynamic planar real-time activity curve

System software (optional)
Organ Processing for Symbia
Planar half-time imaging
<i>syngo</i> MI Remote Scanner Status
Corridor4DM™
Cedars Cardiology Engine
Neurology Engine
Scenium
<i>syngo</i> media viewer
<i>syngo</i> Security Package
PPM display and interaction at acquisition workplace
DICOM structured dose report viewer
<i>syngo</i> Expert-i <sup>1</sup>

# SPECT specifications

Gantry dimensions	
Height	225 cm (7 ft 4.7 in)
Width	215.6 cm (7 ft 0.9 in)
Depth	194.7 cm (6 ft 5 in)
Axis of rotation (from floor)	104 cm (3 ft 5 in)
Weight	2,369 kg (5,224 lb)
Minimum/maximum patient opening (HE collimator)	12 cm (4.7 in)/65.4 cm (25.7 in)
Minimum/maximum patient opening (LEHR collimator)	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	101.1 x 78.2 cm (39.8 x 30.8 in)
Tunnel length	34.1 cm (13.4 in)

SPECT acquisition	
Energy range (photopeak window center)	35-588 keV
Acquisition modes	Static, dynamic, gated, SPECT, gated SPECT, dynamic SPECT, whole-body, whole-body SPECT

Nuclear medicine and SPECT acquisition parameters	Static
Time	50-32,000,000 ms
Counts	1-2,147,483,647
Zoom	1.00, 1.23, 1.45, 1.78, 2.00, 2.29, 2.67, 3.20
Matrix	64 x 64, 128 x 128, 256 x 256, 512 x 512, 1024 x 1024
Body position	Supine, prone
Orientation	Head-in, head-out, gurnee-right, gurnee-left, head-left, head-right, sitting, standing, open-right, open-left
Detectors	Detector 1, detector 2, both
Detector configuration	180°, 90°, 76°, out-facing
Allowable collimators <sup>2</sup>	LEHR, LPHR, LEAP, LEUHR, ME, HE, pinhole

# SPECT specifications

Nuclear medicine and SPECT acquisition parameters	Dynamic
Time	50-32,000,000 ms
Number of frames	1-2,048 frames
Zoom	1.00, 1.23, 1.45, 1.78, 2.00, 2.29, 2.67, 3.20
Matrix	64 x 64, 128 x 128, 256 x 256
Number of phases	1-32 phases
Body position	Supine, prone
Orientation	Head-in, head-out, gurnee-right, gurnee-left, head-left, head-right, sitting, standing, open-right, open-left
Detectors	Detector 1, detector 2, both
Detector configuration	180°, 90°, 76°, out-facing
Acquire with R-wave gate	Selectable
Acquire with statics	Selectable
Allowable collimators <sup>2</sup>	LEHR, LPHR, LEAP, LEUHR, ME, HE, pinhole
Gated	
Time	1-32,000,000 ms
Counts	1-15,000,000 cts
Zoom	1.00, 1.23, 1.45, 1.78, 2.00, 2.29, 2.67, 3.20
Matrix	64 x 64, 128 x 128
Number of frames	2-32 frames
Body position	Supine, prone
Orientation	Head-in, head-out, gurnee-right, gurnee-left, head-left, head-right, sitting, standing, open-right, open-left
Detectors	Detector 1, detector 2, both
Detector configuration	180°, 90°, 76°, out-facing
Heartbeats	1-100,000 heartbeats
Heart beat framing	Forward, forward/backward by thirds
Beat window % width	0-200
Beat window center	256-2,000 ms/beat
Autocenter primary window	Selectable
Autotracking	Selectable
Reject PVC beats	Selectable
Beats to reject post PVC	0-6
PVC threshold (bpm)	1-99 beats
Allowable collimators <sup>2</sup>	LEHR, LPHR, LEAP, LEUHR, ME, HE, pinhole

