System specifications

# Symbia Pro.specta SPECT/CT

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SIEMENS Healthineers

# Symbia Pro.specta SPECT/CT
# System specifications

| System hardware (standard) |
|---|
| Open gantry design (70 cm/27.6 in) |
| Tin Filter |
| Stellar CT detector |
| Two high-definition digital SPECT detectors |
| Low-profile 3/8" or 5/8" detectors |
| Detector configuration, including 180°, 90°, 76°, gurney, standing, sitting, out-facing |
| Automatic body contouring |
| Detector touchpad sensors |
| Lightrail sensors and lightrail touchpads |
| Circular and non-circular body-contour orbit |
| Touch screen gantry display (Scan&GO) used for the following functions:<br>– Patient name and date of birth<br>– Patient positioning with window and persistence adjustment<br>– Acquisition parameter display (time remaining, count rate, etc.)<br>– Camera information (detector and bed positions)<br>– Gantry control (reconfiguration, collimator change, offset zoom, reset, etc.)<br>– Unload patient |
| Patient bed with 227 kg (500 lb) capability |

| System hardware (standard) |
|---|
| Patient bed pivot for rail-free access of sitting/standing patients, wheelchairs, imaging tables, gurneys, and hospital beds |
| Integrated calibration source holder |
| Rear bed with pallet flex prevention |
| Carbon fiber pallet |
| Patient comfort accessories (SPECT/CT head holder and cushion set, head arm support, head rest, patient restraint set, body wraps set, whole-body armrest set) |
| Acquisition workplace with multilingual graphical user interface, monitor, keyboard, and mouse plus full DICOM archiving, and external USB 3.0 disks support |
| Intuitive hand controller with easy-to-use descriptive controls |
| 24-in/58-cm flat screen monitor |
| Operator manuals |
| CT quality assurance phantom |

# Symbia Pro.specta SPECT/CT
# System specifications

| System hardware (optional) |
|---|
| Caudal and cephalic tilt |
| Low-energy high-resolution (LEHR) collimator |
| Low-energy all-purpose (LEAP) collimator |
| Low-energy ultra-high-resolution (LEUHR) collimator |
| Medium-energy low-penetration (MELP) collimator |
| Low-penetration high-resolution (LPHR) collimator |
| High-energy (HE) collimator |
| Pinhole collimator (4, 6, or 8 mm aperture) |
| IQ•SPECT™ with **SMART**ZOOM™ collimator |
| **SMART**ZOOM HRX Collimator |
| Integrated Collimator Changer (ICC) |
| Automatic Collimator Changer (ACC) |
| Collimator cart(s) |
| Automatic Quality Control (AQC) |
| AutoQC source kit (base or premium) |
| NIST-traceable precision calibration source ($^{57}$Co, $^{75}$Se, $^{113}$Sn) |
| Internal ECG (AHA or IEC) |
| External ECG (AHA or IEC) |
| Patient handling system (PHS) extended pivot |
| Dual monitor |
| Plan&GO |

| System hardware (optional) |
|---|
| Radiation therapy pallet |
| Mammography pallet |
| Pediatric pallet |
| Under- or over-floor PHS cable |
| Seismic installation kit (single or dual anchor) |
| Integrated Electronics Cabinet (IEC) |
| Uninterruptible Power Supply (UPS) |
| Power bundle (IEC and UPS) |
| High-performance integrated computer system (ICS) |
| FAST IRS (image reconstruction system)[1] |
| Ultra-FAST IRS[2] |
| 4-quadrant phantom |
| Rectangular fillable flood source |
| Deluxe SPECT phantom |
| American College of Radiology (ACR) SPECT phantom kit |
| Computer workstation table |
| Swivel tilt chair |
| Additional user manuals |
| 10-mCi rectangular source |
| CT high-speed 0.33s[3] |

# System specifications

| System software (standard) |
|---|
| SPECT*syngo* software |
| Integrated acquisition and reconstruction |
| Planar (static) acquisition |
| Dynamic acquisition |
| Whole-body acquisition |
| Whole-body SPECT acquisition |
| Single-bed SPECT acquisition |
| Gated acquisition |
| Gated SPECT acquisition |
| Dynamic SPECT acquisition |
| Filtered back projection |
| Flash 3D iterative reconstruction imaging |
| Scatter correction |
| Reconstruction with CT frame-of-reference |
| CT attenuation correction |
| Smart Remote Services (SRS) |
| Gantry display and interaction at acquisition workplace |
| Cardiac retrospective gating |
| Automatic intra-recon motion correction |
| Topogram, spiral, sequential acquisition modes |
| Extended field of view (FOV) (HD FoV) |
| SAFIRE |
| IVR (Interleaved Volume Reconstruction) |
| CARE kV[3] |
| CARE Child |
| CARE Filter |
| CARE Bolus CT |
| CARE Topo |
| CARE Dose4D™ |
| X-CARE |

| System software (standard) |
|---|
| FAST Planning |
| FAST ROI |
| FAST kV |
| SureView™ |
| Flexible kV (80, 110, 130 kV) (130 kV not with CT Intro functionality) |
| Flexible kV (70-140 kV in ranges of 10 kV)[3] |
| CT DICOM structured dose report |
| *syngo* archiving and network |
| Dynamic planar real-time activity curve |
| Video capture and editing tool |
| Exam designer |
| WorkStream4D™ (direct 3D-reconstruction) |
| Filming |
| myExam Companion (includes myExam Compass) |
| Check&GO |
| Recon&GO |
| MI View&GO |
| *syngo*® Security Package |
| Endoscopic view |
| Flex Dose Profile |

# System specifications

| System software (optional) |
|---|
| xSPECT reconstruction with CT frame-of-reference[2] |
| xSPECT Bone™ with zone map (tissue classification)[2] |
| xSPECT Quant™ $^{99m}$Tc[2] |
| xSPECT Quant $^{177}$Lu[2] |
| xSPECT Quant $^{123}$I[2] |
| xSPECT Quant $^{111}$In[2] |
| xSPECT Quant $^{131}$I[2] |
| Broad Quantification™ |
| Dose calibrator cross-calibration capability for unbiased SUV quantification |
| TrueCalc™ high-count-rate detector technology |
| 3D measured collimator characterization for IQ•SPECT (hole, shape, and size) |
| AutoPlanar |
| NM Basic cardiac package (respiratory motion correction, continuous gated acq, gated AC/SC) |
| SMART Neuro AC |
| Organ Processing for Symbia™ |
| Planar half-time imaging |
| *syngo* Security Package |
| *syngo*.MI Cardiology 4DM |
| *syngo*.CT Extension Corridor4DM™ |
| *syngo*.SPECT Cardiology Cedars |
| *syngo*.CT Extension Cedars |
| *syngo*.MI Cedars Reporting |
| *syngo*.PET Cardiology Cedars |

| System software (optional) |
|---|
| iMAR |
| CT Lung CAD package |
| CT *syngo* Volume Perfusion Neuro |
| CT Neuro DSA |
| CT *syngo* Dental |
| CT Dual Energy Base Package |
| CT CaScoring package |
| *syngo* Expert-i |
| myExam Cockpit |
| CT Cardio Base Package[3] |
| CT Cardio Advanced Package[3] |
| CT Dual Energy Base Package |
| IQ•SPECT software |

