MATHER VA B56019
V.A. Medical Center
WAREHOUSE - BLDG. 652
10535 HOSPITAL WAY
MATHER, CA 95655

TRADE-IN OF SYSTEM -- OPTION 1
MANUFACTURER: SIEMENS MEDICAL
MODEL: BIOGRAPH TRUEPOINT 64
SERIAL #: 1006
 ACQ DATE: 2/20/07

P.O.# 612-B56019

Qty	Item Description
1	**Biograph mCT Flow 64** Biograph mCT Flow 64 with FlowMotion Technology
1	**TrueV PET - mCT Flow** The Biograph mCT Flow TrueV option provides improved PET productivity and performance by extending the axial PET coverage to 22.1 cm.
1	**Seismic Install Kit w/PDU-mCT Flow** Includes installation kit items and additional items for seismic region installation. Some items still require local specification, due to site specific requirements. Includes power distribution unit for connecting entire system to a single 3-phase power drop.
1	**PET Gantry UPS - mCT** Uninterruptible Power Supply (UPS) option providing 5 minutes of backup power enabling proper shutdown of the PET system in the event of power loss. Specifications: 5.0 KVA, 230 Volts, 50/60 Hz.
1	**Cooling System Water/Air - mCT** Water-to-air heat exchanger for the dissipation of heat loss generated in the gantry to the outside air. System operating temperature:20 - 26 degrees C, 20 - 75 % rel. humidity (not condensing). Ideal for installation far from the scan room. Cooling system contains to units, water/water exchanger close to the scan room and an additional remote water/air exchanger. Maximum distance between water/water unit and remote water/air exchanger up to 40 meters enabled by thin diameter of water transferring pipes.
1	**Cooling System US Install Kit - mCT** Kit for installation of the Cooling System Water/Air in US Includes: - Transformer for powering the Cooling System Water/Air - Service switch to shut off the outdoor cooling unit for maintanance or in case of emergency
1	**Biograph Ge-68 Sources** Calibration sources for the Biograph mCT. These sources are to be purchased with a new Biograph mCT scanner.
1	**Biogr. Uni. Phantom Shield-Fixed** Contains shield for the Biograph TrueV Uniform Phantom.
1	**Keyboard, English - mCT** Keyboard in the above-mentioned language.

Qty	Item Description
1	**ultraHD-PET mCT Flow (AWP)**
1	**Cardiac CT Option - mCT**
	Provides HeartView CT cardiac gating acquisition/reconstruction.
1	**ECG monitoring module (UPMM-2)**
	Universal Physiological Monitoring Module (UPMM) provides patient cardiac ECG information for either CT or PET cardiac gating. Locates in the patient handling system for convenient patient connection. Includes patient cable.
1	**PET/CT Resp Gating Opt - Flow**
	Provides both CT Respiratory and Triggering option as well as PET respiratory gated acquisition/reconstruction. Allows for the ability to automatically match gate definition between CT and PET during reconstruction for phase match attenuation correction and visualization.
1	**HD-Chest #AWP**
	Adaptive respiratory gating for automated optimal, motion-freeze, providing improved image quality by reducing respiratory motion artifacts while providing optimized count statistics.
1	**Respiratory Trigger System 3.0**
	Respiratory trigger system for PET or CT Gating. The respiratory gating and triggering hardware is comprised of: chest/abdominal belt, pressure transducer, sensor port, Wave Deck, respiratory phantom, laptop PC with connecting cables.
	Power: 100-240 V, 50/60 Hz
1	**RTP Pallet**
	RTP Flat pallet for Biograph mCT. The carbon fiber table top utilizes a quick release latch for easy on/off.
	Varian Exact(tm) compatible indexing for accessories.
	Includes quantity 1 two-pin locator bar.
1	**BiographOn-site NEMA testing**
	Class standard testing NU2-2012 tests are offered as follows for PET/CT.
1	**Installation (US/CAN)**
1	**Biograph Deinstallation**
	Removal, rigging, repackaging, crating and comprehensive inventory of PET/CT unit. Also includes labor and travel expenses. (Average deinstallation: 4 days)
1	**MI PET Project Management**
	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.
1	**Initial onsite training 32 hrs**
	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.
1	**Follow-up training 32 hrs**
	Up to (32) hours of follow-up on-site clinical education training, scheduled consecutively (Monday - Friday) during standard business hours for a maximum of (4) imaging professionals. 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

Qty	Item Description
	obligation to provide the training will expire without refund.

GOV'T ONLY - MI PET Training Class

Qty: 1

Tuition for (1) government attendee to attend a classroom course of choice at one of the Siemens training centers. 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.