# SPECT specifications

Nuclear medicine and SPECT acquisition parameters	Whole-body
Scan speed with autocontour	3-60 cm/min
Zoom	1.00
Matrix	256 x 512, 256 x 1024, 512 x 1024
Scan length	1-203 cm
Body position	Supine, prone
Orientation	Head out
Detectors	Detector 1, detector 2, both
Detector configuration	180°
Autocontour	Selectable
Allowable collimators <sup>2</sup>	LEHR, LPHR, LEAP, LEUHR, ME, HE
SPECT	
Time	500-32,000,000 ms
First view by counts	1-100,000 kcts
Zoom	1.00, 1.23, 1.45, 1.78, 2.00, 2.29, 2.67, 3.20
Matrix	64 x 64, 128 x 128, 256 x 256
Maximum number of views	360 per head
Body position	Supine, prone
Orientation	Head-in (only 180°), head-out (all configurations)
Detectors	Detector 1, detector 2, both
Detector configuration	180°, 90°, 76°, IQ•SPECT
Orbit	Circular (180°, 90°), NCO (180°, 90°, 76°), NCO-prescan (90°, 76°), cardio-centric
Start angle	-179°-180°
Mode	Step and shoot, continuous, acquire during step
Degrees of rotation	90° (only 90°), 104° (only 76°), 180° (90° and 180°), 360° (90° and 180°)
Rotation direction	Clockwise, counterclockwise
Allowable collimators <sup>2</sup>	LEHR, LPHR, LEAP, LEUHR, LEFB, ME, HE, <b>SMARTZOOM</b>

# SPECT specifications

Nuclear medicine and SPECT acquisition parameters	Dynamic SPECT
Time/cycle	10-900 sec.
Cycles/repeat	1-10 cycles/repeat
Repeats/phase	1-80 repeats/phase
Number of phases	1-16 phases
Zoom	1.00, 1.23, 1.45, 1.78, 2.00, 2.29, 2.67, 3.20
Matrix	64 x 64, 128 x 128
Start angle	-179°-180°
Body position	Supine, prone
Detectors	Detector 1, detector 2, both
Orientation	Head-in (only 180°), head-out (all configurations)
Detector configuration	180°, 90°, 76°, IQ•SPECT
Orbit	Circular (180°, 90°), NCO (180°, 90°, 76°), NCO-prescan (90°, 76°), cardio-centric
Mode	Step and shoot, continuous
Rotation direction	Clockwise, counterclockwise
Degrees of rotation	90° (only 90°), 104° (only 76°), 180° (90° and 180°), 360° (90° and 180°)
Pause before phase	Selectable
Allowable collimators <sup>2</sup>	LEHR, LPHR, LEAP, LEUHR, LEFB, ME, HE, <b>SMARTZOOM</b>

	Whole-body SPECT
Time	500-32,000,000 ms
First view by counts	1-100,000 kcts
Zoom	1.00
Number of bed positions	2-5 bed positions
Matrix	64 x 64, 128 x 128, 256 x 256
Orientation	Head out
Body position	Supine, prone
Detectors	Detector 1, detector 2, both
Detector configuration	180°
Orbit	Circular (180°, 90°), NCO (180°, 90°, 76°)
Mode	Step and shoot, continuous, acquire during step
Rotational direction	Clockwise, counterclockwise
Degrees of rotation	180°, 360°
Start angle	-179°-180°
Allowable collimators <sup>2</sup>	LEHR, LPHR, LEAP, LEUHR, ME, HE

# SPECT specifications

Nuclear medicine and SPECT acquisition parameters	Gated SPECT
Time	500-32,000,000 ms
Accepted beats/view	1-99 beats/view
Zoom	1.00, 1.23, 1.45, 1.78, 2.00, 2.29, 2.67, 3.20
Matrix	64 x 64, 128 x 128
Number of frames	2-32 frames
Body position	Supine, prone
Orientation	Head out
Detectors	Detector 1, detector 2, both
Detector configuration	180°, 90°, 76°, IQ•SPECT
Orbit	Circular (180°, 90°), NCO (180°, 90°, 76°), NCO-prescan (90°, 76°), cardio-centric
Start angle	-179°-180°
Mode	Step and shoot
Degrees of rotation	90° (only 90°), 104° (only 76°), 180° (90° and 180°), 360° (90° and 180°)
Rotation direction	Clockwise, counterclockwise
Heart beat framing	Forward, forward/backward by thirds
Beat window % width	0-200
Beat window center	256-2,000 ms/beat
Autocenter primary window	Selectable
Autotracking	Selectable
Reject PVC beats	Selectable
Beats to reject post PVC	0-6
PVC threshold (bpm)	1-99 beats
Allowable collimators <sup>2</sup>	LEHR, LPHR, LEAP, LEUHR, ME, HE, SMARTZOOM