# SPECT specifications

| Gantry dimensions | |
|---|---|
| Height | 223.5 cm (7 ft 4 in) |
| Width | 235.5 cm (7 ft 8.7 in) |
| Depth | 206.9 cm (6 ft 9.5 in) |
| Axis of rotation (from floor) | 104.5 cm (3 ft 4.7 in) |
| 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) |
| Scan&GO | 39.6 cm (15.6 in) flat panel color LCD display |
| Tunnel opening | 70 cm aperture (27.6 in) |
| Tunnel length | 106.37 cm (41.88 in) |
| Distance between SPECT and CT FOV[4] | 116.7 cm (45.9 in) |

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

| Nuclear medicine and SPECT acquisition parameters | Static |
|---|---|
| Time | 50-32,000,000 ms |
| Counts | 1-2,000,000 cts |
| Zoom | 1.00, 1.231, 1.455, 1.778, 2.00, 2.286, 2.667, 3.20 |
| Matrix | 64 x 64, 128 x 128, 256 x 256, 512 x 512, 1,024 x 1,024 |
| Patient position | Head first supine (HFS), head first prone (HFP), feet first supine (FFS), feet first prone (FFP), upright, head left supine (HLS), head right supine (HRS), head left prone (HLP), head right prone (HRP) |
| Detectors | Detector 1, detector 2, both |
| Detector configuration | 180°, 90°, 76°, gurney, outer room left, outer room right |
| Allowable collimators[5] | LEHR, LPHR, LEAP, LEUHR, ME, HE, pinhole |

# SPECT specifications

| Nuclear medicine and SPECT acquisition parameters | Dynamic |
|---|---|
| Time | 1-1,440 min |
| Time per frame per phase | 500-32,000,000 ms (dynamic planar);<br>10-32,000,000 msec (cardiac dynamic planar) |
| Zoom | 1.00, 1.231, 1.455, 1.778, 2.00, 2.286, 2.667, 3.20 |
| Matrix | 64 x 64, 128 x 128, 256 x 256 |
| Number of phases | 1-8 phases |
| Patient position | HFS, HFP, FFS, FFP, upright, HLS, HRS, HLP, HRP |
| Detectors | Detector 1, detector 2, both |
| Detector configuration | 180°, 90°, 76°, gurney, outer room left,<br>outer room right |
| Acquire with R-wave gate | Selectable |
| Acquire with statics | Selectable |
| Allowable collimators[5] | LEHR, LPHR, LEAP, LEUHR, MELP, HE, pinhole |

| | Gated |
|---|---|
| Time | 500-32,000,000 ms |
| Counts | 1-2,000,000 cts |
| Zoom | 1.00, 1.231, 1.455, 1.778, 2.00, 2.286, 2.667, 3.20 |
| Matrix | 64 x 64, 128 x 128 |
| Number of gates | 6-32 |
| Patient position | HFS, HFP, FFS, FFP, upright, HLS, HRS, HLP, HRP |
| Detectors | Detector 2 |
| Detector configuration | 180°, 90°, 76°, gurney, outer room left,<br>outer room right |
| Heart beat framing | 100% forward (PCNT) |
| Reject PVC beats | Selectable |
| Beats to reject post PVC | 0-6 |
| PVC threshold (bpm) | 0-40% of beat upper limit |
| Allowable collimators[5] | LEHR, LPHR, LEAP, LEUHR, MELP, HE, pinhole |

# SPECT specifications

| Nuclear medicine and SPECT acquisition parameters | Whole-body |
|---|---|
| Scan speed with autocontour | 30-600 mm/min |
| Zoom | 1.00 |
| Matrix | 256 x 512, 256 x 1,024, 512 x 1,024 |
| Scan length | 387-2,000 mm |
| Patient position | FFS, FFP |
| Detectors | Detector 1, detector 2, both |
| Detector configuration | 180° |
| Autocontour | Selectable |
| Allowable collimators[5] | LEHR, LPHR, LEAP, LEUHR, MELP, HE |

| | SPECT |
|---|---|
| Time | 500-32,000,000 ms |
| First view by counts | 1-2,000,000 kcts |
| Zoom | 613.8 mm/CT width (with AC CT); 1.00 (without AC CT) |
| Matrix | 64 x 64, 128 x 128, 256 x 256 |
| Maximum number of views | 360 per head |
| Patient position | HFS, HFP, FFS, FFP |
| Detectors | Detector 1, detector 2, both |
| Detector configuration | 180°, 90°, 76°, IQ•SPECT |
| Orbit | Circular (180°, 90°), NCO (180°, 90°, 76°), NCO-prescan (90°), cardio-centric |
| Start angle | -179°-180° |
| Mode | Step and shoot, continuous |
| Degrees of rotation | 90° (only 90°), 104° (76°, IQ•SPECT), 180° (only 180°), 360° (90° and 180°) |
| Rotation direction | Clockwise, counterclockwise |
| Allowable collimators[5] | LEHR, LPHR, LEAP, LEUHR, MELP, HE |

