

VAMC ALBUQUERQUE, NM  
PO# 501-B30030

## Symbia E Dual

All items listed below are included for this system: (See Detailed Technical Specifications at end of Proposal.)

Qty	Item Description
1	<b>Symbia E Dual Head Variable Angle</b> Symbia E is a variable angle, dual detector emission imaging system. The pass-through, open gantry is designed for fast data acquisition and high patient throughput during SPECT, Whole Body and general nuclear medicine procedures.
2	<b>3/8" Hi Resolution Detector</b> The high resolution, digital detector assembly includes a .95 cm (3/8 in.) thick NaI (TI) crystal
1	<b>Symbia E Dual Caudal Tilt</b> Caudal tilt on both detectors allows for precise positioning of static and dynamic acquisitions, as well as service procedures.
2	<b>Low Energy, High Resolution</b> Low energy (140 keV), high resolution, parallel hole collimator
2	<b>Medium Energy Collimator</b> Medium energy (MELP) (300 keV), parallel hole collimator
1	<b>Collimator Cart Dual</b> One collimator cart supports the storage and exchange of a maximum of two collimator pairs (four collimators), vertically mounted, to conserve department space.
1	<b>Symbia E c.clear</b> The Symbia E c.clear attenuation correction option uses an external transmission source to measure attenuation through the patient's body during a myocardial perfusion examination. The acquired attenuation maps are used during reconstruction to correct the emission data for non-uniform attenuation. The overall result is a more accurate estimate of the real cardiac activity distribution.
1	<b>Gd-153 Source Array</b> The Gd-153 source array for the c.clear option includes the initial set of 28 line sources as well as the first set of 4 replenishment sources needed after the first 6 months. This allows the system to operate for a full year after delivery.
1	<b>Symbia E Source Registration Kit</b> Source registration kit for Symbia E c.clear attenuation correction option. This kit contains information for updating site radioactive materials license, contact information for source vendor, and user instructions.
1	<b>English Symbia E c.clear Lang Kit</b>
1	<b>English Symbia E c.clear Lang Kit</b>

Qty	Item Description
1	<p><b>Extra Hand Controller</b> This option provides an extra hand controller for the Symbia E scanners.</p>
1	<p><b>Monitor: 19 inch LCD</b> The 19" LCD Monitor is an economic monitor solution</p>
1	<p><b>PPM at Bedside</b> This option is a software application that allows viewing and interacting with the patient positioning monitor from the Symbia acquisition workplace.</p>
1	<p><b>Cardiology Engine Cedars</b> The Cardiology Engine Cedars assists in the diagnosis and quantitative assessment of coronary artery disease by enabling the visualization of SPECT studies as well as quantified perfusion assessment.</p>
1	<p><b>Reconstruction Engine</b> The Reconstruction Engine provides the ability to shorten SPECT and Planar acquisition times with optimized workflows based on Siemens' innovative Flash reconstruction techniques. This engine is suited to provide the best reconstruction for SPECT-only scanners.</p>
1	<p><b>English Cedars Lang Kit</b></p>
1	<p><b>English Cedars Lang Kit</b></p>
1	<p><b>Remote Diagnostic Services</b> Remote Diagnostic Services. A broadband connection is required for full remote diagnostic functionality and optimal system uptime.</p>
1	<p><b>Symbia E US Installation</b> Mechanical installation of the Symbia E including complete system assembly and alignment, system startup, calibrations, and performance verification to factory specifications. Also includes labor and travel expenses.</p>
1	<p><b>4Quadrant Phantom for e.cam/SymbiaE</b> A 4 quadrant 2.0-2.5.30.3.5 mm standard pattern slightly modified for use with the e.cam and Symbia Imaging Systems</p>
1	<p><b>10mCi Rectangular Source</b> Model IPL-FL24R Large rectangular Co-57 flood source Activity: 10 mCi (370 Mbq) Active dimensions: 24" long x 16.5" wide Overall dimensions: 26" long x 18.5" wide For use with e.cam and Symbia imaging systems. The following license requirements are required for international orders: (1) Government seal on license document (2) Address of facility on license document (3) Valid dates of license (4) Radionuclide (&amp; activity) approved for receipt and use</p>
1	<p><b>Initial onsite training 32 hrs</b> Up to (32) hours of on-site clinical education training, scheduled consecutively (Monday - Friday) during standard business hours for a maximum of (4) imaging professionals. Training will cover agenda items on the ASRT approved checklist. Uptime Clinical Education phone support is provided during the warranty period for specified posted hours. This educational offering must be completed (12) months from install end date. If training is not completed within the applicable time period, Siemens obligation to provide the training will expire without refund.</p>
1	<p><b>MI SPECT Project Management</b> A Siemens Project Manager (PM) will be the single point of contact for the implementation of your Siemen's equipment. The assigned PM will work with the customer's facilities management, architect or building contractor to assist you in ensuring that your site is ready for installation. Your PM will provide initial and final drawings and will coordinate the scheduling of the equipment, installation, and rigging, as well as the initiation of on-site clinical education.</p>