SPECT motions	
Average autocontour distance	1.1 cm (0.45 in)
Maximum radial and lateral speed	72 cm/min (28.3 in/min)
Maximum lateral position left/right	37.4 cm (14.7 in)/10.1 cm (4 in)
Maximum clockwise/counter-clockwise 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)
Maximum caudal tilt	+16°/-16°



# SPECT specifications

<b>Patient bed</b>	
Width	81.9 cm (32.2 in)
Length	248.0 cm (8 ft 1.6 in)
Weight without ICC/ACC	950 kg (2,096 lb)
Maximum height from floor to bottom of pallet	112.0 cm (3 ft 8 in)
Maximum height from floor to top of armrest	117.4 cm (3 ft 10 in)
Maximum height from floor to top of pallet handle	131.6 cm (4 ft 4 in)
Vertical motion range	53.3-117.4 cm (21-44 in)
Vertical speed	72 cm/min (28 in/min), maximum
Pallet material	Aluminum
Pallet thickness	2.6 mm (0.10 in)
Pallet width	40.0 cm (15.8 in)
Attenuation at 140 keV	<7%
Maximum patient weight	227 kg (500 lb)
Maximum deflection of patient pallet	<2.0 mm (<0.08 in) for 92 kg (200 lb) patient
Maximum scan length in whole-body mode	203 cm (6 ft 6.7 in)
Horizontal motion accuracy	0.7 mm
Minimum/maximum horizontal speed	3-600 cm/min (1.2-236 in/min)

<b>Optional pallets</b>	
<b>Pediatric</b>	
Material	Carbon fiber composite
Thickness	0.6 cm (0.25 in)
Width	25.4 cm (10 in)
Length	145 cm (57 in)
Weight	7.3 kg (16 lb)
Attenuation at 140 keV	<10%
Maximum patient weight	27 kg (60 lb)
<b>Scintimammography</b>	
Material	Carbon fiber composite
Thickness	1.6 cm (0.63 in)
Width	35.6 cm (14 in)
Length	190.5 cm (75 in)
Weight	7.7 kg (17 lb)
Attenuation at 140 keV	<10%
Maximum patient weight	135 kg (300 lb)

# SPECT specifications

Rear pallet support	
Width	26.3 cm (10.3 in)
Length	104.3 cm (3 ft 5.1 in)
Weight	162 kg (357.1 lb)

ECG trigger	
Integration	Internal (inside patient bed) or 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 cart	
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 lb)

Detector dimensions	
Field of view (FoV)	53.3 x 38.7 cm (21 x 15.25 in)
Diagonal FoV	65.9 cm (25.9 in)

Crystal	
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	
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
Sampling rate	30.0 MHz

Detector shielding	
Back	Typical 1.5875 cm (0.625 in) Minimum 0.9525 cm (0.375 in)
Sides	12.7 mm (0.5 in)
Minimum/maximum in patient direction <sup>3</sup>	27.9/36.4 mm (1.1/1.435 in)
Brain reach <sup>4</sup>	7.6 cm (3 in)

# SPECT specifications

Detector <sup>5</sup>	3/8" (0.9525 cm)	5/8" (1.5875 cm)
<b>Intrinsic spatial resolution</b>		
Full width at half maximum (FWHM) in central field of view (CFOV)	≤3.8 mm	≤4.5 mm
FWHM in useful field of view (UFOV)	≤3.9 mm	≤4.6 mm
Full width at tenth maximum (FWTM) in CFOV	≤7.5 mm	≤8.7 mm
FWTM in UFOV	≤7.7 mm	≤8.9 mm
<b>Intrinsic spatial linearity</b>		
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
<b>Intrinsic energy resolution</b>		
FWHM in CFOV	≤9.9%	≤9.9%
<b>Intrinsic flood field uniformity (uncorrected)</b>		
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
<b>Intrinsic count rate performance in air</b>		
Maximum count rate	≥460 kcps	≥460 kcps
Maximum count rate (@15% window)	≥310 kcps	≥310 kcps
<b>Intrinsic spatial resolution at 75 kcps</b>		
FWHM in UFOV	≤4.1 mm	≤4.6 mm
FWTM in UFOV	≤7.8 mm	≤8.9 mm
<b>Intrinsic flood field uniformity at 75 kcps (uncorrected)</b>		
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%

