

CHIEF, A&MM
V.A. Medical Center
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| Qty | Item Description |
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| 1 | Interventional Cardiology X-ray angiography system with primary clinical use in interventional cardiology, including application-specific accessories. |
| 1 | Artis zee ceiling Universal ceiling-mounted C-arm angiography system with a high-resolution flat detector. The powerful 100 kW generator and MEGALIX Cat Plus X-ray tube with its new flat emitter technology are the prerequisites for excellent image quality. The CLEAR functionality to optimize the image impression, the CARE package to reduce radiation exposure, and DICOM standards are all included. The system has been prepared for Siemens Remote Service. |
| 1 | Sys SW incl cardiac acquisition Imaging system software including cardiac acquisition with frame rates of 7.5, 10, 15, and 30 f/s. Acquisition, display, and storage in 1k/12-bit matrix. |
| 1 | DSA / DR (1) Digital acquisition technology and digital subtraction angiography in matrix 1k. |
| 1 | CLEARstent CLEARstent enables an improved display of vascular supports (stents). |
| 1 | Cardiology Radiographic system for medical applications with emphasis on interventional cardiology. |
| 1 | syngo XWP for electrophysiology High-end post processing workstation, comprising Windows XP PC with syngo-based user software and network modules. |
| 1 | syngo InSpace EP XWP syngo InSpace EP is used for 3D visualization of the heart including automated segmentation of one or more ventricles/vessels of the heart (especially the left atrium with display of the pulmonary veins) and supports electrophysiologists in planning, performing, and follow-up of ablations, especially of atrial fibrillation ablations. |
| 1 | 19in Color Flatscreen Display LCD color flatscreen display with high luminance and extended field of view. |

| Qty | Item Description |
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| 1 | Inroom Control SW-License Software extension for InSpace 3D and InSpace EP for remote control of the syngo Workplace from the examination room via touch panel and joystick. |
| 1 | syngo Angio Package Software package consisting of DSA Angio Viewer as well as High-Speed Review for real-time display of native and subtracted angiography images. |
| 1 | syngo keyboard, USA Keyboard with special syngo keys. |
| 1 | Customer documentation, English |
| 1 | VA kit for syngo XWP VB21 Second documentation set for deliveries to the Veterans' Affairs Administration Hospitals in the U.S. |
| 1 | 3D / Dynavision Native or subtracted (with DSA option only) rotational angiography with angle and ECG triggering, generating the image data required for 3D reconstruction. |
| 1 | Detector 30 x 40 incl.Compnts. (T) High-resolution, dynamic flat detector for fully digital imaging chain, with integrated, removable grid. CAREwatch measuring chamber for detection of the dose-area product. MEGALIX 3-focus high-performance X-ray tube assembly, rotatable angio collimator including CAREfilter, integrated collision protection and StraightView. |
| 1 | PERISTEPPING / PERIVISION Peripheral digital angiography with stepping and online subtraction display. |
| 1 | Table with Tilt Floor-mounted swivelling patient table with telescopic foot, floating and tiltable tabletop; motor-driven stepping for digital peripheral angiography. Table control module, power-assisted. |
| 1 | Tabletop & Mattress, Wide Carbon fiber tabletop including special foam mattress in wide, straight design. Mattress including cover. |
| 1 | Foot Switch Monopl.(Wireless) For release of fluoroscopy, exposure and table brake as well as a configurable additional function. Wireless connection via radio communication. |
| 1 | Large Display with DCS 60" or 56" color flat screen display (including cables) for the examination room, installed on a ceiling-mounted, longitudinally mobile, swiveling, rotating, and height-adjustable display suspension system (DCS). A video controller (MDM) that can process up to 21 video input signals. Direct selection of display configurations (max. 12) via the tableside control module. |
| 1 | LD MDM-Controller Medium 18 Inputs The Large Display Multi Display Manager Controller Medium is one of three different video controller sizes and can be equipped with up to 18 video input channels. Up to 18 video input channels also can be shown simultaneously on the large display (LD). |

| Qty | Item Description |
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| 1 | <p>XWP/MMWP video cabling</p> <p>This connection kit is needed to display the video signal from a unit, for example the syngo X-Workplace, on a single display or on a large display in the display suspension system (DCS) in the examination room. Note the following conditions if image content from third-party provider video signals are to be displayed on the Artis displays: - The display of external video signals depends on the operational state of the Artis system. If the Artis system has a malfunction or is shut down, the display of external video signals is not available. For this reason, do not feed the video signal into the Artis system if lacking the external video signal could result in a hazardous situation. - A third-party provider's unit may be connected only if it corresponds to the specifications of the video interface (e.g., at the MDM). - The connection may only be established by a Siemens service technician. Note: The connection must be made with fiber-optic cables to ensure that the unit's galvanic isolation is maintained. The fiber-optic cables must be ordered separately. - A third-party provider's unit must be connected by a technician from the third-party provider or by a hospital technician responsible for the equipment. - It is strongly recommended that image quality be tested by the third-party provider prior to start-up. This test ensures that the required image quality is achieved. - The system configurator is responsible for ensuring that applicable standards are maintained in the current version, e.g. 4 kV insulation. Siemens will not be held liable for the inclusion of third-party provider units with respect to image quality and their suitability for clinical diagnosis.</p> |
| 1 | <p>LD Input external EP kit</p> <p>Contains all required connection kits for connecting the external analog and external digital video signals for the Large Display.</p> |
| 1 | <p>ACE Cable Set in Equipm.Room</p> <p>Image system interface to the displays in the control room if the image system is installed in the equipment room.</p> |
| 1 | <p>C-Room DVI 1xBWD-19 (Live) -36m</p> <p>One monochrome 19" flat-screen display with blue background color.</p> |
| 1 | <p>Live+Ref Video Interface to OEM (1)</p> <p>Video interface output for the video signals of Artis zee Live and Ref for connecting OEM products, with additional display of these signals in the control room or other rooms. Monoplane (1) design for 2 video signals. All signals are provided with video isolation.</p> |
| 1 | <p>ECG Interface (1)</p> <p>Recording, storage and display of an ECG lead. Displayed together with the image information on a single monitor.</p> |
| 1 | <p>Table support (ECG interf. box)</p> <p>Holder for the ECG interface when using an OEM measurement system in the examination room.</p> |
| 1 | <p>LV analysis</p> <p>Analysis of the left ventricle with distance measurement and calibration.</p> |
| 1 | <p>Vessel analysis</p> <p>Vessel analysis with determination of degree of stenosis, distance measurement and calibration.</p> |
| 1 | <p>patient recovery kit</p> <p>Manual C-arm release for easy patient recovery in case of a complete system failure.</p> |
| 1 | <p>Fluoro Loop (1)</p> <p>Storage and review of dynamic fluoroscopic sequences (Fluoro Loop). The maximum storable fluoroscopic time depends on the selected pulse rate, e.g. 34 s at 30 p/s, 68 s at 15 p/s (VC21 software required). Note: With VC14 software, the values are 17 s at 30 p/s, 34 s at 15 p/s.</p> |
| 1 | <p>Automap</p> <p>Automatic stand positioning depending on the selected reference image and automatic reference image selection depending on the stand positioning.</p> |