Qty	Item Description
1	English Symbia E Lang Kit
1	Initial onsite training 32 hrs Gov Offse

**Incidental Services Associated with this Quotation:**

One complimentary biomedical tuition is included with the purchase of this system. This training must be completed before the end of the warranty period.

SPECT ELEVATE BONUS PROMO Elev e.cam Single  
 Offset Part 10275870 Symbia E Lang Kit  
 Offset Part 10275889 English Symbia E c.clear Lang Kit (

Offset Part 10182968 English Cedars Lang Kit  
 XX2SYNGO – syngo with Multimodality Workstation 5 Days

XX1RADSFVC- (8 Hrs) virtual radiation - Our NC RAM license requires that attendees have 8+hrs of Radiation Safety training within the last 3 yrs.

MI1SPEESSE- Service Essentials for Specht 5 Days

MI2ESOFTWS-ESOFT WORKSTATION 4 days

MI2ECA@SYM- e.cam and Symbia E Gantry System Class 12 Days

Lodging for Complimentary Biomedical Training for one engineer for 25 nights

Airfare for Complimentary Biomedical Training for one engineer from ABQ - RDU for 3 roundtrips

Lodging for Additional Biomedical Training for one engineer for 25 nights

Airfare for Additional Biomedical Training for one engineer from ABQ - RDU for 3 roundtrips

Lodging for Service Essentials Biomedical Training for 2 engineers for 10 nights

Airfare for Service Essentials Biomedical Training for 2 engineers from ABQ - RDU for 2 roundtrips a

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## OPTIONS

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### OPTIONS for Symbia E Dual

All items listed below are OPTIONS and will be included on this system ONLY if initialed: (See Detailed Technical Specifications at end of Proposal.)

Qty	Item Description
1	<b>Pinhole with 4 mm aperture</b> Pinhole collimator with 4 mm aperture
1	<b>8 mm aperture</b> The 8 mm aperture is a high sensitivity insert for the pinhole collimator.
1	<b>6MM APERTURE</b> The 6 mm aperture is a high sensitivity insert for the pinhole collimator.