CT Cross Trainer

Qty: 1

CT Cross Trainer printed self study materials for (1) imaging professional. These materials will provide the user with basic CT knowledge by testing the participant periodically. Successful completion of the self study program will provide the participant with CE credits. CT Cross Trainer printed self study materials for (1) imaging professional. These materials will provide the user with basic CT knowledge by testing the participant periodically. Successful completion of the self study program will provide the participant with CE credits. 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.

Additional CT onsite training 32 hours

Qty: 1

MI_CTPET_ADD_32 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 if applicable. 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.

GOV'T ONLY - MI PET Training Class

Qty: 1

Tuition for (1) government attendee to attend a classroom course of choice at one of the Siemens training centers. 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.

PET Onsite Gating Training- 12hrs

Qty: 1

Up to (12) 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 if applicable. 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.

Project Mgmt/Site Planning (US only)

Qty: 1

MI PET Riedel Chiller Start-up by SBT

Qty: 1

Low Contrast CT Phantom & Holder

Qty: 1

NEMA_XR-29 Standard

Qty: 1

This system is in compliance with NEMA XR-29 Standard Attributes on CT Equipment Related To Dose Optimization and Management, also know as Smart Dose

English Manual - mCT

Qty: 1

Hardcopy of English Operator's Manual for Biograph mCT

Initial onsite training 32 hrsGov Offset

Qty: 1

GOV'T - ONLY - Projectmanagement Offset

Qty: 1

GOV'T - ONLY - Installation mCT Offset

Qty: 1

Offset Part 14421151 English Manual - mCT

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

Lodging for Complimentary Biomed Training for one engineer for 20 nights at

Airfare for Complimentary Biomed Training for one engineer from SMF - RDU at   /roundtrip x 5 trips =

OPTIONS

Qty	Item Description
1	**CT SAFIRE (AWP) - mCT** The Sinogram Affirmed Iterative Reconstruction (SAFIRE) enhances spatial resolution, reduces image noise and increases sharpness by introducing multiple iteration steps in the reconstruction process.
1	**MEDRAD Stellant Dual Flow (Ceiling)**

Detailed Technical Specifications

Description

The Biograph mCT Flow 64 with FlowMotion Technology is a whole-body PET•CT tomograph designed for the purposes of oncological, neurological and cardiac imaging and diagnosis. With a single noninvasive procedure, the Biograph produces remarkable CT and PET•CT images that reveal highly-detailed anatomy and biological processes at the molecular level.

The Biograph mCT Flow provides:
- high performance spiral computed tomography (CT) imaging and applications.
- high-resolution, high-count rate, PET imaging of metabolic and physiologic processes.
- high quality anatomic and metabolic image registration for optimal lesion detection and identification within the body.
- high quality attenuation correction and scatter correction for PET imaging.

Scope of Delivery:

Scanning Unit (Integrated PET•CT Gantry)

The fully integrated PET•CT gantry incorporates CT and PET detector assemblies and electronics in an efficient, compact design that reduces data transmission noise and increases system reliability. The large gantry opening, continuous patient port and short tunnel length provide ease of positioning for up to 500 lb (227 kg) patients and help to minimize patient claustrophobia. Quad operator controls on gantry for positioning from either side of patient from either the front or rear. Dual gantry displays (front and rear) for system status.

CT System

The CT imaging capability of the Biograph mCT consists of a 64-slice CT based on the Definition AS CT platform featuring a full range of SPIRAL CT clinical applications with high performance.

Gantry:
Aperture: 78 cm; power supplied via low-voltage slipring.
Rotational speed of the gantry: 182 rpm (200 rpm optional) with a rotation time of 330 ms (300 ms optional).
Scanning system:
Adaptive Array Detector (AAD) system based on UFC™ (ultrafast ceramics) with up to 23,552 elements depending on configuration, and 1472 measuring channels per slice (the measuring system can contain replacement components).

STRATON tube high-performance X-ray system:
The STRATON tube provides direct oil cooling of the anode with the ball bearings located outside the vacuum. The direct anode cooling and the small and compact design of the anode eliminates the need for heat storage capacity (0 MHU) and enables an unprecedented cooling rate of 7.3 MHU/min. Therefore cooling delays between multiple long range scans are eliminated, even for large patients. Tube current range: 20-666 mA. Focal spot size according to IEC 60336: 0.7 x 0.7mm/7°, 0.9 x 1.1mm/7°. Computer controlled monitoring of anode temperature, multifan principle with flying focal spot.