# SPECT specifications

| Nuclear medicine and SPECT acquisition parameters | Composite SPECT |
|---|---|
| Number of rotations | 1-45 |
| Rotation time | 10-3,600 sec (continuous); 8-11,5200,000 (step & shoot) |
| Zoom | 613.8 mm/CT width (with AC CT); 1.00 (without AC CT) |
| Matrix | 64 x 64, 128 x 128, 256 x 256 |
| Start angle | -179°-180° |
| Patient position | HFS, HFP, FFS, FFP |
| Detectors | Both |
| Detector configuration | 180° |
| Orbit | Circular, NCO |
| Mode | Step and shoot, continuous |
| Rotation direction | Clockwise, counterclockwise |
| Degrees of rotation | 180°, 360° |
| Allowable collimators[5] | LEAP, LPHR, LEHR, LEUHR, MELP, HE |

| | Dynamic SPECT |
|---|---|
| Number of rotations | 1-45 |
| Rotation time | 10-3,600 sec (continuous); 8-11,5200,000 (step & shoot) |
| Number of phases | 1–total number or rotations specified |
| Recon images | 1–total number or rotations per phase |
| Zoom | 613.8 mm/CT width (with AC CT); 1.00 (without AC CT) |
| Matrix | 64 x 64, 128 x 128, 256 x 256 |
| Start angle | -179°-180° |
| Patient position | HFS, HFP, FFS, FFP |
| Detectors | Both |
| Detector configuration | 180°, 90°, 76°, IQ•SPECT |
| Orbit (at detector configuration) | Circular (180°, 90°), NCO (180°, 90°, 76°), NCO-prescan (90°), cardio-centric |
| Mode | Step and shoot, continuous |
| Rotation direction | Clockwise, counterclockwise |
| Degrees of rotation (at detector configuration) | 90° (only 90°), 140° (76°, IQ•SPECT), 180° (only 180°), 360° (90° and 180°) |
| Allowable collimators[5] | LEAP, LPHR, LEHR, LEUHR, MELP, HE |

# SPECT specifications

| Nuclear medicine and SPECT acquisition parameters | Gated SPECT |
|---|---|
| Time | 500-32,000,000 ms |
| Zoom | 613.8 mm/CT width (with AC CT); 1.00 (without AC CT) |
| Matrix | 64 x 64, 128 x 128, 256 x 256 |
| Number of gates | 6-32 |
| Patient position | FFS, FFP |
| Detectors | Detector 1, detector 2, both |
| Detector configuration | 180°, 90°, 76°, IQ•SPECT |
| Orbit | Circular (180°, 90°), NCO (180°, 90°, 76°), NCO-prescan (90°), cardio-centric |
| Start angle | -179°-180° |
| Mode | Step and shoot, continuous |
| Degrees of rotation | 90° (only 90°), 104° (76°, IQ•SPECT), 180° (only 180°), 360° (90° and 180°) |
| Rotation direction | Clockwise, counterclockwise |
| Heart beat framing | 100% forward (PCNT) |
| Reject PVC beats | Selectable |
| Beats to reject post PVC | 0-6 |
| PVC threshold (bpm) | 0-40% of beat upper limit |
| Allowable collimators[5] | LEHR, LPHR, LEAP, LEUHR, MELP, HE |

# SPECT specifications

| 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 | 37.5 cm (14.7 in)/10 cm (4 in) |
| Maximum clockwise/counterclockwise rotation detector 1 | 405°/-135° |
| Ring rotation range | 540° (from -135° to +405°) |
| 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° |

| Patient bed | |
|---|---|
| Width | 68.6 cm (27.0 in) |
| Length | 243.8 cm (8 ft 1 in) |
| Weight without ICC/ACC | 860.4 kg (1,896.8 lb) |
| Height | 101.5 cm (3 ft 4 in) |
| Vertical motion range | 48.0-109.0 cm (19-43 in) |
| Vertical speed | 4-12 mm/sec (.16-.47 in/sec) |
| Pallet material | Carbon fiber |
| Pallet thickness | 15 mm (.6 in) |
| Pallet width | 39.8 cm (15.7 in) |
| Attenuation at 140 keV | <10%, <12% (with accessories) |
| Maximum patient weight | 227 kg (500 lb) |
| Maximum deflection of patient pallet | <2.0 mm (<0.08 in) for 90.7 kg (200 lb ± 100) patient |
| Maximum scan length in whole-body mode | 200 cm (6 ft 6.7 in) |
| Horizontal motion accuracy | +/- 0.5 mm (0.02 in) |
| Minimum/maximum horizontal speed | 0.5-100 mm/sec (0.02-3.94 in/sec) |

# SPECT specifications

| Optional pallets | | |
|---|---|---|
| **Pediatric** | Material | Carbon fiber composite |
| | Thickness | 0.5 cm (0.18 in) |
| | Width | 25.4 cm (<10 in) |
| | Length | 74.9 cm (29.5 in) |
| | Weight | 7.0 kg (15.4 lb) |
| | Attenuation at 140 keV | <10% |
| | Maximum patient weight | 27 kg (60 lb) |
| **Scintimammography** | Material | Carbon fiber composite |
| | Thickness | 1.6 cm (0.63 in) |
| | Width | 35.6 cm (14 in) |
| | Length | 183.5 cm (72.3 in) |
| | Weight | 7.6 kg (16.8 lb) |
| | Attenuation at 140 keV | <10% |
| | Maximum patient weight | 135 kg (300 lb) |
| **Radiotherapy planning** | Material | Carbon fiber composite |
| | Thickness | 1.5 cm (0.6 in) |
| | Width | 53 cm (20.9 in) |
| | Length | 203.5 cm (80.1 in) |
| | Weight | 9.0 kg (19.8 lb) |
| | Attenuation at 140 keV | <10% |
| | Maximum patient weight | 227 kg (500 lb) |

| Rear pallet support | |
|---|---|
| Width | 26.9 cm (10.6 in) |
| Length | 113.7 cm (3 ft 8.8 in) |
| Weight | 182.9 kg (403.3 lb) |

# SPECT specifications

| ECG trigger | |
|---|---|
| Integration | Internal (inside patient bed) or external |
| Framing modes | 100% forward (PCNT) |
| Bad beat rejection | Yes |
| Criteria for framing images | Frames/R-R interval |
| Beat acceptance window | Automatic or manual selection |

| Collimator cart | |
|---|---|
| Height | 1,016 mm (40.0 in) |
| Width | 822 mm (32.3 in) |
| Depth | 1,091 mm (43.0 in) |
| Weight (without collimators) | 173.8 kg (383.2 lb) |

| Detector dimensions | |
|---|---|
| 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 in) |
| Type | Bialkali high-efficiency box-type dynodes |
| Array | Hexagonal |
| Sampling rate | 30.0 MHz |

| Detector shielding | |
|---|---|
| Back | Typical 15.88 mm (0.625 in)<br>Minimum 9.5 mm (0.374 in) |
| Sides | 12.7 mm (0.5 in) |
| Minimum/maximum in patient direction[6] | 27.9/36.4 mm (1.1/1.435 in) |
| Brain reach[7] | 7.6 cm (3 in) |

