

SHAHEED MOHTARMA BENAZIR BHUTTO
INSTITUTE OF TRAUMA, KARACHI
Artis Q ceiling vascular surgery
Relevant Items

Item Nr	Item Description	Qty
	Artis Q ceiling vascular surgery	
1	Artis Q ceiling vascular surgery	1
2	Automap	1
3	Table OR version	1
4	Fluoro Loop	1
5	CLEARstent Live + CLEARstent	1
6	DYNAVISON DSA/DR	1
7	Card acq. mode w/high speed	1
8	UPS device/table/imaging system	1
9	Mem. expansion 3 (50k - 1k Matrix)	1
10	Mem. expansion 4 (100k- 1k Matrix)	1
11	2K acquisition	1
12	PERISTEPPING / PERIVISION	1
13	Vascular analysis	1
14	syngo EVAR Guidance Engine as40	1
15	Lower body radiation protection	1
16	Moveable upper body rad. protection	1
17	LED Exam Light	1
18	Intercom – Comfort	1
19	Tabletop extension	1
20	Handgrips with support (2)	1
21	Large Display	1
22	Large Display video controller 9	1
23	LD High Contrast panel size 55"	1
24	Large Display diagn. protection	1
25	Connection - 3rd Party Carrier Sys.	1
26	2 19" b/w displays (live+ref)	1
27	19" display (ref)	1
28	160 kVA UPS (Emerson or Equivalent) 10min	1
29	Angiography Power Injector with 50 Syringes	1
30	Thyroid Shields (Protech-USA or Eq)	5

Item Nr	Item Description	Qty
31	Trolley Mounted Hangers for Lead Aprons	1
32	Lead Glass 4 x 1 Meter	1
33	Lead Goggles/ PB Glasses	5
34	Lead Aprons Double Side (Protech USA or Eq.)	5
35	Pre-shipment inspection	1

Total Price (DDP) – for 1 system

(Pak Rupees: Two Hundred Fifty-Four Million Three Hundred Thousand Only)

254,300,000.00 PKR

Options

Item Nr	Item Description	Qty	Price (net)
36	Laser crosshairs	1	610,000.00 PKR
37	syngo NeedleGuidance	1	1,460,000.00 PKR
38	Sensis Vibe Hemo	1	9,520,000.00 PKR
39	ECG radiolucent cable	1	100,000.00 PKR
40	Starter kit CO Thermo	1	550,000.00 PKR
41	IBP adapter Y-splitter	1	80,000.00 PKR
42	Head-end operation w/ trolley	1	450,000.00 PKR
43	Operating Table (Trumpf Medical)	1	102,064,000.00 PKR
44	IVUS Model: IntraSight 5 Mobile System	1	50,700,000 PKR
45	IVUS Catheter	100	24,600,000.00 PKR

[Handwritten signatures and initials in blue ink]

Terms and Conditions

PRICES :

The price(s) is (are) to be understood DDP Karachi. (INCOTERMS 2010).

CUSTOMS DUTY & IMPORT TAXES

Above quoted Item is exempt from Duties & Taxes. If it is applicable it will be charge additionally.

DELIVERY TERMS :

Delivery can be affected within 3-4 months counted from receipt of your technically and commercially clear order and advance payment whichever is later. This shall be counted from date of receipt by us of your order in clear technical response to our offer, date of completion of payment terms viz. date of receipt by us of acceptable letter of Credit as specified under terms of payment and / or advance payment, whichever is later. As the delivery entirely depends on orders position, applicable delivery will be provided in our order confirmation on receipt of your clear order and completion of payment terms. Unless specifically agreed to otherwise, deliveries constituting several equipment shall be effected by us partially dependent on production/delivery and shall be accepted and paid by you.

Contractual deadlines may change due to delays and/or disruptions in the supply chain, manufacturing, or execution as a result of the Covid-19 Virus spread.

PAYMENT TERMS :

Payment to Siemens Healthcare (Pvt.) Limited for the full value (100%) within 30days of delivery. Separate Payment of 102,064,000 PKR to Radiant Medical Pvt .Ltd for Trumpf Table.

INSTALLATION / START-UP :

Costs for installation and start-up are included in the price. However, any costs related to the site preparation including any and all room preparations possibly required on site are excluded.

Furthermore, our General Conditions for Installation - Exports shall apply (These can be obtained from your respective Siemens sales representative)

WARRANTY :

Siemens warrants within a period of 12 months from the acceptance of the Products or 15 months from the date of delivery of the Products according to the applicable Incoterms (INCOTERMS 2010) whichever is earlier that the Products are free from defects caused by installation and - at the date of transfer of risk - meet the agreed specifications and are free from defects in material and workmanship. During the warranty period Siemens shall rectify any such notified defect at its discretion by way of either repair or replacement. Physical damage or defects arising of inappropriate usage of the machine are not covered by the warranty conditions.

EXTENDED WARRANTY :

The price includes extended warranty.

After the end of the warranty period Siemens will provide an extended warranty for a period of 24 months from the time of expiry of the warranty period (detailed above) including spare parts but excluding tube, detector, other high vaccum items (if any) and consumables.

Any physical damage or damages arising out of inappropriate use/mishandling will not be covered.

UPTIME SERVICES :

Siemens Pakistan measures system performance on a monthly basis and guarantees availability of 95 % per year during warranty period

Uptime guarantee will be calculated by dividing "System in Service Hours" by "Available Hours" both measured on 8 hours /day basis (from 09.00 to 17.00 hours) excluding Sundays and governmental holidays and hours scheduled for preventive maintenance service. "Available Hours" shall mean the time in which the customer is able to use the equipment for patient examination even though the customer might have to use workarounds until a problem is fixed. Should the equipment fail to achieve 95 % uptime on an annual basis, then the following formula will be applied to determine the number of additional days of maintenance without extra cost to be added to the warranty period mentioned above. Such extension shall be customer's only rights and remedies in case of Supplier's failure to achieve

the 95%uptime.