# Detailed Technical Specifications

## Symbia E Dual

/ Product	Description
<p><b>Symbia E Dual Head Variable Angle</b></p>	<p>The Symbia E Dual Head Variable Angle has the following features:</p> <ul style="list-style-type: none"> <li>- Gantry</li> <li>- Patient Bed</li> <li>- Acquisition Workplace</li> </ul> <p><b><u>Gantry</u></b></p> <p>Variable angle, open design with two High Definition Digital Detectors that can be positioned at 76 degrees or 90 degrees for cardiac applications and 180 degrees for whole body or general applications. The gantry supports circular and non-circular orbits. Autocontour, with infrared real-time body contouring, is a standard component which minimizes patient to collimator distance in Whole Body and SPECT acquisition modes.</p> <p>A fully integrated source holder is provided for quick and convenient quality control. A quality control phantom kit, including the MHR phantom and point source vials and a sheet source positioning phantom is included.</p> <p>All motorized motions of the patient bed, gantry and detectors are controlled from the hand controller which can be mounted on either side of the gantry.</p> <p><b><u>Patient Bed</u></b></p> <p>The patient-oriented design of the imaging bed consists of 35.6 cm (14 inch) wide and 2.5 mm (1/10 inch) thin, aluminum pallet, supporting patient weights up to 180 kg (400 lbs). Its low attenuation characteristics (&lt;7%) and the close proximity of the detector to the patient optimize study resolution. Patient access is facilitated by a minimum pallet height of 48 cm (19 inches). Programmable table positions for wheelchairs and gurneys minimize the transport efforts of patients and staff. The SPECT armrest supports upper arms and hands during cardiac and general SPECT acquisitions. Body wrap is provided to help patients lie still on the bed. Whole body arm rests support and position arms and hands within detector field of view during whole body planar examinations. An integrated ruler allows for rapid wholebody positioning. A SPECT head holder is provided to support and stabilize the head during brain examinations.</p> <p><b><u>Acquisition Workplace</u></b></p> <p>The syngo-based high performance acquisition workplace provides a wide range of clinical acquisition protocols utilizing a graphical user interface, keyboard and mouse.</p> <p><b><u>Hardware:</u></b></p> <ul style="list-style-type: none"> <li>- Single Quad-Core 3.2 GHz Xeon CPU</li> <li>- 8 GB RAM</li> <li>- 2 X 500 GB SATA Hard Drives</li> <li>- Integrated DVD-R RW</li> <li>- Workflow-based Architecture</li> </ul> <p><b><u>SPECT Acquisition Features</u></b></p> <p><b>SPECT Acquisition Modes:</b></p> <ul style="list-style-type: none"> <li>- Planar static and dynamic</li> <li>- Whole Body</li> </ul>

/ Product	Description
<p><i>(Continued)</i></p> <p><b>Symbia E Dual Head Variable Angle</b></p>	<ul style="list-style-type: none"> <li>- SPECT, gated, non-gated or both</li> <li>- Dynamic SPECT</li> <li>- Whole Body SPECT</li> </ul> <p><b>Workflow Features:</b> The system combines acquisition, post-processing (optional), and display into user customizable workflows that automate many of your clinical routines. Besides remembering and storing your parameters for each clinical protocol, the workflow will automatically print, archive, and distribute your results to other devices on your network.</p> <p><b>Quality Control:</b> Use the automatic and manual motion correction features of the system to aid you in the quality of your acquired images. Besides motion correction, you can beat normalize your gated studies and create quality control images such as sinograms and linograms to document your results.</p> <p><b>3D Orientation:</b> Reorient your acquired SPECT volumes interactively to achieve the desired patient position. Cardiac and general orientations are supported. If desired, the orientation applied to one volume can be automatically applied to up to 3 additional volumes.</p> <p><b>Image Registration:</b> Multiple techniques are available for accurate registration of your acquired images. Interactive, manual translations and rotations in all 3 planes provides a good foundation for good registration. The optional automatic registration technique can often assist you in those hard to register cases. A landmark registration feature rounds out the available techniques. Triple registration and the choice of output matrix size are also standard features.</p> <p><b>Reconstruction:</b> The reconstruction engine supports up to 5 multi-isotope studies concurrently. Standard SPECT as well as wholebody, dynamic and gated cardiac volumes can be created.</p>
<p><b>3/8" Hi Resolution Detector</b></p>	<p>The Symbia utilizes energy independent high definition digital detectors.</p> <p>Detector assembly technical specifications:</p> <ul style="list-style-type: none"> <li>- True rectangular FOV of 38.7 x 53.3 cm (15.25 x 21 in.)</li> <li>- 59 photomultiplier tubes – 53, 7.6 cm (3 in.) and 6, 5.1 cm (2 in.) diameter tubes</li> <li>- .95 x 59.1 x 44.5 cm (3/8 x 23 x 17.4 in.) NaI (TI) crystal material</li> </ul> <p>The HD Detector features include:</p> <ul style="list-style-type: none"> <li>- Balanced performance between energy resolution and spatial resolution</li> <li>- One, 10-bit high-speed flash ADC per PMT</li> <li>- Variable PMT selection ensures high resolution for all multi-energy and multi-peak applications</li> <li>- Optimized dynamic digital integration time to improve high count rate capability</li> <li>- Individual PMT pile-up correction for improved performance at high count rates</li> <li>- Energy independence maintains clinical performance at all energies including multi-peak and dual isotope studies</li> <li>- Location independence maintains consistent spatial resolution across the field of view</li> <li>- Crystal variation correction for optimal uniformity and linearity across all energies</li> <li>- Single source (Co-57 or Tc-99m) tunes the detector for all energies</li> </ul>
<p><b>Low Energy, High Resolution</b></p>	<p>The low energy, ultra high resolution collimator has the following technical specifications:</p> <ul style="list-style-type: none"> <li>- 148,000 hexagonal holes</li> <li>- Sensitivity: 202 cpm/microCurie</li> <li>- Resolution: 7.5 mm at 10 cm</li> <li>- Weight: 22.1 kg (48.7 lbs)</li> </ul>