| Qty | Item Description |
|-----|---|
| 1 | DICOM HIS / RIS Import of patient/examination data from an external RIS/HIS patient management system with DICOM MWL (Modality Worklist). |
| 1 | LB rad. protection w/ pivot arm For shielding the lower body against scattered radiation within the examiner's moving range. Specially designed for avoiding collisions with the tube during oblique projections, therefore especially suited for cardiology. |
| 1 | Upper Body Rad. Prot. Artis-T To protect the upper body against scattered radiation within the operating range of the examiner, e.g. during interventional procedures. |
| 1 | Interface for C-Room Operation(MA) Interface for connecting the optional system control from the control room. |
| 1 | Control room emerg. stop module Safety button for switching off all system functions from the control room. |
| 1 | Hand switch manual Additional hand switch for radiation release and additional control functions. |
| 1 | syngo Keyboard, English - US Keyboard with special syngo keys. |
| 1 | VOLCANO s5i Cable Set Cable set for operating the s5i system. |
| 1 | Injector conn. in the control room Interface for connection of the contrast medium injector in the control room, remote from the patient table. |
| 1 | Intercom - Comfort Communication / intercom system for communication between examination room and control room. |
| 1 | Arm Support Carbon-fiber arm rest for cardiology and arm angiography to be placed under the mattress. The single-side arm rest is used for the Sones approach in cardiology and for arm angiography. It is made of radiolucent carbon-fiber material that is easy to clean. It includes additional support pads made of the same material as the mattress. The 1 m long arm rest is positioned under the mattress at the shoulder level on the right or left side and is stabilized by the weight of the patient. Max. weight capacity: 5 kg. Weight: 0.8 kg |
| 1 | Armholder (pair) Two arm holders for comfortable lateral arm positioning along the patient's body. |
| 1 | Articulated arm support Articulated arm support with positioning aid for comfortable arm positioning. |
| 1 | Examination lamp, 115 V Ceiling-mounted OR lamp (examination light class), flexibly adjustable towards the user, for diagnostics and minor surgery. Examination light Mach 130F with focusable dielectric light system. - Luminance: 35,000 Lux (3,255 fc) for 100 cm distance - Working distance: 70 to 140 cm - Color rendering index Ra (gen.): 96 - Color temperature: 4,300 Kelvin - Focusable spot size: 14 to 25 cm - Light body diameter: 22 cm - Halogen lamp: 22.8 V/50 W Examination light power connection 115 V Only in connection with upper body radiation protection 144 07 034 or 144 07 035. For direct connection with 115 V line voltage only. Max. arm length: 185 cm. Weight: 14 kg *2 May only be delivered in the USA with the local material no. or sales no. in the US price book |

| Qty | Item Description |
|-----|---|
| 1 | VA kit Artis zee systems Second set of documentation for deliveries to the Veterans' Affairs Administration Hospitals in the U.S. |
| 1 | Pre-install. Artis-T (Mono) |
| 1 | Pre-install Artis table, std |
| 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 | Offset Initial Training 32 hrs |
| 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 obligation to provide the training will expire without refund. |
| 1 | Follow-up training 12 hrs Up to (12) 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 obligation to provide the training will expire without refund. |
| 1 | Mark 7 Arterion, Table Mount Injector The Arterion Mark 7 Table contrast medium injector allows for the remote installation of the system power supply and installation of the injector head onto a table bracket. The injector system includes: Power supply and injector head with corresponding cabling An adjustable height table bracket for the injector head A desk mounted user control console with large touch screen Functions Pressure limitation: for 150 ml syringes 689 to 8273 kPa, corresponds to 100 to 1200 psi. . Flow rates for 150 ml syringes: 0.1 to 45 ml/s in increments of 0.1 ml/s 0.1 to 59.9 ml/min in increments of 0.1 ml/min rise/fall: 0 to 9.9 s in increments of 0.1 seconds Release delay for injection or radiation: 0 to 99.9 s in increments of 0.1 s. Adjustable volume for 150 ml syringes: 1 ml to the max. syringe capacity in increments of 1 ml. Fill rate: Variable syringe filling speed 1-20ml/s. Injection protocols: Up to 40 injection protocols possible. Parameters currently displayed on the touch screen display and on the head display: Injection speed Injection volume Remaining volume Injection duration Applied pressure Contrast medium heating: Nominal 35°C (95°F)+-5°C (9°F) Injection data memory Up to 50 injection data items stored Included in the scope of delivery Injector standard configuration 150 ml SIEMENS interface cable Operator Manual Service manual |