# SPECT specifications

Detector with collimator <sup>5</sup>	3/8" (0.9525 cm)	5/8" (1.5875 cm)
<b>System spatial resolution without scatter (LEHR at 10 cm)</b>		
FWHM in CFOV	≤7.5 mm	≤7.8 mm
FWTM in CFOV	≤13.6 mm	≤14.9 mm
<b>System spatial resolution with scatter (LEHR at 10 cm)</b>		
FWHM in CFOV	≤8.3 mm	≤8.9 mm
FWTM in CFOV	≤18.6 mm	≤19.5 mm
<b>System planar sensitivity (LEHR at 10 cm)</b>		
Absolute <sup>99m</sup> Tc	202 cpm/μCi	225 cpm/μCi
<b>System planar sensitivity (MELP at 10 cm)</b>		
Absolute <sup>111</sup> In	430 cpm/μCi	565 cpm/μCi
<b>Detector with collimator tomographic<sup>5</sup></b>		
<b>Reconstructed spatial resolution without scatter at 15 cm radius (LEHR)</b>		<b>Filtered back projection</b>
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	–
<b>Reconstructed spatial resolution without scatter at 15 cm radius (LEHR)</b>		<b>Flash 3D iterative reconstruction</b>
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	–
<b>Reconstructed spatial resolution with scatter (LEHR)</b>		<b>Filtered back projection</b>
Center	≤10.7 mm	≤11.5 mm
Radial	≤10.9 mm	≤12.0 mm
Tangential	≤7.9 mm	≤8.8 mm
<b>Reconstructed spatial resolution with scatter (LEHR)</b>		<b>Flash 3D iterative reconstruction</b>
Center	≤5.8 mm	–
Radial	≤5.0 mm	–
Tangential	≤4.1 mm	–
<b>Average volume sensitivity per axial centimeter</b>		
LEHR, <sup>99m</sup> Tc	12,000 (cts/sec)/ (MBq/cm <sup>2</sup> )	–
<b>Detector-to-detector sensitivity variation</b>		
LEHR, <sup>99m</sup> Tc	≤5.0%	–