- (1) 100% - 95% No Penalty
- (2) Below 95% - 90% Extension of Maintenance Contract at no further cost at the number of days of down time x Factor 1
- (3) Below 90% - 85% Extension of Maintenance Contract at no further cost at the number of days of down time x Factor 1.5`
- (4) Below 85% - Extension of Maintenance Contract at no further cost at the number of days of down time x Factor 2

COUNTRY OF ORIGIN :

The country of origin / the countries of origin of the products offered are: Germany

SPARE PART AVAILABILITY :

Spare parts for the contracted equipment shall be available for a period of ten years after delivery. Only for Siemens products.

PRICE VALIDITY:

The prices shall remain valid if the order is placed with us within a period of 90 days from the date of quotation. For further validity our confirmation in writing is necessary

APPLICABLE LAW:

This Agreement shall be governed by the laws of Pakistan and the courts in Lahore, Pakistan shall have exclusive jurisdiction in connection with this Agreement.

ARBITRATION :

Notwithstanding anything contained in the Agreement, in the event of any question or difference or dispute whatsoever arising between the Parties under or in connection with this Agreement or any provision herein contained or its constructions , validity or termination hereof, or as to any matter connected therewith or arising there-from which cannot be amicably settled within thirty (30) days of written notice by a Party to the other identifying the same and seeking its amicable settlement, the same shall exclusively be referred to Arbitration under the Arbitration Act, 1940.

In accordance with the provision of the said Act, each Party shall appoint one Arbitrator and the Arbitrators shall appoint an Umpire by mutual consultation, before the commencement of Arbitration proceedings. The Arbitrators and the Umpire shall not be (or have previously been) employee(s), consultant(s), contractor(s) or agents of any Party to the proceedings and shall be independent and/or exhibit no past or present relationship with any Party to the proceedings.

The language of Arbitration shall be English, and the venue of the Arbitration shall be Lahore, Pakistan.

The award made by such Arbitrators or the Umpire, as the case may be, shall be final and binding on the Parties and shall not be subject to appeal at any forum or court.

ASSIGNMENT :

Siemens may assign this offer or contract concluded following acceptance of this offer in whole or in part and/or its rights and obligations hereunder without the consent of the other party or extend this offer or contract to a Siemens' Affiliate as a result of the sale of all or a substantial part of the assets and/or all or a part of the business to which this offer or contract relates and/or in connection with any type of spin-off, (de)merger, consolidation, divestiture, dissolution and any other type of business combination or business reorganization. Furthermore, Siemens may have any obligation hereunder performed by a subcontractor without the prior written consent of the other party.

CHANGES IN GOVERNMENT LEGISLATION, DUTIES, TAXES LEVIES ETC. :

Our prices are calculated taking into consideration the present government legislation and regulations applicable to the payment of duties, taxes etc. In the event of any change in the present government legislation and / or regulations with respect to Payment of and / or exemption from duties and taxes on the imported raw material, components and equipment's and / or on the sale of equipment's/ services offered by us after the date of our offer until final supply of

your order, you shall pay us the revised prices and / or revised delivery accordingly. Furthermore, if any additional cess, levy, tax is charged at the instance of provincial or central government or local bodies is charged on raw material, components, labor cost or the finished product/ services, the same shall be paid by you.

COMPLIANCE WITH EXPORT CONTROL REGULATIONS :

If Recipient transfers goods (hardware and/ or software and/ or technology as well as corresponding documentation, regardless of the mode of provision) delivered by Siemens or works and services (including all kinds of technical support) performed by Siemens to a third party Recipient shall comply with all applicable national and international (re-) export control regulations. In any event of such transfer of goods, works and services Recipient shall comply with the (re-) export control regulations of the Federal Republic of Germany, of the European Union and of the United States of America.

Prior to any transfer of goods, works and services provided by Siemens to a third party Recipient shall in particular check and guarantee by appropriate measures that

- There will be no infringement of an embargo imposed by the European Union, by the United States of America and/ or by the United Nations by such transfer, by brokering of contracts concerning those goods, works and services or by provision of other economic resources in connection with those goods, works and services, also considering the limitations of domestic business and prohibitions of by-passing those embargos;
- Such goods, works and services are not intended for use in connection with armaments, nuclear technology or weapons, if and to the extent such use is subject to prohibition or authorization, unless required authorization is provided;
- The regulations of all applicable Sanctioned Party Lists of the European Union and the United States of America concerning the trading with entities, persons and organizations listed therein are considered.

If required to enable authorities or Siemens to conduct export control checks, Recipient, upon request by Siemens, shall promptly provide Siemens with all information pertaining to the particular end customer, the particular destination and the particular intended use of goods, works and services provided by Siemens, as well as any export control restrictions existing.

Recipient shall indemnify and hold harmless Siemens from and against any claim, proceeding, action, fine, loss, cost and damages arising out of or relating to any noncompliance with export control regulations by Recipient, and Recipient shall compensate Siemens for all losses and expenses resulting thereof.

ENVIRONMENTAL CONDITIONS :

According to the directives for the energy and environmental policy of the European Union and its member states, local manufacturers are required to reintroduce reusable parts and components back into the manufacturing process. Our products correspond to these directives and contain recycled or reconditioned parts and components "As New Parts". Through strict selection, quality and dependability assurance during the entire product engineering process, we ensure the same function, quality and lifetime for the "As New Parts" as for parts and components from the first production

FORCE MAJEURE :

For any delay or failure to deliver equipment on account of Force Majeure reasons such as war, military operations, revolution, strike, go slow, lockout, riots, fire, floods, epidemic, loss of material in transit, power supply interruptions, unavoidable delays with sub-suppliers directly or indirectly and such other reasons not incorporated in this clause and unpredictable at present being beyond our control or remedy, we shall not be held responsible, and delivery period shall be extended suitably and/or revised prices paid by you.