/ Product	Description
<b>Medium Energy Collimator</b>	<p>The medium energy collimator has the following technical specifications:</p> <ul style="list-style-type: none"> <li>- 14,000 hexagonal holes</li> <li>- Sensitivity: 275 cpm/microCurie</li> <li>- Resolution: 12.5 mm at 10 cm</li> <li>- Weight: 61.8 kg (136 lbs)</li> </ul>
<b>Symbia E c.clear</b>	<p>c.clear attenuation correction will support Tc-99m and Tl-201 cardiac studies acquired with LEHR collimators. Typical reconstruction times for a complete gated stress / rest attenuation corrected study are longer than for scans without attenuation correction and will depend on the type of processing workplace that is chosen.</p>
<b>Gd-153 Source Array</b>	<p>The c.clear attenuation correction option uses two transmission sources which are configured as multiple line arrays. Each array contains 14 individual Gd-153 line sources with a total activity of 3.7 GBq (100 mCi) per array.</p> <p>The design utilizes the natural decay of Gd-153 to extend the useful source life to 3.5 years. This is accomplished by weighting the individual source strengths such that the maximum photon flux is delivered at the center of the patient where it is needed most. Individual source strengths for the 14 lines in each line source array are as follows:</p> <ul style="list-style-type: none"> <li>- 2 lines sources @ 740 MBq (20 mCi)</li> <li>- 2 lines sources @ 440 MBq (11.9 mCi)</li> <li>- 2 lines sources @ 259 MBq (7 mCi)</li> <li>- 2 lines sources @ 155 MBq (4.2 mCi)</li> <li>- 2 lines sources @ 93 MBq (2.5 mCi)</li> <li>- 2 lines sources @ 56 MBq (1.5 mCi)</li> <li>- 2 lines sources @ 33 MBq (0.9 mCi).</li> </ul> <p>Every 6 months the line sources are shifted one position outward from the center. The two vacant slots in the center are filled with 2 new 740 MBq (20 mCi) sources to bring the array back to full strength and the sources that are shifted out of the array are returned to the source vendor for disposal. (Return shipping costs are not included in the purchase price.)</p> <p>The Gd-153 source array includes the initial set of 28 line sources as well as the first set of 4 replenishment sources after 6 months. This allows the system to operate for a full year after delivery.</p>
<b>Extra Hand Controller</b>	<p>The Symbia E scanner comes standard with a single hand controller that can be plugged into either side of the gantry. This option adds an additional hand controller for added efficiency in accessing the motorized motions for the patient bed, gantry, and detectors.</p>
<b>Monitor: 19 inch LCD</b>	<p>The Monitor: 19 in. LCD technical features are:</p> <ul style="list-style-type: none"> <li>- 19" active display</li> <li>- Optimal picture resolution of 1280 x 1024</li> <li>- Anti-glare panel surface</li> <li>- Up to 170 degree viewing angle</li> </ul>
<b>PPM at Bedside</b>	<p>The software has the following features:</p> <ul style="list-style-type: none"> <li>- Patient positioning with window and persistence adjustment</li> <li>- Acquisition parameter display (elapsed time, view number, etc.)</li> <li>- Camera information (detector and bed position)</li> <li>- Gantry control (collimator change and offset zoom)</li> </ul>
<b>Cardiology Engine Cedars</b>	<p>The Cardiology Engine provides the Cedars Cardiac SPECT Suite, a comprehensive set of quantitation programs for the evaluation of SPECT Myocardial Perfusion Imaging</p> <p>The engine calculates a comprehensive set of cardiac parameters including ejection fractions, volumes, wall motion including right ventricular free wall motion in QBS, wall thickening, perfusion (%). QPS allows for the quantitation of prone SPECT data and of serial perfusion changes. Both 20 and AHA-17 segment scoring models</p>