| Qty | Part No. | Item Description |
|-----|-----------------------|---|
| 1 | MART700PEDL | Mark 7 Arterion, Pedestal System The Arterion Mark 7 Pedestal contrast medium injector can be positioned anywhere at the patient positioning table on a mobile unit, for direct operation of all functions in the examination room. The injector system includes: A mobile pedestal stand with electronics unit, a contrast medium heater and a connection cable to the manual release. A support arm with injector head and a control lever for moving the injector head. A user control console with large touch screen and corresponding additional monitoring display on the injector head. Functions Pressure limitation: for 150 ml syringes 689 to 8273 kPa, corresponds to 100 to 1200 psi. . Flow rates for 150 ml syringes: 0.1 to 45 ml/s in increments of 0.1 ml/s 0.1 to 59.9 ml/min in increments of 0.1 ml/min rise/fall: 0 to 9.9 s in increments of 0.1 seconds Release delay for injection or radiation: 0 to 99.9 s in increments of 0.1 s. Adjustable volume for 150 ml syringes: 1 ml to the max. syringe capacity in increments of 1 ml. Fill rate: Variable syringe filling speed 1-20ml/s. Injection protocols: Up to 40 injection protocols possible. Parameters currently displayed on the touch screen display and on the head display: Injection speed Injection volume Remaining volume Injection duration Applied pressure Contrast medium heating: Nominal 35°C (95°F)+-5°C (9°F) Injection data memory Up to 50 injection data items stored Included in the scope of delivery Injector standard configuration 150 ml SIEMENS interface cable Operator Manual Service manual |
| 1 | EPW9390160U PS | Eaton Powerware 9390 160 kVA UPS Includes UPS, battery, maintenance bypass panel, and one year on-site parts and labor coverage (24x7) by Eaton Powerware. Complete system backup without interruption. One UPS per lab. Not approved for sites requiring OSHPD certification. Please contact XPAS Inside Sales for configuration of an OSHPD certified configuration. |
| 1 | COHRSFSIEM 34 | Horizon SF (2 DICOM connections) |
| 1 | AXA_RIG_ZEE SP_GOV | Standard Rigging zee SP |

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

Additional Rigging/Out of Scope

Description

The accessories consist of:

- ECG cable clips

System Configuration

The monoplane C-arm system for digital acquisition techniques is designed to meet the requirements of state-of-the-art angiography and interventional procedures.

C-arm ceiling-mounted stand:

System cable outlet at the ceiling carriage, on the patient's left side.

- Up to 5 programmed work positions and additional 50 user-defined work positions.
- One single joystick for patient angle oriented operation of C-arm and flat detector movements.
- Integrated, computer-aided collision monitoring ICP (Intelligent Collision Protection).
- C-arm positioning 0° to the head end and variable up to 135° to the left and right side along the patient longitudinal axis.
- Double oblique projections of $\pm 100^\circ$ in orbital movements and up to 330° (+180°/-150°) in rotational movements (depending on gantry positioning and patient size).
- Variable C-arm speeds up to 25°/s.
- Variable source-to-detector distance between 90 cm and 120 cm.
- Isocenter-floor distance 108 cm.

Integrated Multispace T:

With motorized gantry rotation ($\pm 135^\circ$) for free positioning of system and table, for optimum patient access.

- Orthogonal system control, along patient longitudinal axis.
- InFocus function to maintain projection during C-arm gantry rotation. InFocus saves time and dose because the ceiling-mounted support can be positioned in a flexible way without any impact on the image display.
- Iso-tilt function to maintain projection during table tilt in the longitudinal direction (depending on table type).

Operation

An ideal workflow requires full user operation capabilities for the system including imaging system and generator under sterile conditions in the examination room. That way the user is able to operate the system by himself without the need to leave the examination room. The intuitive *syngo* operating elements allow for managing the whole process from preparation of the patient to image post processing in a safe, reliable, and time efficient way.

In the examination room:

Complete system operation through modular control elements directly at the patient table for controlling C-arm movements, patient table and multileaf collimator. Touchscreen with multi-functional joystick for operation of the imaging system, including post-processing and quantification as well as selection of the organ programs. It is based on *syngo* operation. The touchscreen is specifically configurable to individual clinical requirements. Data regarding system and table geometry, dose data with CAREwatch, as well as system messages, are shown in the live display

In the control room:

Standard Siemens *syngo* control via keyboard and mouse for all imaging system functions such as image post-processing, archiving and configuring of organ programs.

Display of system data

Data regarding system and table geometry, dose data with CAREwatch, as well as system messages, are shown integrated on the display in the examination room.

imaging system

High-resolution digital imaging system with CLEAR technology, DICOM network connection and *syngo* user

interface.

In order to provide highest level system availability, the imaging system consists of two independent computer systems that manage central tasks such as real-time image processing during fluoroscopy or acquisition as well as post-processing and networking functionality separately from one another. This ensures the system performance will always meet the highest possible demands.

Image storage capacity

25,000 images in 1k²/12-bit image matrix (extendable).

Operating modes

- Digital pulsed fluoroscopy with pulse frequencies of 10 p/s, 15 p/s, and 30 p/s in 1k/12 bit matrix.
- Overlay fade: On-line overlay of active fluoroscopy and reference image.

CARE package

Siemens follows the ALARA principle: "As Low as Reasonably Achievable"; the CARE package (Combined Applications to Reduce Exposure) was developed based on this research and development principle to protect the examiner and the patient.

Dose saving

- CAREvision: Pulsed fluoroscopy with additional, reduced pulse rates of 7.5 p/s to 0.5 p/s. Adaptation of pulse rate to the current application requirements for significant reduction of radiation exposure, especially during interventional procedures.
- CAREprofile: Radiation-free positioning of the primary and semi-transparent diaphragms by means of graphic display in the LIH (Last Image Hold). Collimator shutters and semi-transparent filters can be adjusted as a graphical overlay on the last-image-hold without any need for fluoroscopy.
- CAREposition: Object repositioning without radiation through graphic display of the X-ray central beam and the image edges in the LIH (Last Image Hold).
CAREposition enables the repositioning of an object under visual control without radiation. In case of table movements the current position of the central beam and the image edges are superimposed on the LIH image as orientation points.
- CAREfilter is intelligent control software that helps minimize X-ray dose without negative impact on image quality. During fluoroscopy and acquisition special copper prefilters are inserted into the X-ray beam depending on current X-ray transparency calculated by CAREMATIC. The five-step adaptive Cu prefiltration is used to reduce the equivalent dose of the skin and improve radiation quality through dose saving of low-energy X-ray radiation: Filter steps: 0.1; 0.2; 0.3; 0.6; 0.9 mm Cu. Selection is automatic depending on absorption. This is necessary to ensure that the optimal prefilter value is always active. This automation makes work easier for the user because the given optimal filter setting need not be adjusted manually.
- CAREwatch: Display of the measured dose-area product and the calculated patient air kerma reference on the flat screen display.
Electronics unit with DIAMENTOR measurement chamber integrated in the collimator housing for dose acquisition. Configurable screens on the data display and imaging system monitor:
During fluoroscopy: Air kerma reference rate.
During fluoroscopy interval: Accumulated air kerma reference or dose-area product or percentage of dose limit value (sum of fluoroscopy and acquisition).
- Low dose acquisition: enables dose savings of up to 60 % during the examination. The low dose acquisition protocol can be released directly with the footswitch.