SOFTWARE CONDITION :

Rights to use software delivered with or implemented in the products are according to our General Conditions of Supply and Delivery - Exports. No rights are granted to use service software delivered with or implemented in the products delivered hereunder.

RESERVATION CLAUSE :

Siemens Healthineers shall not be obligated to fulfill this agreement if such fulfillment is prevented by any impediments arising out of national or international foreign trade or customs requirements or any embargoes or other sanctions.

VALIDITY OF TERMS AND CONDITIONS :

Furthermore, our Principals General Conditions of Supply and Delivery - Exports and, for certain products, our Principals Special Warranty Terms - Exports shall apply.

Our principals reserve the right to make any technical alterations.

Siemens Healthcare (Pvt.) Ltd. Pakistan

Notice: Compliance with legal and internal regulations is an integral part of all business processes at Siemens.
Possible infringements can be reported to our HelpDesk "Let Us Know" at www.bkms-system.net/healthineers.

Artis Q ceiling vascular surgery

Product Details

Product Name: Artis Q ceiling vascular surgery

Item Nr: 1

Part Nr: 14434098

Artis Q ceiling for vascular surgery

The Artis Q product line is setting new standards in interventional imaging.

The Artis Q ceiling for vascular surgery now features PURE®. PURE adds smooth interaction to Siemens' smart technologies. It is designed to boost productivity and enhance outcomes for certain clinical applications, while increasing image quality and reducing dose.

The GIGALIX X-ray tube concentrates high pulse power on small, square-shaped focal spots (flat emitter technology for all focal spots). This provides unprecedented image quality for confidence in challenging situations.

The ceiling-mounted C-arm offers highly flexible positioning. The motorized rotation of the C-arm from a head-end position to a lateral position allows for free head access and full patient coverage without rotating the table.

The as40HDR flat detector is optimized for the requirements of surgery.

Digital acquisition technology and digital subtraction angiography with up to 7.5 f/s in 1k matrix are available.

With new computer hardware and smart algorithms CLEAR MAX offers maximized image quality. The complete CARE+CLEAR package offers optimal image quality at the lowest reasonable dose.

Live and reference images are displayed on two 19" flat screens in the exam room. In the control room live images are displayed on a third screen.

System description:

The single plane X-ray angiography system for digital acquisitions was designed to meet the requirements of modern angiography and interventional procedures, with a focus on vascular surgery.

C-arm ceiling-mounted stand:

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

- Up to 5 preprogrammed work positions, additional 50 user-definable work positions and 3 direct positions can be stored and recalled from table side.
- One single joystick for patient angle-oriented operation of C-arm and change of source image distance (SID).
- Integrated computerized 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° ($+180^\circ/-150^\circ$) in rotational movements.
- Variable C-arm speeds up to 25°/s
- Variable focal-spot-to-detector distance between 90 cm and 120 cm
- Isocenter-floor distance 108 cm
- Focus-isocenter distance 78.5 cm

MULTISPACE.T

The stand can be positioned on the left or right of the patient or at the head end, or at any angle in between. It can be moved longitudinally to any position along the length of the patient and also has a park position at a sufficient distance from the patient.

In Focus allows the projection angle to the patient to remain unchanged when rotating the C-arm around the table.

IsoTilt allows the projection angle to the patient to remain unchanged when tilting the patient table (if the tilting function is available).

Both In Focus and IsoTilt improve the efficiency of an examination because there is no need to spend time adjusting the projection angle.

Application-specific accessories

This accessory set is delivered in combination with the OR version Siemens table:

- Infusion bottle holder
- Unilateral armrest: Carbon fiber armrest for cardiology and arm angiography to slide underneath the positioning mattress.
- Arm holder (1 pair): Two arm holders for comfortable lateral arm positioning along the patient's body.

Operating modes

Fluoroscopy

Digital pulsed fluoroscopy with pulse frequencies of 7.5 p/s, 10 p/s, 15 p/s, and 30 p/s in 1k/12-bit matrix. Pulse rates of 0.5 - 4 p/s are also possible with CAREvision.

Overlay fade: On-line overlay of the reference image onto the active fluoroscopy. This improves efficiency and safety during interventional procedures because additional information which is clinically necessary can be displayed directly in the live fluoroscopy image.

Digital acquisition technology

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.

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

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%.

Includes the "Advanced Roadmap" additional function which offers the following clinical benefits:

- 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 can be corrected easily with Auto Pixelshift. This saves time for the user and improves image quality.

CLEARmap

Special 2D Roadmap operating mode creating a vessel map from a DSA-scene using Maximum Opacification technique. As an additional operating mode, you can also decide to pick one frame out of a DSA run (i.e. for venous access in Roadmap).

This provides improved image quality compared to conventional Roadmap and reduces x-ray dose and contrast media.

CLEARmatch

Automatic/Online pixel shift processing for most accurate subtracted image display during Roadmap and DSA based on real time movement detection and compensation.

Six degrees of freedom - vertical, horizontal, rotational, zoom and shearing movement (left and right) - allowing highest possible efficacy. In order to show the most recent information in raw format, the pixel shift operation is applied to the mask image. This optimized way of pixel shifting ensures a perfect match of Roadmap image and native fluoro image, being shown at the Assist monitor.