Z-Sharp technology:
The unique STRATON X-ray tube utilizes an electron beam that is accurately and rapidly deflected, creating two precise focal spots alternating 4,608 times per second. This doubles the X-ray projections reaching each detector element. The two overlapping projections result in an oversampling in z-direction, known as Double z-Sampling. The resulting measurements interleave half a detector slice width, doubling the scan information without a corresponding increase in dose. Siemens' proprietary, high-speed Ultra Fast Ceramic (UFC) detector enables a virtually simultaneous readout of two projections for each detector element - 2 x 32 slices for every viewing angle - resulting in a full 64-slice acquisition.

80 kW (100 KW optional) X-ray generator:

Description

Microprocessor-controlled, low-noise high-frequency generator with integrated, automatic self-testing system for continuous monitoring of operation. Settings: High-voltage range 70, 80,100, 120 and 140 kV; power max. 80 kW (100 kW optional), adjustable in fine steps.

PET System

The PET imaging capability of the Biograph mCT consists of the multi-LSO-detector ring system with 3D acquisition and reconstruction and 81 (optional 109) image planes with a 164 (optional 221) mm axial field of view.

FlowMotion Technology provides:

Improved planning workflow, acquisition and reconstruction with continous table movement PET acquisition, a simple CT-like planning workflow and high resolution optimized image processing. Precise CT-like planning for PET provides flexibility for scan area allowing reduced radiation dose. Simple customization of protocols provies the ability to incorporate features for motion management, varied speed for focused image quality and improved throughput, and maximum reconstructed image resolution for the most demanding clinical and research applications. Additional benefits include:

- PET acquisition without the limitation of bed positions
- Ability to customize scan protocols to the specific physician preference for each patient
- Enables easy setup for up to 4 scan regions for optimized scan parameters in each body area
- Maximum reconstructed image resolution for the most demanding clinical and research applications with 81 (optional 109) image planes across 164 (optional 221) mm axial field-of-view at 2.0 mm slice spacing with 128 x 128, 200 x 200, 256 x 256, 400 x 400, and 512 x 512 reconstruction matrices.
- Improved axial uniformity
- Improved end-plane sensitivity and increased reproducibility
- Up to 32% CT dose reduction for ALARA dose
- One-click CT-like range planning to scan the precise area needed
- Improved patient satisifaction due to a sense of progress being made with constant bed motion during acquisition

OptisoHD detection system provides:

- High spatial slice resolution in trans-axial and axial dimensions.
- Slice spacing (2 mm) optimized for speed and resolution.
- Pico-3D ultra fast electronics for decreased deadtime and high signal-to-noise.
- ACS 4 acquisition computer system for high countrate capability.
- PRS reconstruction system for fast reconstruction of PET data.
- Three-dimensional display of organs with a large axial view.
- Excellent volume sensitivity.
- Fast acquisition and reconstruction at 200 x 200 or 400 x 400 matrix size.
- Unique block detector technology provides excellent temporal and energy resolution response.
- Simultaneous data acquisition and image reconstruction for high patient throughput.
- Static and whole body acquisition capability.
- 842 mm detector ring diameter.
- 78 cm gantry aperture.
- 70 cm transverse field of view
- 164 (optional 221) mm axial field of view.
- Unique, accurate Patient Handling System.
- TrueC advanced scatter correction technique

Supported image sizes

Patient Handling System

Description

The Biograph mCT patient handling system (PHS) has a unique reinforced cantilever design that ensures reliable patient support with the high weight capacity and minimal pallet deflection. As one of the pillars of SMART (Siemens Molecular & Anatomical Registration Technologies), the PHS provides:

- Reinforced cantilever design for maximum patient support and absolute positioning between PET and CT scan.
- Integrated patient table design for easy patient positioning.
- Low attenuation carbon fiber pallet.
- 43 cm vertical motion range.
- Maximum 198 cm PETCT co-scan range.
- Low attenuation head holder, table extensions, head-arm support, knee-leg support.
- Maximum patient weight of 227 kg (500 lbs.).

Control and evaluation unit:
CT control box with intercom system with user-programmable patient instruction system. Dual monitors (19 inch (48 cm) LCD flat panel displays), keyboard and mouse for *syngo* Acquisition Workplace.

Computer system:
The computer system of the Biograph mCT consists of four components.

- syngo Acquisition Workplace console for the planning and execution of the CT examination, including evaluation and management of the CT images
- Reconstruction computer for the preprocessing and reconstruction of the CT data
- PET acquisition system (ACS 4)
- PET data reconstruction system (PRS) with supported image reconstruction of 128 x 128, 200 x 200, 256 x 256, 400 x 400 and 512 x 512.