# SPECT specifications

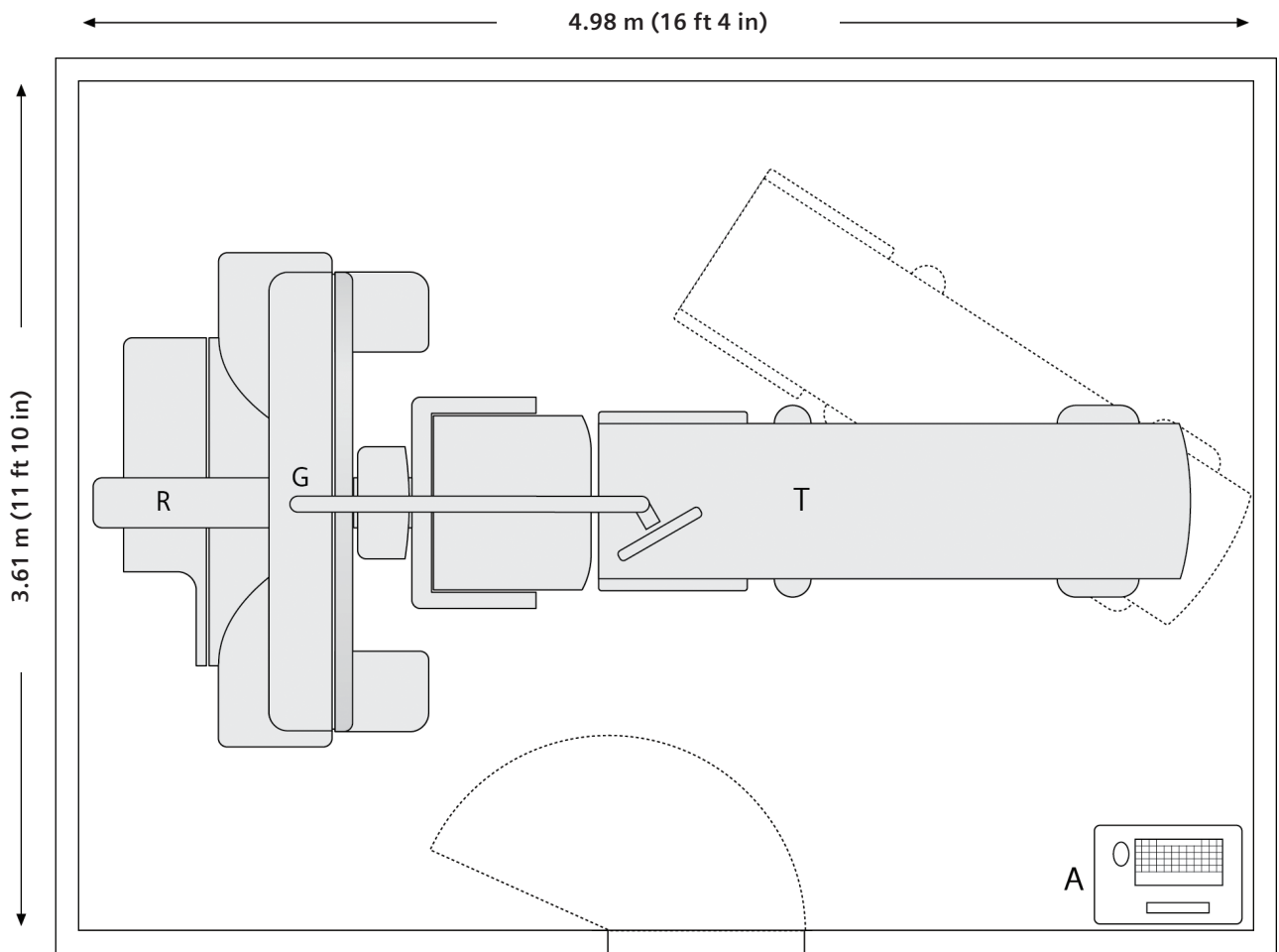
Detector with collimator whole-body scanning <sup>5</sup>	3/8" (0.9525 cm)	5/8" (1.5875 cm)
<b>Whole-body system spatial resolution without scatter at 10 cm/min scan speed (LEHR at 10 cm)</b>		
FWHM perpendicular	≤7.5 mm	–
FWHM parallel	≤7.9 mm	–
FWTM perpendicular	≤14.0 mm	–
FWTM parallel	≤14.2 mm	–

Collimators	LEHR	LPHR	LEAP	LEUHR	LEFB	MELP	HE	SMART-ZOOM
	Low Energy High Resolution	Low Penetration High Resolution	Low Energy All Purpose	Low Energy Ultra-high Resolution	Low Energy Fan Beam	Medium Energy Low Penetration	High Energy	IQ•SPECT
Isotope	<sup>99m</sup> Tc	<sup>123</sup> I	<sup>99m</sup> Tc	<sup>99m</sup> Tc	<sup>99m</sup> Tc	<sup>67</sup> Ga	<sup>131</sup> I	<sup>99m</sup> Tc
Hole shape	Hex	Hex	Hex	Hex	Hex	Hex	Hex	Hex
Number of holes (x1,000)	148	86	90	146	64	14	8	48
Hole length	24.05 mm	35.0 mm	24.05 mm	35.8 mm	35 mm	40.64 mm	59.7 mm	40.25 mm
Septal thickness	0.16 mm	0.2 mm	0.2 mm	0.13 mm	0.16 mm	1.14 mm	2 mm	0.2-0.4 mm
Hole diameter across the flats	1.11 mm	1.5 mm	1.45 mm	1.16 mm	1.53 mm	2.94 mm	4 mm	1.9 mm
Sensitivity at 10 cm <sup>6</sup>	202 cpm/μCi	251 cpm/μCi (167 cpm/μCi ( <sup>99m</sup> Tc))	330 cpm/μCi	88 cpm/μCi	280 cpm/μCi	275 cpm/μCi	135 cpm/μCi	285 cpm/μCi <sup>7</sup> 810 cpm/μCi at 28 cm <sup>8</sup>
Geometric resolution at 10 cm	6.4 mm	6.4 mm	8.3 mm	4.6 mm	6.3 mm	10.8 mm	13.2 mm	6.95 mm
System resolution at 10 cm	7.5 mm	8.0 mm	9.4 mm	6.0 mm	7.3 mm	12.5 mm	13.4 mm	7.4 mm <sup>8</sup>
Calculated penetration	1.5%	1.2%	1.9%	0.8%	1.0%	1.2%	3.5%	N/A
Exit surface	N/A	N/A	N/A	N/A	44.5 mm	N/A	N/A	52 x 60 cm
Weight	22.1 kg (48.7 lb)	33.6 kg (74 lb)	22.6 kg (49.8 lb)	28 kg (61.8 lb)	28.4 kg (62.5 lb)	63.5 kg (140.1 lb)	124.7 kg (275 lb)	47.2 kg (104 lb)