# SPECT specifications

| Detector[8] | 3/8" (0.9525 cm) | 5/8" (1.5875 cm) |
|---|---|---|
| **Intrinsic spatial resolution** | | |
| Full width at half maximum (FWHM) in central field of view (CFOV) | ≤3.84 mm | ≤4.54 mm |
| FWHM in useful field of view (UFOV) | ≤3.94 mm | ≤4.64 mm |
| Full width at tenth maximum (FWTM) in CFOV | ≤7.54 mm | ≤8.70 mm |
| FWTM in UFOV | ≤7.74 mm | ≤8.90 mm |
| **Intrinsic spatial linearity** | | |
| Differential in CFOV | ≤0.24 mm | ≤0.24 mm |
| Differential in UFOV | ≤0.24 mm | ≤0.24 mm |
| Absolute in CFOV | ≤0.44 mm | ≤0.54 mm |
| Absolute in UFOV | ≤0.69 mm | ≤0.99 mm |
| **Intrinsic energy resolution** | | |
| FWHM in UFOV | ≤9.85% | ≤9.85% |
| **Intrinsic flood field uniformity (uncorrected)** | | |
| Differential in CFOV | ≤2.54% | ≤2.54% |
| Differential in UFOV | ≤2.74% | ≤2.74% |
| Integral in CFOV | ≤2.94% | ≤2.94% |
| Integral in UFOV | ≤3.74% | ≤3.74% |
| **Intrinsic count rate performance in air** | | |
| Maximum count rate | ≥460 kcps | |
| Maximum count rate (@15% window) | ≥310 kcps | ≥310 kcps |
| **Intrinsic spatial resolution at 75 kcps** | | |
| FWHM in UFOV | ≤4.1 mm | ≤4.64 mm |
| FWTM in UFOV | ≤7.84 mm | ≤8.9 mm |
| **Intrinsic flood field uniformity at 75 kcps (uncorrected)** | | |
| Differential in CFOV | ≤2.54% | ≤2.54% |
| Differential in UFOV | ≤2.74% | ≤2.74% |
| Integral in CFOV | ≤2.94% | ≤2.94% |
| Integral in UFOV | ≤3.74% | ≤3.74% |
| Multiple window spatial registration | ≤0.64 mm | ≤0.99 mm |

# SPECT specifications

| High-count-rate performance[9] | 3/8" (0.9525 cm) | 5/8" (1.5875 cm) |
|---|---|---|
| **Detector specifications at 310 kcps[10]** | | |
| **Intrinsic flood field uniformity (uncorrected)** | | |
| Differential in CFOV | ≤3.04% | – |
| Differential in UFOV | ≤3.24% | – |
| Integral in CFOV | ≤3.44% | – |
| Integral in UFOV | ≤4.24% | – |
| **Intrinsic energy resolution** | | |
| FWHM in CFOV | ≤11.85% | – |
| **Stability of energy peak position** | | |
| Change of peak position (70 kcps versus 30 kcps)[10] | ≤+/- 0.5% | – |
| **System spatial resolution without scatter (LEHR at 10 cm)** | | |
| FWHM in CFOV | ≤8.04 mm | – |
| FWTM in CFOV | ≤14.64 mm | – |

| Detector with collimator[8] | 3/8" (0.9525 cm) | 5/8" (1.5875 cm) |
|---|---|---|
| **System spatial resolution without scatter (LEHR at 10 cm)** | | |
| FWHM in CFOV | ≤7.54 mm | ≤7.84 mm |
| FWTM in CFOV | ≤13.64 mm | ≤14.94 mm |
| **System spatial resolution with scatter (LEHR at 10 cm)** | | |
| FWHM in CFOV | ≤8.34 mm | ≤8.9 mm |
| FWTM in CFOV | ≤18.64 mm | ≤19.5 mm |
| **System planar sensitivity (LEHR at 10 cm)** | | |
| Absolute $^{99m}$Tc | 202 cpm/µCi +/- 10% | 225 cpm/µCi +/- 10% |
| **System planar sensitivity (MELP at 10 cm)** | | |
| Absolute $^{111}$In | 430 cpm/µCi +/- 20% | 565 cpm/µCi +/- 20% |

# SPECT specifications

| Detector with collimator tomographic[8] | 3/8" (0.9525 cm) | 5/8" (1.5875 cm) |
|---|---|---|
| **Reconstructed spatial resolution without scatter correction at 15-cm radius (LEHR)** | **Filtered back projection** | |
| Central transaxial | ≤10.24 mm | – |
| Central axial | ≤10.84 mm | – |
| Peripheral radial | ≤9.84 mm | – |
| Peripheral tangential | ≤8.44 mm | – |
| Peripheral axial | ≤9.04 mm | – |
| **Reconstructed spatial resolution without scatter correction at 15-cm radius (LEHR)** | **Flash 3D iterative reconstruction** | |
| Central transaxial | ≤4.44 mm | – |
| Central axial | ≤4.44 mm | – |
| Peripheral radial | ≤4.04 mm | – |
| Peripheral tangential | ≤3.94 mm | – |
| Peripheral axial | ≤4.24 mm | – |
| **Reconstructed spatial resolution with scatter (LEHR)** | **Filtered back projection** | |
| Center | ≤10.74 mm | ≤11.54 mm |
| Radial | ≤10.94 mm | ≤12.04 mm |
| Tangential | ≤7.94 mm | ≤8.84 mm |
| **Reconstructed spatial resolution with scatter (LEHR)** | **Flash 3D iterative reconstruction** | |
| Center | ≤5.84 mm | – |
| Radial | ≤5.04 mm | – |
| Tangential | ≤4.14 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[8] | 3/8" (0.9525 cm) | 5/8" (1.5875 cm) |
|---|---|---|
| **Whole-body system spatial resolution without scatter at 10-cm/min scan speed (LEHR at 10 cm)** | | |
| FWHM perpendicular | ≤7.54 mm | – |
| FWHM parallel | ≤7.94 mm | – |
| FWTM perpendicular | ≤14.04 mm | – |
| FWTM parallel | ≤14.24 mm | – |