/ Product	Description
<p><i>(Continued)</i></p> <p><b>Cardiology Engine Cedars</b></p>	<p>are available. In addition to calculating an Eccentricity Index, QGS also calculates a more regional measure of LV shape known as the Shape Index. Displays include gated slices with contours, a motion frozen display which results in better resolution and contrast by eliminating motion of the cardiac cycle, interactive 3D images, and polar maps. Manual over-ride of contours and DICOM compatible output are additional features. Outputs include DICOM secondary capture files, result files as well as the ability to generate an AVI file format. The Cedars application is an OEM product developed and supported by Cedars Sinai.</p> <p>Applications include: Cedars SPECT Suite</p>
<p><b>Reconstruction Engine</b></p>	<p>The Reconstruction Engine includes a three dimensional iterative reconstruction method with resolution recovery and scatter correction. It also includes statistics-based adaptive de-noising and de-blurring of planar images and longitudinal whole body bone scans. It can be used to shorten the acquisition time of planar images, bone scans or SPECT studies without loss in image quality. This reconstruction method can also improve overall image quality with better contrast, higher resolution, and decreased image noise when used to reconstruct full-time studies. This packages provides syngo MI Workflows with half-time acquisition parameters and optimized reconstruction settings and filters, specifically designed to acquire whole body SPECT scans in the time of a conventional whole body bone scans and to increase the scan speed of whole body bone scans to shorten scan time.</p> <p>Applications include: Flash3D and Scatter Correction for general and cardiac exams as well as Planar ½ Time Imaging.</p>
<p><b>Remote Diagnostic Services</b></p>	<p>A broadband connection is required for full remote diagnostic functionality and optimal system uptime. The Remote Diagnostic Services option allows for remote access to your networked workstations. This service includes all the necessary hardware, software and configuration required to access your equipment remotely for the purposes of remote diagnostics. Features include:</p> <ul style="list-style-type: none"> <li>- Image Transfer</li> <li>- Access to automatic Virus Protection updates</li> <li>- Error log retrieval</li> <li>- Remote Workflow revisions</li> <li>- Remote configuration</li> <li>- License management</li> <li>- Remote workstation control via netmeeting</li> </ul>
<p><b>Pinhole with 4 mm aperture (Optional)</b></p>	<p>The pinhole collimator with 4 mm aperture has the following technical specifications:</p> <ul style="list-style-type: none"> <li>- 1 round hole</li> <li>- Sensitivity: 123 cpm/microCurie for 99m Tc</li> <li>- Resolution: 6.6 mm at 10 cm</li> <li>- Weight: 74.3 kg (165 lbs)</li> </ul> <p>SPECT imaging with a pinhole collimator is not allowed.</p> <p>The pinhole collimator occupies the upper 2 locations on a collimator cart; Therefore, only an additional 2 collimators (1 pair) can be stored on the same cart.</p>
<p><b>8 mm aperture (Optional)</b></p>	<p>The 8 mm aperture has the following technical specifications:</p> <ul style="list-style-type: none"> <li>- Sensitivity: 478 cpm/microCurie for 99m Tc</li> <li>- Resolution: 12.5 mm at 10 cm</li> </ul>
<p><b>6MM APERTURE (Optional)</b></p>	<p>The 6 mm aperture has the following technical specifications:</p> <ul style="list-style-type: none"> <li>- Sensitivity: 271 cpm/microCurie for 99m Tc</li> <li>- Resolution 9.5 mm at 10 cm</li> </ul>