Dose monitoring

- CAREguard: offers the possibility of establishing three limit values for the air kerma reference. If the accumulated air kerma reference exceeds the configured limit value, a warning appears on the live display and tableside on the touchscreen control. This provides ideal air kerma reference monitoring during the examination.
- CAREmonitor supports the physician by enabling dose-efficient examinations, thereby significantly reducing the risk of skin burns. It includes special monitoring of the skin entry dose, taking into account the geometric conditions of the system (device angulation, table position). This ensures that the skin entry dose applied to a specific region of the patient's body will not exceed a specified threshold, thereby better protecting the patient from the harmful effects of X-radiation.
The critical equivalent skin dose to avoid X-ray-related skin injury is at about 2 Gy. CAREmonitor consistently calculates and displays the actual accumulated skin entry dose. This helps the user to detect a potential patient hazard quickly and with certainty.

Description

Dose reporting

- CAREreport: part of the DICOM Structured Report; displays the dose information in DICOM format after every examination. This creates an integrated DICOM data set consisting of images and dose information, which can be sent together to a DICOM archive. The display of dose information in DICOM format permits the flexible analysis and further processing via a DICOM-capable analysis software/database.

CLEAR package

The CLEAR package enables optimized image quality through real-time processing of the image data without increasing the radiation dose.

- CLEARcontrol: The new histogram analysis provides a more homogeneous image impression by harmonizing over- and underexposed areas of the image. This is done fully automatically, thus eliminating any further manual user corrections through windowing.
- CLEARview: Dose-dependent filtering of the image data efficiently suppresses image noise, enabling clear, sharp images, even for low-dose acquisitions.
- CLEARvessel: Every pixel is analyzed in real time, and vessel edges are shown in high contrast without adding noise to the image.
- CLEARmotion: Fine moving structures, such as small vessels and guidewires, are detected in the image and motion artifacts are suppressed efficiently. The visibility of small moving vessels and guidewires is improved significantly during fluoroscopy.

In addition there is Dynamic Density Optimization (DDO) for on-line harmonization of native series and single images.

Image processing

- Positive/negative image display, windowing, contrast/brightness, electronic display (shutter), image shift (roaming), vertical and horizontal image inversion, magnifying glass, and zoom functions.
- Storing of single images as reference images also during fluoroscopy.
- ECG acquisition and storage: Recording, storage, and display of an ECG lead. Displayed together with the image information on a flat display.
- Quantification: angle/length measurement, selection of automatic and/or manual calibration.
- Text functions: user-definable image annotation, free annotation or by means of text components, comments line for the image, R/L display.
- Fast and direct access to all series, single images, and photo file via MULTIMAP both in the examination and in the control room.

DVD / CD burner (DICOM)

DVD drive for automatic digital image storage in the background on DVD-/CD-ROM for off-line data exchange in DICOM format.

Networking

Network interface (1000 BaseT) with the following integrated DICOM services:

- DICOM Send: Sending of images into the DICOM network.
- The DICOM Send function enables fully automatic transfer of generated image data to a DICOM archive or a DICOM workstation. The user can perform his examinations without interruption, while the system is fully automatically transferring the images to the archive scene by scene. This is a background process, and thus does not interfere with the ongoing fluoroscopy or acquisition.
- DICOM Storage Commitment (StC): Feedback from the image archive.
- The DICOM StC function automatically gives feedback on whether the generated image data were successfully transferred. This provides the necessary certainty to the user before deleting the acquired images locally in the imaging system.
- DICOM-Query/Retrieve: Retrieval of archived images from a digital archive or from a workstation: Already archived image data from a previous examination can be fully retrieved and is then available for review and processing. The user can request CT or MR system images from the archive and display the data as a reference image in the examination room. There is no need for a separate workstation.
- DICOM Structured Report: All the quantification results obtained on the system as well as all dose information on the individual radiation releases can be saved in DICOM SR (enhanced SR) format and transferred to a DICOM network.

Description

Note concerning DICOM interface(s)

The description in the DICOM Conformance Statement downloadable from the Internet is exclusively binding for the functionality of the DICOM interface(s).

Functionalities across interfaces with/between partner systems require explicit validation, since the interpretation of the interface by the partner/target system is not part of the product's responsibility.

A modification of the interface that might be required is not included in the offer; e.g. for the rare case that available configurations are not sufficient. With regard to expenses for interface configurations that might be required, the agreements on maintenance/service of the product apply.

X-ray Generator

Microprocessor-controlled high-frequency X-ray generator with automatic dose rate control for angiography.

- 100 kW at 100 kV (DIN 6822), nominal power max. 80 kW (100 kV, 800 mA, 0.1 s) with Megalix tube and the newest flat emitter technology.
- SID tracking (automatic tube current adaptation to source-to-image receptor distance).
- CAREMATIC automatic X-ray control system for fully automatic calculation and optimization of exposure data based on fluoroscopic data.
- Patient transparency monitoring.
- Tube load monitoring with indication in the data display.

The optimal X-ray parameters depend on the transparency of the patient at the current angulation, measured during fluoroscopy. These parameters are continuously calculated and updated. Test shots are no longer required. This achieves high image quality and minimum radiation exposure for physician and patient with every exposure release.