The *syngo* Acquisition Workplace console consists of a high-performance Celsius Windows 7 based computer with Quad Xeon 2.53 Ghz processor, 8 GB RAM, 300 GB storage capacity for 480,000 images, DVD DICOM with 4.7 GB media for 8,000 images. External USB 2.0 devices for data storage are supported (recommended: Iomega 160 GB External Hard Drive Hi-Speed USB 2.0; Maxtor One Touch 160 GB External Hard Drive).

The CT reconstruction computer contains a cluster of 2 high-performance processors performing the preprocessing and reconstruction of the CT data at up to 40 images/sec (512x512). Raw data memory is 900 GB.

The PET acquisition system (ACS 4) provides high performance acquisition and sorting of 3D coincidence events. Supports 3D static and 3D whole body acquisition modes. Contains dual Xeon 3.3 GHz processors with a total of 64 GB RAM. Disk storage of 1.0 TB for PET raw data is provided.

The PET reconstruction system (PRS) provides fast 3D image reconstruction of the PET raw data. Iterative and backprojection are supported. Contains dual Xeon 3.3 GHz QuadCore processors, Tesla K20 GPU, 16 GB RAM. Disk storage of 1.0 TB for PET raw data.

syngo User Software:
syngo features an intuitive and thus easy-to-learn user interface. syngo visualizes the examination in individual process steps on so-called task cards, such as patient registration or examination card. A Large number of functions and input parameters as well as the language used can be selected according to individual requirements. Frequently repeated processes can be automated and saved.

Patient registration - The system can accept patient data in different ways. These include entering the data via keyboard or transfer of a worklist via network. DICOM Worklist: Software module for accepting lists of patient data and exam requirements from a Radiology Information Systems (RIS) via DICOM Get Worklist functionality. The program enables very efficient working and ensures consistent patient data.

Examination card - The scanner is supplied with a large number of predefined CT and fully integrated PET•CT examination protocols, making examination planning a very fast and efficient procedure.

Viewing card - On the viewing card it is possible to move interactively with the mouse through the image volume of the ongoing examination. The images of different examinations can be displayed in parallel for comparison. A large number of functions are available for evaluation, documentation and archiving.

Description

Filming card - A virtual film sheet shows a 1:1 display of the film sheets to be printed out, thus permitting an effective preview of the filming job and re-windowing the images, as well as providing a large number of evaluation functions. Layout changes are possible interactively with up to 64 images. The printout parameters for the ongoing auto-filming running parallel to acquisition or reconstruction are also defined with the filming card.

3D card - The 3D task card contains the User Interface for the operation of the MIP (Maximum Intensity Projection), SSD (Surface Shaded Display), MPR (Multi-planar Reconstruction) three-dimensional post-processing. The 3D card also features an intuitive and fast bone removal function for CTA post processing and presentation.

3D VRT - Advanced 3D functionality as an extension to the basic 3D viewer, containing volume rendering technique (VRT) and advanced editing functions. Advanced 3D application package for the optimal display and differentiation of different organs through independent control of color, opacity, and shading in up to 4 tissue classes.

CT Angio: Software for the reconstruction of angular projections from the images of a spiral data record for the display and diagnosis e.g. of aneurysms, plaques, stenoses, vascular anomalies or vascular origins. MIP: Maximum Intensity Projection, MinIP: Minimum Intensity Projection and Thin MIP available. Interfering or irrelevant parts of the image can be eliminated with the integrated volume editor. The angular projections are reconstructed around a definable axis, whereby the maximum CT values in this direction are selected for each angular projection. The resulting images can be viewed with the CINE function as a series of images with a 3D image effect.

Workstream – Planning and reconstruction of diagnostic CT coronal, sagittal, oblique and MIP images can take place directly after scanning.

DynEva card: Software for dynamic evaluation of the contrast enhancement in organs and types of tissues, enabling the reconstruction of
- Time-density curves (up to 5 ROIs)
- Peak-enhancement images
- Time-to-peak images.

Video Capture and Editing Tool: Software contains integrated solution for imaging and visualization of 4D information, allowing the generation and editing of video files for improved diagnoses, recording and teaching. A wide range of multimedia formats is supported, e.g. AVI, Flash (SWF), GIF, QuickTime (MOV), streaming video.

HD FoV - Extended Field of View - option which allows visualization of objects with a CT FOV up to 78 cm., and improved CT image quality beyond the traditional 50 cm CT FOV for improved PET attenuation correction.