# SPECT specifications

| Collimators | LEHR | LPHR | LEAP | LEUHR | MELP | HE | SMARTZOOM | SMARTZOOM HRX |
|---|---|---|---|---|---|---|---|---|
| | Low Energy High Resolution | Low Penetration High Resolution | Low Energy All Purpose | Low Energy Ultra-high Resolution | Medium Energy Low Penetration | High Energy | IQ•SPECT | Ultra-high Resolution |
| Isotope | $^{99m}$Tc | $^{123}$I | $^{99m}$Tc | $^{99m}$Tc | $^{67}$Ga | $^{131}$I | $^{99m}$Tc | $^{99m}$Tc, $^{123}$I |
| Hole shape | Hex | Hex | Hex | Hex | Hex | Hex | Hex | Hex |
| Number of holes (x1,000) | 148 | 86 | 90 | 146 | 14 | 8 | 48 | 65 |
| Hole length | 24.05 mm | 35.0 mm | 24.05 mm | 35.8 mm | 40.64 mm | 59.7 mm | 40.25 mm | 40.25 mm |
| Septal thickness | 0.16 mm | 0.2 mm | 0.2 mm | 0.13 mm | 1.14 mm | 2 mm | 0.2-0.4 mm | 0.26 mm |
| Hole diameter across the flats | 1.11 mm | 1.5 mm | 1.45 mm | 1.16 mm | 2.94 mm | 4 mm | 1.9 mm | 1.5 mm |
| Sensitivity at 10 cm[11] | 202 cpm/µCi | 251 cpm/µCi (167 cpm/µCi ($^{99m}$Tc) | 330 cpm/µCi | 88 cpm/µCi | 275 cpm/µCi | 135 cpm/µCi | 285 cpm/µCi | 151 cpm/µCi ($^{99m}$Tc), 180 cpm/µCi ($^{123}$I) |
| Sensitivity at 24 cm[12] | | | | | | | | 295 cpm/µCi ($^{99m}$Tc), 301 cpm/uCi ($^{123}$I) at 24 cm |
| Sensitivity at 28 cm[12] | | | | | | | 810 cpm/µCi at 28 cm | 371 cpm/µCi ($^{99m}$Tc), 369 cpm/uCi ($^{123}$I) at 28 cm |
| Geometric resolution at 10 cm | 6.4 mm | 6.4 mm | 8.3 mm | 4.6 mm | 10.8 mm | 13.2 mm | 6.95 mm | 5.41 mm |
| System resolution at 10 cm | 7.5 mm | 8.0 mm | 9.4 mm | 6.0 mm | 12.5 mm | 13.4 mm | 7.4 mm[13] | 6.1 mm ($^{99m}$Tc), 6.4 mm ($^{123}$I) |
| Calculated penetration | 1.5% | 1.2% | 1.9% | 0.8% | 1.2% | 3.5% | N/A | N/A |

# SPECT specifications

| Pinhole collimator[14] | Isotope | | |
|---|---|---|---|
| | $^{99m}Tc$ | $^{123}I$ | $^{131}I$ |
| Hole shape | Round | Round | Round |
| Number of holes | 1 | 1 | 1 |
| Cone aperture | 4 mm<br>6 mm<br>8 mm | 4 mm<br>6 mm<br>8 mm | 4 mm<br>6 mm<br>8 mm |
| Cone length | 209.96 mm | 209.96 mm | 209.96 mm |
| Diameter at base of cone (approximate) | 220.14 mm | 220.14 mm | 220.14 mm |
| Sensitivity at 10 cm with 4 mm | 123 cpm/μCiv | 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 | 6.64 mm | 6.64 mm | 7.64 mm |
| System resolution at 10 cm with 6 mm | 9.54 mm | 9.54 mm | 10.74 mm |
| System resolution at 10 cm with 8 mm | 12.54 mm | 12.54 mm | 13.74 mm |

# CT specifications

| Gantry dimensions | Symbia Pro.specta X7 | Symbia Pro.specta X3 | Symbia Pro.specta Q3 |
|---|---|---|---|
| Scan field | 50/70[15] | 50/70[15] | 50/70[15] |
| Rotation time | 0.33 s[16]<br>0.5 s<br>1.0 s<br>1.5 s | <br>0.8 s<br>1.0 s<br>1.5 s | <br>0.8 s<br>1.0 s<br>1.5 s |
| Temporal resolution | 165 ms, 83 ms (bisegment)[16] | 400 ms | 400 ms[16] |

| Data acquisition system | | | |
|---|---|---|---|
| Maximum number of slices/rotation | 32 (acquired slices)<br>64 (reconstructed slices) | 32 (acquired slices)<br>64 (reconstructed slices) | 16 (acquired slices)<br>32 (reconstructed slices) |
| Number of physical detector rows | 32 | 32 | 16 |
| Number of detector elements | 24,576 | 24,576 | 12,288 |
| Number of projections | 1,536 | 1,536 | 1,536 |
| Sequence acquisition modes | 32 x 0.7 mm<br>Sn 32 x 0.7 mm<br>2 x 5 mm<br>1 x 10 mm<br>1 x 5 mm<br>3 x 5 mm | <br><br>32 x 0.7 mm<br>Sn 32 x 0.7 mm<br>1 x 10 mm<br>1 x 5 mm | <br><br>16 x 0.7 mm<br>Sn 16 x 0.7 mm<br>1 x 10 mm<br>1 x 5 mm |
| Spiral acquisition modes | 32 x 0.7 mm<br>Sn 32 x 0.7 mm | 32 x 0.7 mm<br>Sn 32 x 0.7 mm | 16 x 0.7 mm<br>Sn 16 x 0.7 mm |

# CT specifications

| Tube assembly | Symbia Pro.specta X7 | Symbia Pro.specta X3 | Symbia Pro.specta Q3 |
|---|---|---|---|
| Tube | Athlon™ X-ray tube | Chronon™ X-ray tube | Chronon X-ray tube |
| Tube current | 13-625 mA<br>13-825 mA[16] | 13-240 mA<br>13-400 mA[16] | 13-240 mA<br>13-400 mA[16] |
| Tube voltage | 70-140 kV in<br>10 kV steps | 80 kV, 110 kV,<br>130 kV, Sn110 kV,<br>Sn130 kV | 80 kV, 110 kV,<br>130 kV[16], Sn110 kV,<br>Sn130 kV[16] |
| Tube anode heat storage capacity | 7.0 MHU;<br>equivalent to 17.5<br>MHU with SAFIRE | 3.5 MHU;<br>equivalent to 8.75<br>MHU with SAFIRE | 3.5 MHU;<br>equivalent to 8.75<br>MHU with SAFIRE |
| Focal spot size according to IEC 60336 | 0.8 x 0.8/7°<br>1.0 x 1.2/7° | 0.8 x 0.4/8°<br>0.8 x 0.7/8° | 0.8 x 0.4/8°<br>0.8 x 0.7/8° |

| CARE Filter | | | |
|---|---|---|---|
| CARE Filter tube | Equivalent to 5.5 mm<br>Al @ 140 kV | Equivalent to 5.5 mm<br>Al @ 140 kV | Equivalent to 5.5 mm<br>Al @ 140 kV |
| CARE Filter beam limiting device | Equivalent to<br>0.5 mm in the<br>isocenter | Equivalent to<br>0.5 mm in the<br>isocenter | Equivalent to<br>0.5 mm in the<br>isocenter |