CARE package

ALARA principle

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:

- CAREfilter: Intelligent control software that minimizes X-ray dose. During fluoroscopy and acquisition, special copper prefilters are automatically inserted into the X-ray beam depending on current X-ray transparency, which is calculated continuously. This is necessary to ensure that the optimal prefilter value is always active. This automation makes work easier for the user because the optimal filter setting need not be adjusted manually for each case.
The adaptive Cu prefiltration has five steps (0.1, 0.2, 0.3, 0.6, 0.9 mm) and is used to lower the reference air kerma and improve radiation quality by reducing the low-energy X-ray radiation.
- CAREvision with as20 detector: Pulsed fluoroscopy with additional, reduced pulse rates of 0.5, 1, 2, 3, 4, 6 p/s. Adaptation of pulse rate to the current application requirements for significant reduction of radiation exposure, especially during interventional procedures.
- CAREvision with as40HDR detector: Pulsed fluoroscopy with additional, reduced pulse rates of 0.5, 1, 2, 3, 4 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 or radiation.
- CAREposition: Radiation-free object repositioning by means of graphic display of the X-ray center beam and image edges in the LIH image. With CAREposition it is possible to reposition the 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.
- Low dose acquisition enables dose savings of up to 67 % during the examination. The Low Dose Acquisition protocol can be released with a separate pedal on the footswitch.

Dose monitoring:

- CAREwatch: Display of the measured dose-area product and the calculated patient reference air kerma 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: Reference air kerma rate.
During fluoroscopy interval: Accumulated reference air kerma or dose-area product, or percentage of the reference air kerma limit (total from fluoroscopy and acquisition).

- CAREguard: Monitoring the reference air kerma. If the accumulated reference air kerma exceeds one of the three configurable limits, a warning appears on the live display and tableside on the touchscreen control. This allows ideal monitoring of the accumulated reference air kerma during the examination.
- CAREmonitor: Special model-based monitoring of the measured skin entry dose, considering the geometric conditions of the system (actual device angulation, table position, patient weight, patient size). It then continually displays whether the skin entry dose applied to a specific region of the patient's body exceeds a specific configurable upper limit. CAREmonitor continually calculates and displays the actual accumulated skin entry dose as a portion of this upper limit. This helps the user to detect a potential patient hazard at an early stage. The patient is therefore better protected against the damaging effects of radiation.

Dose documentation:

- CAREreport: Dose information as part of the DICOM Structured Report. After each examination, the information is available in DICOM format and can be sent to a DICOM archive together with the image data, for example. Saving dose information in DICOM format also enables flexible analysis and further processing via a DICOM-capable analysis software/database.
- CARE Analytics: Standalone PC program for analyzing doses in angiography, CT, and radiological examinations. The data can be exported to statistics programs such as Microsoft Office Excel and SPSS for further analysis. CARE Analytics is available for download from the Siemens Intranet.

CLEAR MAX

CLEAR MAX enables maximized image quality through real-time processing of the image data without increasing the radiation dose, enabled by new computer hardware and algorithms. This results in improved contrast and sharpness for better visualization of small vessels, devices, tissue, and bones at the same dose level.

- CLEARpulse optimizes the X-ray pulse in two ways: the high pulse power allows for additional filtration to reduce radiation. In addition, CLEARpulse shortens the X-ray pulse through the use of grid-pulsed flat emitter technology in concert with a high anode rotation speed. The required X-ray energy can be provided in a shorter period of time, thereby shortening the X-ray pulse by up to 43% at constant tube voltage. Moving objects like coronary arteries can be visualized sharper and with less blurring artifacts.
- 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 generation

X-ray generator

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

- Power output: 100 kW at 100 kV (IEC 60601-2-7 and IEC 60601-2-54)
- SID tracking: Automatic tube current adaptation to focal-spot-to-detector 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 live 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 ensures superior image quality and minimum radiation exposure for user and patient with every exposure release.

GIGALIX 125/30/40/90 - X-ray tube assembly

Triple-focus high-performance X-ray tube assembly with unique flat emitter technology for generating extremely high tube currents of max. 250 mA in fluoroscopy and 1000 mA in acquisition. This provides very good image quality even with heavier patients or steep angulations. The focus is always quadratic and permits outstanding perceptibility of small structures with a nominal quadratic focus of 0.3/0.4/0.7. The anode has a high heat storage capacity of 5.2 MHU and the metal center tube with liquid bearing technology allows a maximum cooling power of 1520 kHU/min. This means that pauses are not required during radiation, even for lengthy procedures. The X-ray tube is almost silent, which is an additional benefit for patient and user.

as40HDR flat detector

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

The detector features 16-bit analog-to-digital conversion, resulting in a gray scale resolution of 65,536 gray scales. This in turn improves contrast resolution in 3D imaging with *syngo* DynaCT.

The increased scintillator layer thickness of 750 μm results in a high DQE (Detective Quantum Efficiency) of 77%, thereby improving image quality at low radiation doses.

154 μm pixel arrays provide highest spatial resolution (3.25 LP/mm) and excellent contrast. Acquisition frame rates of up to 60 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 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.

The as40HDR 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.

Removable grid

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

Angio collimator

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

- Independent rotation and shift of filter blades.
- Automatic synchronous rotation of detector and collimator unit to compensate image rotation at the different examination positions of the support stand.

- Rotation also possible via table side control enabling upright images of objects or body parts not aligned with the table, e.g. arms.
- 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.
- Electronics unit with DIAMENTOR dose measurement chamber integrated in the collimator housing, for acquisition of the dose-area product and the calculated patient entry air Kerma at the patient entrance reference point (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.

Image processing

- Image display as positive and negative, windowing, contrast and brightness control, electronic display shutter, image shift (roaming), vertical and horizontal image inversion, magnifying glass, and zoom functions.
- Storing of single images as reference images for acquisition and fluoroscopy.
- Quantification: angle and length measurements, automatic and 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, reference images, and photo file images via MULTIMAP. Access possible both in the examination and in the control room for displaying or post-processing images.