# SPECT specifications

Pinhole collimator <sup>9</sup>	Isotope		
	<sup>99m</sup> Tc	<sup>123</sup> I	<sup>131</sup> 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 lb)	80.3 kg (177 lb)	80.3 kg (177 lb)

# Minimum room size<sup>10</sup>



Scanner room size	3.61 m (11 ft 10 in) x 4.98 m (16 ft 4 in)
Ceiling height	2.44 m (8 ft)
Hung ceiling height	2.29 m (7.6 ft)
System length	4.63 m (15.2 ft)
System width	2.15 m (7 ft)

# Installation and quality control specifications

Room diagram label	Item name	Weight	Heat output
G	Symbia Evo™ gantry	2,369 kg (5,224 lb)	3,400 BTU/h, 1.0 kW
T	Symbia Evo imaging table	953 kg (2,096 lb)	–
R	Symbia Evo rear PHS	162 kg (357.1 lb)	–
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	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
Maximum altitude	2,438 m (8,000 ft)
Floor loading	3.37 kg/sq cm (84 lb/sq in) maximum under the gantry
Heat dissipation <sup>11</sup>	4,800 BTU/hr
Temperature range	18°-30° C (64°-86° F)
Maximum temperature gradient	4.4° C/hour (8° F/hour)

Standard quality control procedures	
Nuclear medicine	
Daily	Intrinsic verification or extrinsic verification
Weekly	Intrinsic verification with tune
Monthly	Intrinsic verification with tune, multiple head registration (MHR) 180° head alignment verification
Every 6 months or per regulatory/ license requirements (if applicable)	Leak test of the automated quality control device sources



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- <sup>1</sup> Not commercially available in all countries. Future availability cannot be guaranteed.
- <sup>2</sup> All collimators may not be supported by all detector configurations.
- <sup>3</sup> 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.
- <sup>4</sup> Distance from the edge of the detector housing to the edge of the FOV.
- <sup>5</sup> Values are determined at the manufacturer’s facility using methods described in NEMA Standards Publications NU 1-2018 “Performance measurements of Gamma Cameras.” The specialized phantoms and software required to reproduce these measurements are available from Siemens Healthineers.
- <sup>6</sup> Values measured in accordance with NEMA Standards Publication NU-1 2018 using 3/8” crystal.
- <sup>7</sup> Values measured using a 5 cm diameter phantom.
- <sup>8</sup> Values measured in accordance with NEMA Standards Publication NU-1 2018 using 3/8” crystal. Sensitivities for pinhole collimators measured using a 9 cm diameter phantom. Resolution for pinhole collimator measured using a line separation of 6 cm (4 mm and 6 mm aperture) and 4 cm (8 mm aperture).
- <sup>9</sup> Example layout. Please request site-specific plans for your project.
- <sup>10</sup> Includes gantry, detectors, patient bed, acquisition workstation, LCD monitor, PPM, and UPS. Idle mode. Operating mode would produce higher values.

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