| Generator | | | |
|---|---|---|---|
| Maximum power | 75 kW; equivalent 187<br>kW max.<br>generator power<br>with SAFIRE | 32 kW; equivalent<br>80 kW max.<br>generator power<br>with SAFIRE | 32 kW; equivalent<br>80 kW max.<br>generator power<br>with SAFIRE |

| Topogram | | | |
|---|---|---|---|
| Length (maximum) | 1,950 mm | 1,950 mm | 1,950 mm |
| Scan times | 1.9 s-20.2 s | 1.9 s-20.2 s | 1.9 s-20.2 s |
| Views | a.p., p.a., lateral | a.p., p.a., lateral | a.p., p.a., lateral |

| Sequence acquisition | | | |
|---|---|---|---|
| Reconstructed slice widths | 1.5, 2, 3, 4, 5, 6, 7, 8,<br>10 mm | 1.5, 2, 3, 4, 5, 6, 7, 8,<br>10 mm | 1.5, 2, 3, 4, 5, 6, 7, 8,<br>10 mm |
| Scan times full scan (360°) | 0.33[16], 0.5, 1.0 s | 0.8, 1.0, 1.5 s | 0.8, 1.0, 1.5 s |
| Partial scan times (240°) | 0.22[16], 0.33, 0.67 s | 0.54, 0.67, 1.01 s | 0.54, 0.67, 1.01 s |

# CT specifications

| Multislice spiral acquisition | Symbia Pro.specta X7 | Symbia Pro.specta X3 | Symbia Pro.specta Q3 |
|---|---|---|---|
| Reconstructed slice widths | 0.6, 0.8, 1, 1.5, 2, 3, 4, 5, 6, 7, 8, 10 mm | 0.6, 0.8, 1, 1.5, 2, 3, 4, 5, 6, 7, 8, 10 mm | 0.6, 0.8, 1, 1.5, 2, 3, 4, 5, 6, 7, 8, 10 mm |
| Scan times full scan (360°) | 0.33[16], 0.5, 1.0 s | 0.8, 1.0, 1.5 s | 0.8, 1.0, 1.5 s |
| Reconstruction increment | Min. 0.1 mm | Min. 0.1 mm | Min. 0.1 mm |
| Pitch factor | 0.03-1.5 | 0.09-1.5 | 0.09-1.5 |
| Spiral scan time maximum | Max. 300 s | Max. 300 s | Max. 300 s |
| CT scan range | Max. 1,886.2 mm | Max. 1,913.7 mm | Max. 1,930.6 mm |
| Continuous scan length and SPECT/CT co-scan range | Max. 1,843 mm | Max. 1,843 mm | Max. 1,843 mm |
| Continuous scan length and SPECT/CT co-scan range minimum small room | 1,483.4 mm | 1,496.8 mm | 1,438.6 mm |

| Image reconstruction | | | |
|---|---|---|---|
| Real-time display | 512 x 512 | 512 x 512 | 512 x 512 |
| Slice thickness | 0.6-10 mm | 0.6-10 mm | 0.6-10 mm |
| Scan field | 50 cm/19.7 in<br>70 cm/27.5 in<br>w/HD FoV Pro[15] | 50 cm/19.7 in<br>70 cm/27.6 in<br>w/HD FoV Pro[15] | 50 cm/19.7 in<br>70 cm/27.6 in<br>w/HD FoV Pro[15] |
| Reconstruction field | 5-50 cm/1.9 in-19.7 in<br>5-70 cm/1.9 in-27.5 in<br>w/HD FoV Pro[15] | 5-50 cm/1.9 in-19.69 in<br>5-70 cm/1.9 in-27.7 in<br>w/HD FoV Pro[15] | 5-50 cm/1.9 in-19.69 in<br>5-70 cm/1.9 in-27.7 in<br>w/HD FoV Pro[15] |
| Reconstruction time | 13 fps for FBP,<br>9 fps for IR | 13 fps for FBP,<br>9 fps for IR | 13 fps for FBP,<br>9 fps for IR |
| Reconstruction matrix | 512 x 512 | 512 x 512 | 512 x 512 |
| Hounsfield unit (HU) scale | -8,192 to +57,343 | -8,192 to +57,343 | -8,192 to +57,343 |

# CT specifications

| Phantom CATPHAN (16 cm) | Symbia Pro.specta X3 | Symbia Pro.specta Q3 |
|---|---|---|
| Object size | 3 mm | 3 mm |
| Contrast difference | 3 HU | 3 HU |
| Dose at surface | 12.84 mGy | 13.74 mGy |
| Technique | 1.0 s, 10 mm, 130 kV | 1.0 s, 10 mm, 130 kV |

| Phantom CATPHAN (20 cm) | Symbia Pro.specta X7 | Symbia Pro.specta X3 | Symbia Pro.specta Q3 |
|---|---|---|---|
| Object size | 5 mm | 5 mm | 5 mm |
| Contrast difference | 3 HU | 3 HU | 3 HU |
| Dose at surface | 12.22 mGy | 12.84 mGy | 13.74 mGy |
| Technique | 1.0 s, 10 mm, 120 kV | 1.0 s, 10 mm, 130 kV | 1.0 s, 10 mm, 130 kV |

| Dose, CTDI100 Values[17] (in mGy/100 mAs) | Symbia Pro.specta X7 | | | | Symbia Pro.specta X3 | | Symbia Pro.specta Q3 | |
|---|---|---|---|---|---|---|---|---|
| **Kv** | **70** | **80** | **110** | **140** | **110** | **130** | **110** | **130** |
| 16 cm A | 4.0 | 6.3 | 15.7 | 27.1 | 13.1 | 19.7 | 13.4 | 20.3 |
| 16 cm B | 4.5 | 6.8 | 16.4 | 27.9 | 14.2 | 20.9 | 14.9 | 22.3 |
| 32 cm A | 0.9 | 1.6 | 4.6 | 8.7 | 3.9 | 6.1 | 4.0 | 6.4 |
| 32 cm B | 2.2 | 3.5 | 8.9 | 15.9 | 7.8 | 11.9 | 8.3 | 12.8 |