Accessories included in the scope of delivery.

- Unilateral armrest
- Infusion bottle holder
- Additional hand switch for radiation release and additional control functions.

Siemens Remote Service

Prepared for Siemens Remote Service SRS™ (during warranty, then with service contract):

- Hardware and software remote diagnosis.
- System remote configuration, e.g. adding of a DICOM node.
- Early warning system ensuring system operation.

syngo Evolve for Artis zee

syngo Evolve is a service feature that is offered as a separate sales option for all systems of the Artis zee family. It is a key component of our upgrade strategy and allows the customer to take advantage of technological advancements.

Customer Care. Life - the customer care solution by Siemens Healthcare

From the moment you purchase your Siemens system you will benefit from many services that are offered by "Customer Care. Life", e.g.:

- initial application training,
- interactive e-learning for various applications,
- free customer magazines,
- arrangements for clinical training via a global network,
- and free trial licenses

You will find detailed information on our e-learning program and further details on general "Customer Care. Life" services on the internet.

* "Customer Care. Life" offerings are not necessarily available to the full extent for all systems.

Digital acquisition technology with frame rates of 0.5 to 7.5 f/s in 1k/12 bit matrix and digital real-time filtration. Single image and serial acquisitions with time-controlled and manually variable frame rate.

Description

The 1k image matrix with a bit depth of 12 bits allows an excellent image contrast by using 4,096 shades of grey. Thus, the image quality meets highest expectations in angiography and fulfills all prerequisites for precise diagnostics and safe interventions.

Digital subtraction angiography with frame rates of 0.5 to 7.5 f/s, including pixel shift, remask, roadmap, peak opacification for iodine contrast (MaxOpac) and CO₂ contrast (MinOpac); adding of the anatomical background (landmark) from 0 to 100%.

With software version VC21 and higher, the following additional functions are available with Roadmap:

- DSA image can be selected as a mask for Roadmap
- Zoom can be changed during Roadmap
- Catheter and vascular contrast can be changed separately

Unexpected patient movements in DSA acquisitions will deteriorate image quality. Although this can be corrected via manual pixel shift, it is still inconvenient and time consuming for the user. Auto Pixelshift solves this challenge easily maintaining optimal image alignment.

CLEARstent enables an improved display of vascular supports (stents) that are growing increasingly difficult to detect in fluoro images due to the increasing number of obese patients and the ever finer structures.

Regardless whether contrast agent is injected during the scene or not, CLEARstent either generates a magnified still image of the highlighted stent or displays the vessel filled with contrast agent alternating with the still image.

The still image from fluoroscopy can then be overlaid.

CLEARstent can be activated with a single operation, directly at the patient table.

The workplace is especially equipped for electrophysiology labs where automatic segmentation of cardiac ventricles (using *syngo* InSpace EP, order as separate option) should be used for pre-procedural 3D image data (CT, MR, PET).

Automated segmentation works on preoperative 3D CT or MR data sets or on intraoperative 3D rotational angiography data sets (*syngo* DynaCT Cardiac), the latter being acquired in the cath lab.

Using three-dimensional visualization of ventricle and vessel morphology (especially of the complex and individual anatomy of the left atrium), InSpace EP reduces the examination time of ablations as a therapy for atrial fibrillation and simultaneously increases the chances of the ablation's success.

InSpace EP functions:

- InSpace EP processes both CT and MR data sets from Siemens modalities and external suppliers.
- InSpace EP processes image data acquired intraprocedurally through C-arm rotational angiography immediately before, during or after the procedure in the examination room (*syngo* DynaCT Cardiac).
- Autosegmentation of ventricles/vessels of the heart (especially the left atrium with visualization of the pulmonary veins) is automatically performed in one step.
- Different interactive postprocessing methods of segmentation results.
- Endoscopic view and Fly functionality (including automatic generation of movies).
- Clipping functionality can also be applied to segmentation results, enabling visualization of the interior surface of a segmented ventricle.
- EP Notebook: Lesions can be planned before the procedure and saved during the procedure for subsequent documentation as ablation points.
- Interface connectivity to AXIOM Artis/Artis zee/zeego systems.
- Interface connectivity to AXIOM Sensis XP (integration of visualizations into Sensis Report).
- Interface connectivity to common electroanatomical mapping systems (exporting of extracted surfaces to CARTO, Ensite NavX).
- DICOM Networking.

- "Adjust C-arm"/"Adjust 3D" functionality: Automatic adaptation of Artis C-arm angulation to current *syngo* Workplace 3D views (including segmentation results) of the heart and vice versa.
Direct overlay of multiple (multicolored) segmentation results onto a live fluoroscopy image is possible. The overlay functionality is activated/deactivated directly from the InSpace EP user interface.

The Siemens 19" LCD flatscreen display features a very high contrast even under very bright ambient light conditions. The Gamma curve was precisely adapted to the CIE-/DICOM recommendation and is thus suited especially for gray scale display.

LCD flatscreen display

- 19" (48 cm) screen size
- Resolution: 1,280 x 1,024 (pixel)
- guaranteed brightness for the entire service life: 137 cd/m² at a contrast ratio of 300:1
- Flicker-free and distortion-free image display
- Anti-glare screen

The controlled background lighting provides stable lighting throughout the entire product life cycle.

The InRoom Control software extension allows for remote control of the *syngo* Workplace from the examination room via touchscreen and joystick.
For this, another set of functions is offered on the Artis touchscreen. These are implemented for 3D navigation and allow the user to manipulate the 3D image displayed on the optional display.

The *syngo* Angio package enables dynamic review of DSA scenes (in subtracted or native display) and their postprocessing at the *syngo* Workplace, with functions such as:

- Remasking.
- Pixelshift.
- Anatomic background.
- Opacification etc.
- Review of DYNAVISON and PERIVISION scenes

The high-speed functionality increases the image review frequency, especially of biplane and single-plane cardiac scenes, depending on the frame rate and the *syngo* Workplace hardware used.