TrueD Basic: Single-mode, single timepoint layout for displaying the PET and CT either fused or side-by-side comparison with viewer formats and color map tables. Support for 3D spherical regions-of-interest with units of Bq/ml or Standard Uptake Value (SUV). Allows re-registration of PET to CT data for correction of misregistration as a result of patient motion.

Media Viewer: Provides basic viewing capabilities in a portable Windows-based application that can be burned to media (CD, DVD) along with patient images. Not intended for diagnostic use.
- Review volume datasets from CT and PET
- Supports viewing single-modality or fused images
- View linked axial, coronal, and sagittal views
- Navigate in three dimensions
- View MIP images correlated to axial, coronal, and sagittal views
- Blend fused images
- Quantify Hounsfield units, SUV

CARE Solutions:
UFC Detector: Up to 30% dose reduction compared to conventional CT detectors. High efficiency for low mAs requirements enable
best possible image quality with low patient dose.

CARE Filter: Specially designed X-ray exposure filter installed
at the tube collimator. Up to 25% dose reduction
with increased image quality.

Description

With the introduction of Siemens' unique FAST CARE platform, the Biograph mCT is set to raise the standard of patient-centric productivity. Utilizing FAST – Fully Assisting Scanner Technologies -, typically time-consuming and complex procedures during the scan process are extremely simplified and automated, not only improving workflow efficiency, but optimizing the overall clinical outcome by creating reproducible results, making diagnosis more reliable and reducing patient burden through streamlined examinations.

FAST Scan Assistant: An intuitive user interface for solving conflicts by changing the scan time, resp. the pitch and/or the maximum tube current manually.

FAST Adjust: assists the user to handle system settings in a fast and easy way by automatically solving of conflicts within user defined limits by one single click on the FAST Adjust button. The limits for scan time and tube current per scan are defined via the Scan Protocol Assistant. FAST Adjust offers an undo functionality to return to previously set values.

CARE kV: Automated, organ-sensitive voltage setting to optimize contrast-to-noise-ratio and reduce dose by up to 60%.

CARE Profile: Visualization of the dose distribution along the topogram prior to the scan.

CARE Dashboard: Visualization of activated dose reduction features and technologies for each scan range of an examination.

CARE Child - Pediatric Protocols: Special examination protocols with 70 or 80 kV and a large range of adjustable mAs values for optimum adaptation of the radiation exposure to the age and weight of the child to be examined.

CARE Topo: Real-time topogram, Manual interruption possible once desired anatomy has been imaged.

CARE Bolus: Operating mode for CM-enhancement triggered data acquisition. The objective is optimum utilization of the contrast medium bolus in its "plateau" phase in the target organ. This option has been especially adapted to the increased speed and timing requirements resulting from the multirow capability and faster rotation. The CM enhancement is observed via monitoring scans in a user-defined ROI with a trigger threshold. As soon as the enhancement reaches its predefined threshold, the spiral scan is triggered as quickly as possible. License for software use on one modality.

CARE Dose4D: This software feature provides automatic, real-time x-ray dose management for all scan modes. The minimal x-ray dose level needed to obtain optimal image quality is determined from extensive computer analysis of the Topogram image and also from the data collected during every slice scanned, on a real time basis. This automatic approach ensures optimal image quality at the lowest possible x-ray dose. CARE Dose4D uses at first a automated adjustment of the dose level depending on patient size based on the attenuation values obtained from the standard topogram along the patient axis. In addition CARE Dose4D uses a real-time adaptation of the tube current during the scan based on the actual attenuation of the X-ray beam measured around the patient. Up to 2,320 projections are evaluated per second to optimize the mA level instantaneously. In combination with the extreme adjustment speed of the tube current, CARE Dose4D ensures consistent high quality images in every anatomical position. And that's at anytime with the minimal possible X-ray dose.

Several clinical benefits are achieved with CARE Dose4D:
- Significant x-ray dose reduction (up to 68 %) possible for all body regions scanned compared with standard sequence or spiral scanning;
- Consistent, optimal image quality with the x-ray dose level unique for every patient and for every anatomical region;
- Thinner axial slices and/or longer scan ranges possible because of reduced tube loading;
- Ultra-low dose examinations for pediatric patients.

CARE Dose Configurator: Enhancement of Siemens' renowned real-time dose modulation CARE Dose4D, introducing new reference curves for each body region and for each body habitus allowing to adjust the configuration even more precisely to the patient's anatomy.