Imaging system

Dual architecture

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 best possible system performance and availability.

Image storage capacity

25,000 images in 1k/12-bit image matrix. This can be optionally extended to 50,000 / 100,000 images.

Image export and networking

DVD/CD burner

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 and/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 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.

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.

Display and display suspension

Displays in the exam room

Live and Assist displays are 19" TFT color and gray scale flat-screen displays with high luminance and extended viewing angle.

- Screen size: 19" (48 cm)
- Resolution: 1,280 x 1,024 (pixels)
- Excellent brightness for the entire service life: 400 cd/m² at a contrast ratio of 1000:1
- Flicker-free and distortion-free image display
- Ambient light sensor for optimum adaptation of the image display to the room brightness

Reference images are shown on the Assist display.

Data for device and table position, dose data, and system messages are displayed in the examination and control room on both the live and the Assist display.

Displays in the control room

19" high-contrast display for live image display in the control room is included as a desktop version.

Display suspension

Ceiling-mounted, swiveling, rotating, and height-adjustable display suspension system with longitudinal travel. It features two 19" high-contrast TFT displays for live and reference image display in the examination room (Standard configuration - unless modified).

The double-articulated arm of the display suspension system provides greater flexibility and a larger display positioning range.

Operation

syngo

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.

Footswitch

A 4-pedal wired footswitch to release fluoroscopy, and exposure, as well as a configurable additional function is included as standard.

In the examination room

For an ideal workflow, full operation capabilities for the system can be accessed directly at the patient table (Siemens table). These include complete system operation through modular control elements for controlling C-arm movements, the patient table, and the multileaf collimator.

syngo-based touchscreen with multi-functional joystick for operation of the imaging system, including post-processing and quantification as well as selection of the organ programs. The touchscreen is specifically configurable to individual clinical requirements.

This means that the user can operate the system on their own without having to leave the examination room if this is deemed necessary by the situation.

In the control room

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

Smart Remote Services

Prepared for Smart Remote Services (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**

syngo Evolve is a service feature that is offered as a separate sales option. It is a key component of our upgrade strategy and allows you to take advantage of technological advancements.

Customer Care

From the moment you purchase your Siemens system you will benefit from many services that are offered by "Customer Care"*. These include:

- Initial application training
- Interactive e-learning for various applications
- Free customer magazines
- Arrangements for clinical training via a global network
- Free trial licenses

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

* The availability of "Customer Care" services may be restricted for some systems.

User Training

Siemens recognizes the significant investment you are making in purchasing a new imaging system and are determined that you are able to realize the full capability of this new system. Siemens clinical applications training ensures you have every opportunity to fully utilize your new system.

Content of user training:

- Handover Training and Follow-up Training

- Introduction to the functions, options, and handling of the Angiography system
- Instruction on the use of the Angiography system together with modern, highly developed applications

Delivery & duration of the user training varies and may be country specific so for additional information please contact your local Siemens representative.

Product Name: Automap

Item Nr: 2

Part Nr: 14432948

Automatic stand positioning depending on the selected reference image and automatic reference image selection depending on the stand positioning.

Automap optimizes the procedure workflow, especially during interventions. 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. On the other hand, the system is able to select a reference image for the current device position. In case of changes in device position, this enables the user to see the corresponding reference images quickly and safely.

Product Name: Table OR version

Item Nr: 3

Part Nr: 14434327

Floor-mounted swiveling patient table with telescopic foot, floating and tiltable tabletop (in two axes); motor-driven stepping for digital peripheral angiography, and power-assisted table control module.

Includes carbon fiber tabletop in wide, straight design with special foam mattress (4 cm thick) and 4-pedal wired footswitch.

Note:

It is mandatory to provide UPS back up with this table in order to comply with IEC 60601-2-43 CL. 201.15.101.

Reason: In the event of power failure a neutral table position suitable for CPR must be reachable within 15 seconds. A suitable UPS from Siemens as required must be included in your order unless an existing / planned UPS provision for your installation site will satisfy the requirement.

Floor-mounted patient 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.
- $\pm 15^\circ$ lateral tilting range.
- 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 table button.
- Telescopic foot with motor-driven height adjustment.
- Max. patient weight 200 kg. It is possible to attach accessories of up to 40 kg.

Tabletop made of carbon fiber in wide, straight design for universal use, is straight up to the head area. The special foam mattress (including cover) is tailored specifically to the tabletop for maximum positioning comfort. The visco-elastic comfort mattress for the wide and straight tabletop reacts to temperature and has the special property of adapting to the individual body shape under the influence of body weight and heat.

There is a wired 4-pedal footswitch to trigger fluoro, acquisition, and the table brake, as well as a configurable additional function.

Product Name: Fluoro Loop

Item Nr: 4

Part Nr: 14432947

Storage and review of dynamic fluoroscopic sequences. This saves an additional acquisition and helps to reduce dose. The maximum storable fluoroscopic time is limited by the maximum DICOM file size of 4 Gbyte.

Product Name: CLEARstent Live + CLEARstent

Item Nr: 5

Part Nr: 14434169

CLEARstent Live is a real-time stent enhancement tool and provides a stabilized view of the moving stent which is displayed on the Assist/Reference Monitor.

CLEARstent Live allows real-time verification of stent positioning while moving the device. This enables the physician to precisely position the stent in relation to the anatomy of the heart and stents that already have been implanted. Contains both CLEARstent Live license and CLEARstent license.

The CLEARstent imaging function allows an improved display of fine stent structures, i.e. the grid of inflated stents. CLEARstent is a post-processed stent enhancement and may be used also on previously acquired images. Using the CLEARstent function special reference images from any scene or fluoroscopy scene acquired natively will be generated. Composite images are created by averaging several frames of a scene and by considering the alignment of balloon markers. If an ECG signal is available, the heart phase will also be considered.