A: at center
B: 1 cm below the surface

**Technique:**
- PMMA phantom
- Absorbed dose for reference material air
- Max Deviation:
  ±20% for tube currents ≥25 mA
  ±30% for tube currents <25 mA
- Expected deviation:
  ±10% for tube currents ≥25 mA
  ±20% for tube currents <25 mA

| High-contrast resolution | Symbia Pro.specta X7 | Symbia Pro.specta X3 | Symbia Pro.specta Q3 |
|---|---|---|---|
| 2% MTF (±10%) | 15.1 lp/cm | 15.1 lp/cm | 15.0 lp/cm |
| 10% MTF (±10%) | 14.6 lp/cm | 14.6 lp/cm | 14.5 lp/cm |
| 50% MTF (±10%) | 12.0 lp/cm | 12.0 lp/cm | 11.8 lp/cm |
| Technique: Tungsten wire in air | 160 mA, 120 kV, 1 s, 5 mm | 105 mA, 130 kV, 1.5 s, 5 mm | 105 mA, 130 kV, 1.5 s, 5 mm |

# xSPECT advanced specifications

| Advanced bone imaging | Symbia Pro.specta X7 | Symbia Pro.specta X3 |
|---|---|---|
| Context-based information | Yes, applied to $^{99m}$Tc diphosphonate bone SPECT | Yes, applied to $^{99m}$Tc diphosphonate bone SPECT |
| Extra modality information | Zone map (a map with up to 6 tissue zones) | Zone map (a map with up to 6 tissue zones) |
| CT zone classification | Cortical bone, spongious bone, soft tissue, air, adipose (fat), metal | Cortical bone, spongious bone, soft tissue, air, adipose (fat), metal |
| Reconstruction software | xSPECT Bone | xSPECT Bone |
| Reconstruction matrix size | 128 x 128, 256 x 256 | 128 x 128, 256 x 256 |
| Attenuation map | Linear attenuation coefficients @ 140 keV | Linear attenuation coefficients @ 140 keV |

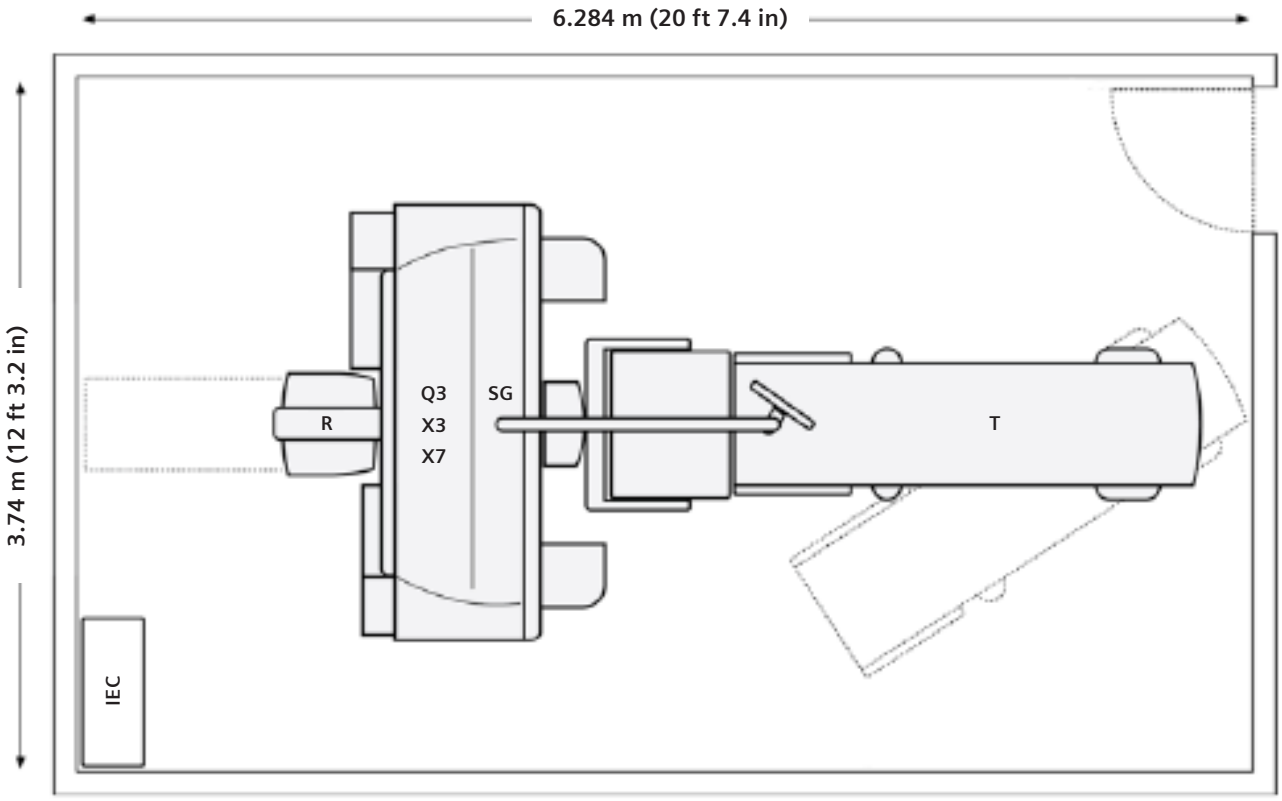
| SPECT quantification | Symbia Pro.specta X7 | Symbia Pro.specta X3 | Symbia Pro.specta Q3 |
|---|---|---|---|
| System calibration source | NIST traceable precision $^{57}$Co source, $^{75}$Se source, $^{113}$Sn source, point sources for specific isotope | NIST traceable precision $^{57}$Co source, $^{75}$Se source, $^{113}$Sn source, point sources for specific isotope | Point sources for specific isotope |
| System calibration procedure | Every 6 months | Every 6 months | Every 6 months |
| Data format | Data is saved in PET format | Data is saved in PET format | Data is saved in PET format |
| Reconstruction software | xSPECT Quant | xSPECT Quant | |
| Volumetric analysis software | MI View&GO, *syngo*.via | MI View&GO, *syngo*.via | MI View&GO, *syngo*.via |
| Quantitative volumetric analysis | In units of Bq/ml, SUV or count-rate-per-voxel | In units of Bq/ml, SUV or count-rate-per-voxel | |
| Absolute quantification | xSPECT Quant $^{99m}$Tc, $^{123}$I, $^{111}$In, $^{177}$Lu, and $^{131}$I | xSPECT Quant $^{99m}$Tc, $^{123}$I, $^{111}$In, $^{177}$Lu, and $^{131}$I | |
| Quantitative SPECT studies for common SPECT radiopharmaceuticals in combination with all collimators | Broad Quantification (in units of Bq/ml, SUV, or count-rate-per-voxel) | Broad Quantification (in units of Bq/ml, SUV, or count-rate-per-voxel) | Broad Quantification (in units of Bq/ml, SUV, or count-rate-per-voxel) |