Dose Notification: As requested by the new release of the standard IEC 60601 3rd edition, the Biograph mCT provides the ability to set dose reference values (CTDIvol, DLP) for each scan range. If these reference values are exceeded the Dose Notification window informs the user.

Dose Alert: As requested by the new release of the standard IEC 60601 3rd edition, the Biograph mCT

Description

automatically adds up CTDIvol and DLP depending on z-position (scan axis). The Dose Alert window appears, if either of these cumulative values exceeds a user-defined threshold.

Adaptive Dose Shield eliminates clinically irrelevant radiation in every spiral scan, adding to the lowest possible dose that CARE Solutions provide.

Examination and Evaluation Functions:
Topogram: Scanning perspectives: a.p., p.a., lat.; length of scan field: 128 – 2200 mm, width of scan field: 512 mm, 1.5 - 20s. The topogram can be switched off manually when the desired examination length is reached.

Tomogram: Scan field size: 50 cm. Standard scan times: 0.30 (optional), 0.33, 0.5 and 1 seconds. Slice thickness in sequence: 0.6, 0.75, 1, 1.2, 1.5, 2.0, 2.4, 3, 3.6, 4.0, 4.8, 5, 6, 7, 7.2, 8, 9, 10, 12, 14.4, 15 mm
Slice thickness in spiral: 0.4**, 0.5**, 0.6, 0.75, 1.0, 1.5, 2, 3, 4, 5, 6, 7, 8, 10 mm
(**optional with z-UHR)

Real-time image display. Immediate image reconstruction and display without time delay simultaneously to data acquisition in 512 x 512 matrix size.

Spiral: Scanning technique for continuous volume scans with continuous table feed in multirotation mode. Max. scan time 120 seconds with full low-contrast resolution. Volume length 1940 mm with full low-contrast resolution. Selection of the pitch factor between 0.35 and 1.5 depending on scan mode. Selection of up to 33 separately parameterizable examination ranges in a patient protocol. In addition individual anatomic sections can be successively combined and then scanned automatically. Storage of up to 10,000 examination protocols. Rotation times/cycle: 0.30 (optional), 0.33 sec, 0.5 sec and 1 sec.

Dynamic: Program for functional dynamic examinations. Serial scanning technique in one slice position with variable scan cycle times.

Serio sequential examination without table feed: Up to 100 scans in uninterrupted, continuous sequence without table feed. Scan cycle time: 0.75 - 60 seconds.

Multiscan spiral examination without table feed: Continuous multirotational data acquisition in one slice position. Quantitative evaluation and graphical display of time-density curves.

WorkStream4D with Asynchronous Recon: 4D workflow with direct generation of axial, sagittal, coronal, or double-oblique images from standard scanning protocols. Elimination of manual reconstruction steps. Asynchronous Recon allows for multiple image reconstructions and reformats, parallel to scanning. With this feature, up to eight reconstruction job requests can be loaded into a scan protocol. Immediately upon completion of the scan acquisition, these reconstruction jobs are automatically executed in the background without delaying the start of next patient examination.

Image reconstruction and storage: Image reconstruction in full resolution (512 x 512 matrix) takes place during the examination with up to 40 images per second, with full cone beam reconstruction, z-Sharp Technology and full image quality. Reconstruction fields of 5 cm to 50 cm through raw data zoom with the possibility of freely selecting the image center either prospectively before each scan or retrospectively. Reconstructions of different slice thicknesses from a single raw data record, e.g. lung soft tissue and lung high-contrast with CombiScan, with simultaneous suppression of partial volume artifacts. Up to 8 reconstructions per scan range can be predefined with the examination protocol. Patient-related storage of the image and raw data.

Image display: 1024 x 1024 display matrix; screen splitting configurable up to 64 image segments; CT value scale from -1024 to +3071 HU. For very dense objects, the CT value scale can be extended from -10240 to +30710 HU (extended CT scale) e.g. for suppressing metal artifacts.

Image evaluation: Complete software-controlled image evaluation program for all diagnostic requirements.

CINE Display: Dynamic display technique for the visualization of time or volume series. A series of up to 1024 images can be displayed at a frame rate of at least 30 f/s. Automatic or interactive mouse-operated control.

Multitasking functions: Simultaneous processing during operation of the scanner.

Real-time Display: Image reconstruction in pace with the examination in full image quality (512 x 512 matrix) with up to 40 images/second (with full cone beam reconstruction and z-Sharp Technology).

Metro Display: Simultaneous display, processing and evaluation of images from other patients while the current patient is being scanned.

Description

Metro Documentation: Simultaneous documentation of images from any previously examined patient while the current patient is being scanned.