With the current *syngo* Workplace hardware the following maximum image review frequencies of the scenes can be achieved:

Biplane (native):

- 6 f/s with a 1024² matrix
- 15 f/s with a 512² matrix

Monoplane (native):

- 15 f/s with a 1024² matrix
- 30 f/s with a 512² matrix

Keyboard for easy operation of *syngo* (browser, viewer, filming). There are special keys for windowing, scrolling, printing, marking and network communication.

Angle and ECG-triggered digital rotation angiography with corresponding image data transfer to a *syngo* X Workplace for 3D image data reconstruction.

- Rotation speed is up to 60°/s (Artis zee ceiling, Artis zeego) and 45°/s (Artis zee floor, Artis zee biplane).
- Angle triggering allows a reduction in dose through a reduced acquisition frame rate while at the same time achieving better image quality.
- All parameters required for the 3D reconstruction are included in the organ program. This enables optimized image quality and easy handling.

- Acquisitions with frame rates in 1k matrix from 0.5 to 7.5, 10, 15, 30 f/s (standard) and 60 f/s with reduced spatial resolution can be selected,

Includes DYNAVISON DR for native and DYNAVISON DSA for subtracted (with DSA option only) rotational angiography. Reconstruction at the *syngo* X Workplace is not possible with these operating modes.

Flat detector 30 x 40

The digital high-resolution dynamic flat detector with integrated removable grid is especially designed to fulfill the requirements of angiographic and interventional applications.

154 µm pixel arrays provide highest spatial resolution (3.25 LP/mm) and excellent contrast. Fluoroscopy as well as image acquisition are always done in 14-bit gray scale resolution, allowing excellent detail visibility. Acquisition frame rates of up to 30 f/s are possible.

Usable input formats:

- Overview mode 30 cm x 38 cm.
- Zoom 1: 30 cm x 30 cm; diagonal 42 cm.
- Zoom 2: 22 cm x 22 cm, diagonal 32 cm.
- Zoom 3: 16 cm x 16 cm; diagonal 22 cm.
- Zoom 4: 11 cm x 11 cm, diagonal 16 cm.
- Zoom 5: 8 cm x 8 cm; diagonal 11 cm.

The very compact design with integrated collision protection provides maximum C-arm angulation range for excellent patient access.

The flat detector is mounted on a motorized rotating turntable at the C-arm. It can be rotated by 90°, so that it can be adjusted to landscape format or portrait format. Any angle in between can be adjusted. Motorized adjustment of the detector-patient distance.

Digital data transfer from the detector to the imaging system is via a high-speed Gigalink fiber-optic cable.

Removable grid:

The grid can easily be removed, saving the user time in examinations not requiring a grid. For example in pediatrics, where dose saving is especially important.

The 30 x 40 flat detector offers additional operating functions directly on the detector housing, such as angulation, FD rotation (cranial/caudal, RAO/LAO), and change of the focus-detector distance.

Tube assembly MEGALIX Cat Plus 125/20/40/80-122GW

3-focus high-performance X-ray tube with flat emitter technology, metal center tube in lubricated spiral groove bearing technology for permanent, noise-free rotation.

- Maximum tube voltage 125 kV
- Focus: 0.3/0.6 x 0.6*/1.0 (17/38/80 kW)
- Anode angle 12°.
- Maximum anode heat storage capacity: 3,375,000 HU
- Maximum tube current for fluoroscopy: 250 mA

* Image quality improved

High tube power provides brilliant image quality even with heavier patients. In addition there is no need for X-ray pauses even during lengthy cases. The X-ray tube is completely silent, which is an additional benefit for patient and user.

Angio collimator

Compact multileaf collimator for DSA and cardiological applications with rectangular diaphragm, wedge-shaped filter diaphragms and finger-shaped graduated filter.

- Automatic synchronous rotation of detector and collimator unit to compensate image rotation in the different working positions of the gantry.
- Manual rotation of the detector and collimator unit using the control right on the detector housing.
- Five-step adaptive Cu pre-filtration (CAREfilter) to reduce the equivalent skin dose and improve radiation

- quality through dose saving for the soft radiation parts. Filter steps: 0.1; 0.2; 0.3; 0.6; 0.9 mm Cu.
- Independent rotation and shifting of filter diaphragms.
 - Electronics unit with DIAMENTOR measurement chamber integrated in the collimator housing, for acquisition of the dose-area product and the calculated patient entry dose (CAREwatch).

StraightView

The flat detector and the multileaf collimator are installed on a motorized rotating turntable on the C-arm. They automatically line up with the table swivel, thus ensuring upright images of objects which are in line with the table. The flat detector and multileaf collimator can also be rotated together at any angle relative to the table, enabling upright presentation and collimation of objects which are not in line with the table.

Excellent image quality from the abdomen to the feet is due to the fact that adjustable parameters such as acquisition framerate, measuring fields, position of collimator blades and semitransparent filters are stored specifically for each table position. That way the different X-ray transparencies for abdomen, legs and feet can be compensated and a consistent, contrasty image quality is provided. Just one single injection of contrast media protects the health of the patient and gives the physician an instant, subtracted image display of the peripheral blood vessels.

PERISTEPPING:

Peripheral digital stepping angiography with only a single contrast medium injection under visual control of the bolus flow.

C-arm stepping with ceiling mounted systems, table stepping with floor mounted and biplane systems.

- Position-dependent variable frame rates.
- Fully automatic exposure control.
- Automatic storage of the collimator settings for each step.

PERIVISION:

Peripheral digital stepping angiography with online subtraction display in an examination procedure with only one single contrast medium injection under visual control of the bolus flow.

- Only one single automatically acquired mask image for each individual position.
- Position-dependent variable frame rates.
- Fully automatic exposure control.
- Automatic storage of the collimator setting for each step.

Floor-mounted patient positioning table designed for angiographic examinations and interventions.

- Direct patient access from all sides, both through the swiveling table and large tabletop cantilever.
- $\pm 15^\circ$ head up/head down positioning.
- Iso-tilt functionality for maintaining the projection during table tilt along the patient axis.
- Motorized, power-dependent table movement in longitudinal direction when the table is tilted (power-assisted control).
- Electromechanical release of table swivel at the touch of a button at the table.
- Telescopic foot with motor-driven height adjustment.
- Max. patient weight 200 kg. Accessories weighing up to 40 kg can also be installed.