Product Name: DYNAVISON DSA/DR

Item Nr: 6

Part Nr: 14434151

Native or subtracted digital rotational angiography with angle triggering.

Angle-triggered digital rotation angiography enables dynamic image display with 3D effect. Dynamic subtraction with optimum alignment of masking and filling, and automatic pixel shift in the entire scene.

- Rotation speed is 60°/s (Artis zeego and Artis ceiling) and 45°/s (Artis floor and Artis biplane).
- 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.
- Angle triggering allows a reduction in dose through a reduced acquisition frame rate while at the same time achieving better image quality.

Includes DYNAVISON DR for native rotation angiography and DYNAVISON DSA for subtracted rotation angiography. Reconstruction at the *syngo* X Workplace is not possible with this operating mode.

Note: For biplane systems rotation angiography is available in plane A only.

Product Name: Card acq. mode w/high speed

Item Nr: 7

Part Nr: 14432926

Card Highspeed enables image acquisition with up to 30 frames per second and helps visualizing a moving heart.

Product Name: UPS device/table/imaging system

Item Nr: 8

Part Nr: 14434131

Uninterruptable power supply to bridge a power failure of all system- and table movements, as well as imaging system and monitors for a period of at least 10 min. during a primary power failure.

Nominal power 15kVA.

In UL countries (USA/Canada) the UL version for 480 V is delivered automatically.

In countries with 50 Hz grids, a transformer for 480 V power is delivered

In countries with 60 Hz grids, a transformer for 440 V power is delivered

Mandatory for tilting table / OR table as well as for surgery / OR applications if a comparable UPS is not already present.

Product Name: Mem. expansion 3 (50k - 1k Matrix)

Item Nr: 9

Part Nr: 14432940

Memory capacity extended by 25,000 images, from 25,000 images to 50,000 images in 1k matrix.

Product Name: Mem. expansion 4 (100k- 1k Matrix)

Item Nr: 10

Part Nr: 14432941

Memory capacity extended by 50,000 images, from 50,000 images to 100,000 images in 1k matrix.

Product Name: 2K acquisition

Item Nr: 11

Part Nr: 14432915

Acquisition and storage of single images and series with a resolution of up to 4.76 megapixels (2480 x 1920) at up to 7.5 f/s.

The 2k acquisition is valid for DR, DSA, 3D acquisitions and PERIVISION, and affects full format, Zoom 1, and Zoom 2.

Product Name: PERISTEPPING / PERIVISION

Item Nr: 12

Part Nr: 14432925

Motorized stepping for real-time bolus chasing.

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

Peripheral digital angiography with stepping and online subtraction display.

Excellent image quality from the abdomen to the feet is due to the fact that adjustable parameters such as acquisition frame rate, 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 image quality with best possible contrast is achieved.

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 ARTIS pheno and 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 setting 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.

Product Name: Vascular analysis

Item Nr: 13

Part Nr: 14432943

Vessel analysis with determination of degree of stenosis, distance measurement and calibration.

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 Vessel 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.

Product Name: syngo EVAR Guidance Engine as40

Item Nr: 14

Part Nr: 14434133

A workstation for reconstruction, post-processing and handling of 3D information including applications for endovascular treatment of aortic aneurysms.

The package includes the following functionalities:

- 3D high-contrast and CT-like soft-tissue imaging (syngo DynaCT).
- 3D roadmap for dynamic overlay of planning data and 3D volumes on live fluoroscopy.
- Fusion functionality for integration of pre-interventional 3D datasets also from other modalities into the Angio-room.
- Marking of points or lines on the 3D geometry or MPRs and overlay of these markings on live fluoroscopy.
- In room control for table-side operation of advanced applications.
- Expert-i functionality for remote operation of the XWP.
- 3D Wizard for expert step-by-step guidance in 3D acquisition.
- Parallel patient processing capabilities.
- Fusion of pre-interventional 3D datasets based on 2 projections (2D/3D Fusion).

Please note – availability of this following new feature depends on the regulatory release status in your country. (Please check with your respective Siemens representative to verify availability)

New! syngo EVAR Guidance – a dedicated and optimized workflow facilitating the use of 3D image guidance during EVAR procedures.

Contents:

The *syngo* X Workplace is a dedicated workstation for image postprocessing. Its functionality can be extended with additional software functions to suit specific user or clinical needs in angiography, surgery, and cardiology. The use of the licensed software is limited exclusively to the specific *syngo* X Workplace included with this configuration.

***syngo* X Workplace PC**

The high-performance workstation is equipped with an Open GL accelerator board to support 3D applications. To exchange medical images on DICOM-compatible CD-Rs and DVDs, the system is equipped with a CD/DVD burner.

syngo X Workplace can be connected to an existing network via 1000/100/10 Mbit Ethernet.

Examination room:

19" color flat display or Artis Large Display connection kit.

With this configuration, if an Artis Large Display is ordered - the configuration includes a connection kit for the Artis Large Display. If an Artis Large Display was not ordered - a display is delivered additionally for the examination room.

Control room:

19" color flat display or Artis Cockpit connection kit.

In this configuration, there is also one display for the control room or one connection kit for an Artis Cockpit.

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

Disclaimer

The products/features (here mentioned) are not commercially available in all countries. Due to regulatory reasons their future availability cannot be guaranteed. Please contact your local Siemens organization for further details.

Display is a 19" TFT color flat-screen displays with high luminance and extended viewing angle.