Metro Copy: Automatic transfer of image data to the syngo CT Workplace (optional) or a DICOM network node.

Networking and Documentation
For the connection to a local Ethernet (10, 100 Mbit or 1-Gigabit) in order to communicate with networked printers, diagnostic and therapy workstations, RIS or HIS systems and teleradiology routers.

Scope of functions:
- Configurable network stations.
- Unlimited selection of stations.
- DICOM Standard (Digital Imaging and Communications in Medicine) for the transfer of information between DICOM-compatible units from different manufacturers. The scope of functions is described in detail in the DICOM Conformance Statement, and the standard version comprises the functions Send/Receive, Query/Retrieve and BasicPrint, Worklist, Storage Commitment, MPPS (Modality Performed Procedure Step).

System Documentation (1 set)

Siemens Remote Service:
Siemens Remote Service (SRS) offers a wide range of medical equipment-related remote services resulting in increased system availability and efficiency. SRS employs sophisticated authentication and authorization procedures, state-of-the-art encryption technologies and logging routines together with strictly enforced organizational measures that provide optimal patient data security and access protection. The following SRS services are included for all service agreement customers and during warranty period:

Remote Diagnosis & Repair: In case of an unforeseen system malfunction, Siemens competent experts may directly connect with the CT system in order to identify the problem quickly. Moreover the remote repair function enables Siemens to often correct software errors immediately. Should an engineer on site be required, Remote Diagnosis & Repair allows Siemens to identify defective parts efficiently and accelerate their delivery, thereby keeping repair times to a minimum.

Event Monitoring: Event Monitoring screens the performance of the system. If a parameter deviates from a predefined value, a status message is automatically sent to the Siemens UPTIME Service Center. Service Engineers may evaluate the status message at periodic intervals and may initiate appropriate action within the scope of the service agreement.

The Biograph TrueV option provides additional PET axial coverage (22.1 cm/109 image planes) providing improved system sensitivity and count rate performance for enhanced patient throughput, reduced radiation dose and/or improved image quality. The extended axial field-of-view reduces the number of bed positions needed for whole body imaging relative to the standard coverage mCT systems, while providing greater coverage for single bed static and listmode (gated or dynamic) acquisitions.

Sources consist of the following:

2 LS-ART Set-up rod sources (Max. 46.25 MBq per rod source)
1 CS-27 Low Activity Uniform Phantom (Max. 92.5 MBq)

Disposal of sources is not included in sale price.

Utilizing timing information (time-of-flight) between the two PET coincidence events, coupled with resolution recovery of HD•PET, ultraHD•PET option provides improved image signal-to-noise which can be used to either enhance image quality and/or reduce patient acquisition time. With a system timing resolution of 540 ps, the Biograph ultraHD•PET option takes PET imaging to the pinnacle of performance.

HD•PET Package provides improved PET image quality compared to conventionally reconstructed images. HD•PET Package contains TrueX, an innovative image processing technique and 3D iterative reconstruction.

TrueX is an innovative image processing technology that is the key to achieving HD•PET performance levels. Conventional PET does not take into account the detector geometry and incorrect positioning of the LORs.