Carbon fiber tabletop in wide, straight design with matching special foam mattress for universal applications. Tabletop has a straight design up to the head area, for maximum positioning convenience also for obese patients.

Color flat display

The 60" or 56" display area represents a new dimension in medical image display. Using a fully integrated tableside control panel with 12 layout variants, all examination-relevant data are displayed on the same large area screen. The result is high levels of flexibility in displaying individual screen layouts.

Data such as live, assist and reference images, syngo X Workplace, Sensis/recording systems, PACS, HIS/RIS, ultrasound, ECG, external video, endoscope, mapping systems, system and table geometry, system messages and dose information can be individually positioned and displayed on the Large Display, if connected.

The extended Roadmap function is included, if DSA is available:

Description

- During fluoroscopy (FL), the native live FL image is displayed, otherwise the LIH image (Last Image Hold).
- During Roadmap/subtracted fluoroscopy, the native live FL image is displayed, otherwise the LIH image (Last Image Hold).
- During DSA acquisition, the native live image is displayed, otherwise the native max fill image.

Contains the dual reference function:

- An additional, static reference image for parallel display of two reference images on the Large Display.

Important images for diagnostic purposes can be displayed to scale in their original size, less important non-diagnostic information can be displayed at a reduced size.

The enlarged display can be selected individually via the display configurations.

For the diagnostic color display in TFT technology, with high luminance and extended viewing angle, the gamma curve has been adapted particularly for gray scale display according to the CIE / DICOM recommendation.

Technical specification for the display:

- Display size (W x H) 124.4 x 70 cm. or 60 " 133 cm x 74,8 cm
- Screen size 56" (142.2 cm). or 60 " 153 cm
- Resolution: 3840 x 2160 (pixels); 8 megapixels at 4 x HD.
- Color depth 16.7 10⁶ colors.
- Guaranteed brightness for the entire service life: 300 cd/m² at a contrast ratio of 800:1.
- Flicker-free and distortion-free image display.

Multi Display Manager

The Multi Display Manager (MDM) receives the different video signals and processes this information for visualization on the Large Display.

Up to 21 external video sources can be connected (max. 21 DVI-D or 15 DVI-R plus max. 6 analog). Other digital/analog combinations are possible, but the sum must not exceed 21 channels.

Display ceiling-mounted stand

The longitudinally mobile, swiveling, rotating, and height adjustable display ceiling suspension (DCS) with normal working range contains a large 56" color flat display. All cables are integrated into the universal mounted DCS.

Technical specification for the display ceiling support:

- Longitudinal travel range 217.5 cm with 300 cm rails.
- Longitudinal travel range 337.5 cm with 425 cm rails.
- Height adjustment range 85 cm.
- Swivel range (max. system rotation) 300 degrees.
- Display swivel range 330 degrees.

Bypass concept

In case of error, such as controller failure, the Large Display switches automatically to bypass mode and emergency fluoroscopy is displayed on the Large Display.

Backup concept

The Large Display has a backup concept to ensure against power supply failure (2 separate power supplies for the left and right sides of the Large Display).

The Multi Display Manager (MDM) Medium receives various internal and external video signals and processes this information for presentation to scale on the Large Display (LD).

Up to 18 external and internal video sources can be connected (max. 14 DVI-D and 4 analog (VGA) channels).

Important images for diagnostic purposes can be displayed to scale in their original size on the LD. Less important, non-diagnostic information can be displayed at a reduced size in the interpolation algorithm for image information integrated in the MDM.

An enlarged or reduced display can be selected individually via the display configurations at the touch screen (ECC). The MDM controller then takes over interpolation and adaptation of image size.

Description

In waveform images with high resolution, such as for electrophysiological recording systems, the curves are displayed free of artifacts because of a special interpolation algorithm.

Using the connection kit, one DVI-D video signal of a unit is duplicated. One of these is connected to one of the DVI-D video inputs of the Siemens video signal distributor. The second video signal is available for use by a display, for example in the control room. Using fiber-optic cables ensures the galvanic isolation of the video source.

The inputs support a maximum resolution of 1920x1200.

It includes the following components:

- a video splitter
- A DVI to fiber-optic cable adapter
- A fiber-optic cable (36 meters)
- A fiber-optic cable to DVI adapter
- Two 5 volt power supplies for the adapters

Including:

- 5 x LD Input External Digital Kit 14417161:
A digital kit 14417161 includes:
1 x digital input and connection kit for an external digital DVI-D video signal including cable and DVI-D video splitter.
For digital video signals, DVI-D, HDMI, comprising a DVI-D video splitter for the external monitor and the external video signal. The video splitter is needed if there is no second analog video output on the external device.
All required DVI-D cables, fiber-optic cables, power supplies, adapter and power plugs, and labels are also included.
- 3 x LD Input External Analog Kit 14417131:
An analog kit 14417131 includes:
Analog input and connection kit for external analog video signals including cable and video splitter.
For analog video signals, VGA, BNC VGA, DVI-I, BAS, PAL, NTSC, comprising an analog VGA video splitter for the external monitor and the external video signal. The video splitter is needed if there is no second analog video output on the external device.
All required VGA cables, fiber-optic cables, a converter, power supplies, adapter and power plugs, and labels are also included.

* To display images from third-party video sources on the Large Display interfaces for external video signals, note the following requirements:

- The connection of third-party devices is only permissible if they meet the specifications of the LD interface.
- The connection of the LD interface to the LD controller must be performed by a Siemens service technician.
- The connection to the third-party device must always be performed by the technician of the third-party company or by the responsible on-site hospital technician.
- Siemens cannot assume any warranty for the connection of the third-party device with respect to the image quality and its suitability for diagnosis.
- For this reason, it is strongly recommended that the image quality tests prescribed by the third-party manufacturer are performed again prior to use. These tests can ensure that the required image quality is achieved.
- The system configurator is responsible for ensuring that the valid versions of the relevant standards are met.

19" high-contrast b/w display for live image display, as well as syngo operation in the control room. Table design with black frame.