- Screen size: 19" (48 cm)
- Resolution: 1,280 x 1,024 (pixels)
- Excellent brightness for the entire service life: 400 cd/m² at a contrast ratio of 1000:1
- Flicker-free and distortion-free image display
- Ambient light sensor for optimum adaptation of the image display to the room brightness.

For software-version older than VD2, we deliver the following LCD- color display:

- Screen size: 19" (48 cm)
- Resolution: 1,280 x 1,024 (pixels)
- Excellent brightness for the entire service life: 180 cd/m² at a contrast ration of 800:1
- Flicker-free and distortion-free image display
- Anti-glare screen

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

syngo X Workplace Basic User Software

The *syngo X Workplace* software features an intuitive and thus easy to learn user interface developed from prototypes tested in close cooperation with users.

Standard functions such as filming or image review, and optional clinical application software, are performed in individual processes on dedicated task cards. A number of functions and input parameters, as well as the language used, can be selected according to individual requirements.

Package includes the following software licenses

Basic software with CD and dongle for the following functions:

- Patient Browser
- Filming
- Viewer
- System services

Patient Browser:

- Patient management
- DICOM communication with Send, Receive, Query/Retrieve, Print.
- Reading and importing image data from CDs/DVDs.
- Module for writing DICOM CDs/DVDs for data exchange. Writing is in background mode.

Filming

A virtual film sheet shows a 1:1 display of the film sheets to be printed. This permits an effective preview of the filming job and the windowing of images, as well as providing a large number of evaluation functions.

Viewer

The Viewer supports interactive 2D review, evaluation, and documentation functions. Multiple studies from the same patient can be displayed side-by-side for comparison.

- Image display: 1.024² screen matrix, configurable with up to 64 image segments.
- CINE display: Automatic or interactive dynamic presentation technique for the visualization of time and volume series.
- Synchronized viewing of multiple series.

- Measurement and annotation: Text annotation; distance, angle, circle, ROI, and pixel lens, depending on information available from the acquisition system.

System services

Microsoft Office Word, Excel, PowerPoint plus Outlook are supported (not provided!).

- Any user-selectable file, such as cardiac or angiographic acquisitions, DSA or 3D AVI video sequences, can be burned to CD, or exported to USB stick, to prepare quality presentations and demos of pathologies.
- Network module: For connection to a local Ethernet (Gigabit or 100 Mbit) for communication with networked archives, printers, diagnostic, and therapy workstations, and teleradiology routers.

Scope of functions:

- Network stations can be configured
- Unlimited selection of stations

3D image generation

3D rotational angiography

In 3D rotational angiography, a sequence of 2D projection images is acquired by a C-arm performing a fast rotation around the isocenter in which the patient is positioned.

Image data are transferred automatically to a *syngo* X Workplace for time-optimized 3D image data reconstruction.

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

3D reconstruction and visualization of a volume are performed in real-time in volume rendering technique, MPR, and MIP. 3D Rotational angiography is used in particular as support in interventional radiology and neuroradiology in the angiography laboratory. Based on dedicated acceleration hardware the primary reconstruction results are available in full diagnostic quality in the examination room within 19 seconds for high contrast images and less than 42 seconds for soft tissue DynaCT images. Subsequent secondary reconstructions are available even faster.

Note:

For biplane systems rotation angiography is available in plane A only.

***syngo* DynaCT**

syngo DynaCT is especially suited to support radiologists and neuro-radiologists during interventional procedures in the angiography suite with both endovascular and non-endovascular procedures. *syngo* DynaCT provides enhanced decision-making during oncology procedures such as chemoembolization and RF-ablations. In neuroradiology, *syngo* DynaCT allows the visualization of bleeds, the ventricular system of the brain and microstent placement.

With *syngo* DynaCT it is possible to visualize a soft tissue difference of 10 HU (Hounsfield Units) of an object 5 mm in size, or 5 HU for an object 10 mm in size, in a Thick-MPR display (measured with a CATPHAN 16 CT phantom with the CTP 515 module). Homogeneous image quality is achieved across the entire image. As a result, critical regions such as the base of the skull can be displayed with a lot fewer artifacts.

DynaCT also offers:

- A new reconstruction algorithm optimized for fan beam geometry.

- A 20sDR-H 109 kV DynaCT acquisition reducing beam hardening artifacts and therefore improving detection of bleedings in DynaCTs with intravenous injection of contrast material.
- Faster 3D acquisition in 4x4 Binning mode.

3D Image Manipulation

The 3D XWP comes with applications that facilitate interactive volume rendering, accelerated by a high-end graphics card. It offers support for large data records of up to 1,600 images (512 x 512 matrix).

In angiography, surgery, and cardiology, the three-dimensional information is used for diagnosis, planning of therapy and documentation.

Diagnosis and treatment can be performed in one session. This offers a significant advantage thanks to the fully integrated workflow, for example the

- Transfer of the projection angle (that has been adjusted by the user in the XWP 3D volume) to the C-arm stand.
- Real-time synchronization between reconstructed volume and C-arm position (Volume following the C-arm position).
- Indication whether the angulation can be achieved at the C-arm without collision with the patient or table.

Features:

- Reconstruction protocols for visualization of vessels, bones, clips, and coils.
- The result of the reconstruction can be native or subtracted.
- Modification of reconstruction area to allow zoom via reconstruction.
- Visualization with shading and light source for an improved three-dimensional impression.
- Link between C-arm geometry and reconstructed volume: driving the C-arm to exact projection position according to the view of the reconstructed volume and/or setting the volume to follow real-time C-arm positions.

Image data:

- Viewing of volume data from AX, CT, MR, and PET modalities.
- Loading of two volume data sets simultaneously.
- Multiple Layouts: single (1on1), double (2 on1) and quadruple (4on1) for MPR display.
- Two displays are supported for simultaneous display of two volumes side-by-side.