Description
HD•PET incorporates measured point spread functions (PSF) into the iterative reconstruction algorithm. Through modeling of the PSF, HD•PET more precisely accounts for the positioning of the LOR yielding visually sharper clinical images, visual improvements in contrast and in resolution. 3D Iterative reconstruction (OSEM) provides improved image quality in the most demanding low statistics acquisitions.
The option supports adaptive prospective ECG-triggered sequence scanning and adaptive retrospective ECG-gated spiral scanning to obtain CT images of the heart in defined phased of the cardiac cycle at a minimum rotation time of 0.33 s (0.30 s for mCT-X, 0.28 s for mCT Flow Edge, 0.30 s optional for mCT Flow 64). With prospective ECG-triggered sequence scanning, quick scans are triggered by ECG signals. A temporal resolution of up to 165 ms (150 ms for mCT-X, 142 ms for mCT Flow Edge) can be achieved. Retrospective gating is based on a continuous spiral scan with simultaneous ECG recording. The cardio spiral reconstruction allows volume imaging in selectable phases of the cardiac cycle. With retrospective ECG-gated spiral scans the ECG signal can be edited for improved image quality in the case of severe arrhythmia. A dedicated "Preview" tool enables the planning of the volume reconstruction during an optimal cardiac phase on the basis of axial single slices. With ECG-pulsed control of the tube current a dose reduction of approx. 50% can be achieved with retrospective ECG-gated spiral scans. The special scan protocols "Cardio-Care" and "Cardio-Sharp" offer a special filter technique for cardiac examinations for improved sharpness and a lower dose. ECG-controlled imaging techniques are the basis for both the quantification of calcified plaques in the coronary arteries (calcium scoring) and 3D reconstructions of the heart and coronary arteries in contrast media studies (CT angiography of the heart). Retrospective ECG gating also allows functional imaging of the heart. Moreover, these techniques suppress pulsation or motion artifacts in the lung and in vessels close to the heart (e.g. ascending aorta). Requires the optional UPMM for ECG signal capture.
The CT Respiratory Gating and Triggering option is comprised of software components that allow for the capture and storage of a signal representing a patient's respiratory cycle during a spiral or sequence CT acquisition. With the Respiratory Gating feature, the respiratory data is synchronized with the CT acquisition data so that a user can freely select the point at which images are retrospectively reconstructed based on the corresponding respiration amplitude. With the Respiration Triggering feature, the user prospectively selects a point in the respiratory cycle at which sequence images will be acquired. Through the selection and reconstruction processes, organ motion artifacts caused by respiration are minimized or eliminated and a better visualization and localization is possible resulting in more accurate assessment of tumor and organ motion, their position, size, and volume during respiration. These applications generate 4D CT datasets that can be used to create more accurate treatment plans and also for the delivery of respiratory-triggered radiation therapy. Provides PET respiratory gated list mode acquisition, offline histogramming, and reconstruction for improved accuracy in quantitation as well as visualization of organ motion. Supports adaptive respiratory gating for automated optimal, motion-freeze, providing improved image quality by reducing respiratory motion artifacts while providing optimized count statistics. Supports a maximum of 24 gate bins from the list mode PET acquisition. Requires the optional Respiratory Trigger System.
Including 3D Spatial Resolution (NU 2-2012 Ch. 3); 3D scatter fraction, Count losses, and randoms measurement (NU 2-2012 Ch 4); 3D Sensitivity , according to (NU 2-2012 Ch 5). Modifications, changes or additions to these tests subject to factory approval and quotation. All radioisotopes (e.g. Flourine-18) to be provided by the site. Loaner phantoms available from factory. 90 day lead time on scheduling. Estimated 1 week to complete measurements on site.
This system is in compliance with NEMA XR-29 Standard Attributes on CT Equipment Related To Dose Optimization and Management, also know as Smart Dose
Dose reduction with CT has been limited by the currently used filtered back projection (FBP) reconstruction algorithm. When using this conventional reconstruction of acquired raw data into image data, a trade-off between spatial resolution and image noise has to be considered. Higher spatial resolution increases the ability to see the

Description

smallest detail; however, it is directly correlated with increased image noise in standard filtered back projection reconstructions as they are used in CT scanners today.

Iterative reconstruction approaches allow decoupling of spatial resolution and image noise. With the Sinogram Affirmed Iterative Reconstruction (SAFIRE), correction loops are introduced into the image generation process. These iteration loops utilize raw-data information to significantly improve image quality. Additionally, image noise is reduced in the iterative corrections without degrading image sharpness. The noise texture of the images is comparable to standard well-established convolution kernels. This technique can improve image quality and be translated to dose savings for a wide range of clinical applications.

MEDRAD Stellant D Dual Head CT Injector with DualFlow technology.

MEDRAD's DualFlow technology gives the user the ability to inject both contrast and saline at the same time. The key is the simultaneous injection capability of the DualFlow option. DualFlow enables variable ratios of plunger motion from the contrast and saline syringes simultaneously.

Ceiling Mount

Stellant D is the first dual head injector system on the market in the U.S. It offers saline flush capability that reduces artifacts from the venous system & maximizes contrast utilization. In addition, you can test vein accesses with saline that will allow more precise control of contrast delivery. Stellant D will better prepare your CT suite for the more sophisticated demands of present and future procedures.

Key features of the Stellant family (Sx and D) are:

- Improved syringe design saves time and increases throughput capability
- Maximizing throughput with automatic loading
- Pressure monitor graph & Flow profile preview
- Up to 6 phases including pause & hold capabilities
- Programmable pressure limit
- Color touch screen
- Prime patient tubing with saline to save contrast and reduces mess
- Ceiling Mount length (18'-27' / 46 cm-75cm)

Package includes warranty, installation and applications by Medrad.

This product has been tested and verified for compatibility with the following Siemens' products: SOMATOM Definition, Sensation, Emotion and Biograph TruePoint. Compatibility with other products cannot be guaranteed and used w/any other products may void service contracts and/or system warranties.