Display in monochrome TFT technology with high luminance and extended viewing angle.

- 19" (48 cm) monitor.
- Resolution: 1,280 x 1,024 (pixel).
- Guaranteed brightness for the entire service life: 400 cd/m² at a contrast ratio of 500:1.
- Flicker-free and distortion-free image display.

Description

- Ambient light sensor for optimum adaptation to the room brightness.

Scientific measuring program integrated in the imaging system for evaluation of the functionality of the left ventricle.

- Automated and manual contour detection.
- Automatic end-diastole/end-systole detection.
- Calculation of ejection fraction, volumes and indices (area, length and Simpson methods).
- Centerline, radial and regional wall movement analyses
- Automatic and manual calibration methods.
- Distance and angle measurement.

Measuring program integrated in the imaging system for objective, precise and reproducible evaluation of vessels.

- Automated contour detection.
- Determination of degree of stenosis.
- Automatic and manual reference diameter determination.
- Automatic and manual calibration methods.
- Distance and angle measurement.

The vascular analysis allows precise quantification under sterile conditions, direct at table side with the touchscreen control. This speeds up the intervention and makes the procedure safer for the patient. The reports can be easily stored in the patient folder for documentation and to show the correct analysis of dilatations etc. Especially to be used for vessel sizes between 0.5 mm and 50 mm.

Optimized procedure workflow, especially during interventions is the result of the automap-function. A selected reference image displaying the needed medical information (e.g. before dilatation) is used as the basis for moving the system to the correlated position automatically. The intervention can be continued immediately without manually repositioning the patient. Vice versa, an already stored reference image for a dedicated system position is automatically displayed when automap is selected, making it easy to switch from one angulation to another with instantly available image information.

DICOM MWL (Modality Worklist):

Import of patient/examination data from an external RIS/HIS patient management system.

Note concerning DICOM interface(s)

For diagnostic purposes, only hardcopy cameras/laser printers explicitly approved for this system may be used.

The description in the DICOM Conformance Statement downloadable from the Internet is exclusively binding for the functionality of the DICOM interface(s).

Functionalities across system borders with/between partner systems require explicit validation, since the interpretation of the interface by the partner/target system is not part of the product's responsibility.

A modification of the interface that might be required is not included in the offer; e.g. for the rare case, that available configurations are not sufficient.

With regard to expenses for interface configurations that might be required, the agreements on maintenance/service of the product apply.

The lower body radiation protection can be attached to the accessory rails either on the right or on the left side of the patient positioning table.

It consists of the following independent shielding units:

- A basic unit shielding the area between accessory rails and the floor. It is flexible and can be adapted to the examiner's preferences.
- One LB radiation protection pivot swivel element that can move out of the way during collisions with the tube and still retain its protective function.

| Description |
|---|
| <ul style="list-style-type: none"> - Two clip-on units pointing upwards from the upper edge of the basic unit with a length of 57 cm and 27 cm. <p>The scattered radiation shielding units can be attached to the basic unit in an overlapping and fan-shaped way to allow closed, adapted scattered radiation protection even in the lower thorax area. The maximum load of the accessory rails is 40 kg, the weight of the attached scattered radiation protection is 8 kg.</p> |
| <p>Radiation protection attached via a ceiling-mounted, mobile stand for protection against scattered radiation; inc. 4 m ceiling rail.</p> <ul style="list-style-type: none"> - Swivable and rotatable around the fixed point, range of rotation 360°. - Counter-balanced, height-adjustable support arm. - Acrylic glass with Pb equivalent of 0.5 eq (w x h: 61 cm x 76 cm), with recess for interventional examinations. |
| <p>Keyboard for easy operation of <i>syngo</i> (browser, viewer, filming). There are special keys for windowing, scrolling, printing, marking and network communication.</p> |
| <p>This cable set contains all cables for connecting the components at the patient table and the s5i imaging system in the control room.</p> |
| <p>For Artis tabletops, the two arm holders help to laterally position the arms comfortably along the patient's body. They are slid laterally underneath the mattress, level with arms, and fixed by the patient's body weight. The patient's arms can be immobilized with commercially available fixing straps. Two pairs of arm holders of different length and height (matching the mattress height) are supplied, that are suitable both for thick and thin mattresses.</p> |
| <p>The rotatable, height-adjustable articulated arm support with vertical travel enables access to both brachialis (acc. to Sones) and radialis. It includes a wipeable support pad and a securing clamp to be attached to the accessory rails of the accessory rail module. Maximum load is 25 kg. The arm support is not radiolucent and cannot be used for arm angiography.</p> |
| <p>Complete system backup without interruption. One UPS per lab.</p> <p>The Artis system will be supplied by the UPS with full power to all functions in case of power failure. The operation is not restricted to emergency fluoroscopy.</p> <p>Operation:</p> <ul style="list-style-type: none"> - In case of power failure, the complete Artis system is backed up without interruption to the system or any imaging functionality. - Full system operation including fluoroscopy and acquisition are possible without interruption. There will be no interruption even in the case of a power failure in the middle of an acquisition. - No interruption to workflow - No re-boots required. - Additional advantage of an on-line power conditioner for complete system. - Includes UPS, battery, maintenance bypass panel, and one year on-site parts and labor coverage (24x7) by Eaton Powerware. <p>Battery power is supplied for a 10 minute backup at continuous full power. This should allow the lab to continue operation for at least 45 to 90 minutes in normal operation.</p> <p>Not approved for sites requiring OSHPD certification. Please contact XPAS Inside Sales for configuration of an OSHPD certified configuration.</p> |
| <p>Codonics Horizon SF Imager is a small format film and paper, color and grayscale imager. Media sizes include: 8" x 10" film in blue and clear, and A and A4 color and grayscale paper. Supports 2 DICOM connections and PostScript.</p> <p>Media included: 100 sheets of A size CV paper (with color ribbon), 80 sheets of A size DV paper, and 100 sheets</p> |

of 8x10 blue film.

Includes one year warranty with 24-hour swap service through Codonics. Installation by Codonics is available at an additional cost. Data sheet is available upon request.