# xSPECT advanced specifications

| xSPECT Quant: Accuracy of Bq/ml quantification[18] calibration method: NIST-traceable source | Symbia Pro.specta X7 | Symbia Pro.specta X3 |
|---|---|---|
| **Isotope/collimator** | **Uncertainty (95% confidence)** | **Uncertainty (95% confidence)** |
| $^{99m}$Tc LEHR | ≤5% | ≤5% |
| $^{99m}$Tc LPHR | ≤10% | ≤10% |
| $^{123}$I LPHR | ≤10% | ≤10% |
| $^{123}$I MELP | ≤10% | ≤10% |
| $^{111}$In MELP | ≤10% | ≤10% |
| $^{131}$I HE | ≤10% | ≤10% |
| $^{177}$Lu MELP | ≤5% | ≤5% |
| $^{177}$Lu MELP at 310 kcps incident count rate[10] | ≤10% | ≤10% |
| $^{131}$I at 310 kcps incident count rate[10] | ≤10% | ≤10% |

| Broad Quantification[19]: Reproducibility of Bq/ml quantification[20] calibration method: Dose calibrator source measurement | Symbia Pro.specta X7 | Symbia Pro.specta X3 | Symbia Pro.specta Q3 |
|---|---|---|---|
| **Isotope/collimator** | **Reproducible within** | **Reproducible within** | **Reproducible within** |
| $^{131}$I HE | ≤10% | ≤10% | ≤10% |
| $^{67}$Ga MELP | ≤10% | ≤10% | ≤10% |

# Room Layout[21]




| | |
|---|---|
| Scanner room size | 3.74 m (12 ft 3.2 in) x 6.284 m (20 ft 7.4 in) recommended |
| | 3.74 m (12 ft 3.2 in) x 5.714 m (18 ft 9.0 in) minimum |
| Ceiling height | 2,438 mm (8 ft) recommended |
| | 2,388 mm (7 ft 10 in) minimum |

# Installation and quality control specifications

| Room diagram label | Item name | Weight | Heat output |
|---|---|---|---|
| | Symbia Pro.specta™ | | |
| SG | SPECT gantry | 2,410 kg (5,313 lb) | <3,413 BTU/h, <1.0 kW[22] |
| Q3 | Q3-CT gantry | 1,282.3 kg (2,827 lb) | 6.2 kW, 21,155 BTU/HR |
| X3 | X3-CT gantry | 1,300 kg (2,867 lb) | 6.2 kW, 21,155 BTU/HR |
| X7 | X7-CT gantry | 1,300.8 kg (2,867.8 lb) | 7.8 kW, 26,615 BTU/HR |
| T | Symbia Pro.specta imaging table | 837.2 kg (1,845.8 lb) | |
| R | Symbia Pro.specta rear PHS | 183 kg (403 lb) | |
| IEC | Siemens Healthineers power distributor Integrated Electronics Cabinet (IEC) | 194 kg (428 lb) | 0.15 kW, 512 BTU/HR |

| Collimator type | Weight |
|---|---|
| LEAP | 22.6 kg (49.8 lb) |
| LEUHR | 28.0 kg (61.8 lb) |
| LEHR | 22.1 kg (48.7 lb) |
| MELP | 63.5 kg (140.1 lb) |
| LPHR | 33.6 kg (74 lb) |
| Pinhole | 80.3 kg (177.0 lb) |
| HE | 124.7 kg (275.0 lb) |
| **SMART**ZOOM | 47.2 kg (104.0 lb) |
| **SMART**ZOOM HRX | 56.1 kg (123.7 lb) |
| ICC housing | 82 kg (182 lb) |
| ACC | 45 kg (100 lb) |
| AQC | 23 kg (50 lb) |
| Collimator cart | 240 kg (528 lb) |

# Installation and quality control specifications

| Power requirements | |
|---|---|
| Input voltage | Three-phase 380/400/420/440/460/480 VAC ~50/60 Hz |
| Electrical supply | For Symbia Pro.specta Q3 and X3 50 kVA[22] |
| | For Symbia Pro.specta X7 115 kVA[22] |

| Environment | |
|---|---|
| Floor loading | 5.1 kg/sq cm (78 lb/sq in) maximum under the gantry |
| Ambient operating temperature | 18-25°C (65-77°F) |
| Allowable temperature change | 4.4°C (8°F) per hour |
| Humidity range | 20-75% non-condensing |
| Maximum altitude | 2,000 m a.s.l. |

| Standard quality control procedures | |
|---|---|
| **Nuclear medicine** | |
| Daily | Intrinsic verification or extrinsic verification |
| Weekly | Tuning |
| Monthly | – Intrinsic calibration and verification<br>– Head alignment calibration with trending collimator |
| Every 6 months or per regulatory/license requirements (if applicable) | Sensitivity calibrations<br>Leak test of the automated quality control device sources |
| Yearly | Head alignment calibration with every collimator |
| **Computed tomography** | |
| Daily | CT checkup at the start of the day, CT quality (DailyQA) at the start of the day, CT calibration 1 hour after checkup or if ring artifacts occur |
| Monthly | CT constancy test |

# Footnotes

[1] Available only for Symbia Pro.specta Q3

[2] Not available for Symbia Pro.specta Q3

[3] Available only for Symbia Pro.specta X7

[4] Distance from center of SPECT FOV to center of CT FOV

[5] All collimators may not be supported by all detector configurations

[6] 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

[7] Distance from the edge of the detector housing to the edge of the FOV

[8] Values are determined at the manufacturer's facility using methods described in NEMA Standards Publications NU 1-2018 "Performance measurements of Gamma Cameras."

[9] With TrueCalc high count rate detector technology

[10] Incident count rate

[11] Values measured in accordance with NEMA Standards Publication NU-1 2018 using 3/8" crystal

[12] Values measured using a 5-cm diameter phantom

[13] Values measured with lines spaced 2 cm apart at the center of the collimator

[14] 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 apertures) and 4 cm (8-mm aperture).

[15] With HD FoV option. The image quality for the area outside the 50-cm scan field of view does not meet the image quality of the area inside the 50-cm scan field of view. Image artifacts may appear, depending on the patient setup and anatomy scanned. HD FoV cannot be used for scan FOV smaller than 50 cm.

[16] Optional

[17] PMMA phantom. Absorbed dose for reference material air. Maximum deviation ±30%. Expected deviation ±15%. Slice >1 mm. Please note that these specifications are CTDI100 values.

[18] Measured per NEMA NU1-2018 using a uniform cylinder phantom

[19] Broad Quantification may be used for multiple SPECT isotopes beyond those listed.

[20] Using a uniform cylinder phantom

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

[22] Maximum power consumption during CT operation

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