Image display modes:

- VRT, Color VRT, MIP, MinIP, and MPR rendering
- Thin slice renderings for VRT, MIP, and MinIP
- Variable light source
- Shading effects

Volume editing:

- Cut planes
- Editing of clip planes and control volumes
- ROI punching

Presets:

- Series-specific bookmarks, to store and retrieve volume visualization parameters.
- Global presets for series-unspecific application of volume visualization parameters.

Output:

- Radial ranges, including macro range definitions.
 - 2D and 3D measurements, measurement grid, distance measurement and annotations.

- AVI format export with selectable compression format and compression ratio.
- TIFF, PNG, BMP, JPEG image export
- Send to film sheet
- Sending of parallel ranges results to PACS

3D accessories

Includes the accessories required for 3D setup and calibration.

Dual volume visualization

Enables the differentiation between two high-contrast 3D objects that have virtually the same contrast density by choosing different visualization presets for the two simultaneously loaded volumes. This enables clear differentiation between contrast-filled vessels, bones, stents, clips, or coils.

Furthermore, it allows the display of one low-contrast and one high-contrast volume in one view, often realized as embedded MPR where the high-contrast volume is visualized in VRT, and the soft-tissue information is shown as MPR slice. This can be used for visualization of the anatomical structure of tumors in combination with the feeding vessels.

3D roadmap

The operator can overlay any 3D volume or planning data, or excerpts of it, onto the live fluoro image. Via a Fade in – Fade out with the joystick the degree of visibility of the overlaid information can be determined at any time. This tool offers the physician real-time three-dimensional guidance for more confidence. It avoids repeated injection of contrast material during fluoroscopy by overlaying a 3D vessel tree instead. The 3D roadmap is automatically updated in real-time according to any table, C-arm, zoom and SID changes. Even changes due to patient movement can be manually updated.

The 3D volume can be overlaid on regular fluoro as well as on subtracted fluoro (Roadmap) or acquisition series. The overlay appears on the display of the *syngo* X Workplace, so the 3D Roadmap information is available in parallel with the regular 2D images of the live display of the acquisition system.

Fusion functionality

A fused CT, MR or PET image can be overlaid with live fluoroscopy in combination with 3D roadmap functionality providing information during interventional procedures that are available neither in 2D X-ray nor in 3D rotational angiography.

The package includes 3D/3D Fusion, which allows to spatially align two 3D volumes from the same or different modality in such way that the anatomical structures overlay each other. Any *syngo* DynaCT or *syngo* Dyna3D image can be fused with datasets from CT, MR or PET.

The package includes in addition 2D/3D Fusion, which allows to spatially align any pre-acquired 3D volume of the patient with two 2D X-ray projections. This eases the workflow during the procedures and reduces the X-ray dose because no additional 3D acquisition is required.

Toolbox

Toolbox is a generic application to interactively mark structures of interest in a 3D volume, e.g. a *syngo* DynaCT image, using points and lines. Analogously to *syngo* 3D Roadmap, these markings are projected onto the live 2D X-ray illustrating the position of the 3D anatomical structure within the live X-ray.

Included functionalities:

- Overlay of any lines and dots drawn on the VRT or MPRs on live 2D image

This functionality provides an easy link between information that may only be visible in the 3D volume (VRT or MPRs) and the fluoroscopy or roadmap images.

Dedicated workflow support for EVAR procedures:

syngo EVAR Guidance

Please note:

Availability of this following new feature depends on the regulatory release status in your country. Please check with your respective Siemens representative to verify availability

New:

The *syngo* EVAR Guidance workflow is a new optimized application for facilitating the use of 3D image guidance during EVAR procedures.

Pre-acquired CT datasets are processed to automatically provide the relevant information for 3D image guidance; typically in less than 1 minute.

The application provides:

- Fully automatic mesh modeling of the aortic wall.
- Fully automatic generation of ostia target rings of main branched vessels.
- Automated proposal of stent graft landing zones.
- Automatic calculation of optimal C-arm angulations for stent deployment and radiation-free C-arm positioning.

The important anatomical landmarks can be overlaid with the live fluoroscopy or DSA for continuous dynamic 3D image guidance during the procedure.

The application includes the following steps:

Create Vessel Tree:

- Automatic detection of the aorta and the main branching vessels (such as the left and right renal arteries). Additional vessels can be added with just one click. The vessel's centerline is marked to provide an easy indication of segments' length. Bones can be removed automatically from the abdominal CT dataset.

Define landmarks

A vessel mesh model is created to allow for automatic generation of important landmarks:

- Ostia rings - for each branching vessel a ring is generated to clearly mark the vessel ostia.
- Landing zone rings – corresponding to each branching vessel, landing zone rings are calculated, suggesting possible landing zone. These rings can be easily adjusted along the aorta.
- For each vessel an optimal C-arm angle is calculated and stored into the system memory. During the procedure, these stored positions can be easily driven to, without the use of radiation. The selection between the stored positions for the vessels is easily done via the table side control.
- To allow for a flexible workflow, the segmentation results, the aortic mesh model and landmarks are saved when the patient study is closed. They are stored with the case and recalled when the patient study is opened again. Preparation of the case be done at any time before the procedure.

Overlay

The outlines of the aortic mesh model and/or the landmarks can be overlaid onto the live fluoroscopy image, following image fusion (registration). Both 2D/3D fusion and 3D/3D fusion are possible. The fusion process can be achieved from table side without having to step back into the control room.

Common functions

In room control functionality

Allows for remote control of the *syngo* X-Workplace from the examination room via touchscreen and joystick mounted table-side or on a trolley.

For this, a set of functions is offered in room for 3D image assessment and manipulation, 3D navigation, multimodality image integration, or for actively following the steps of a pre-defined workflow.

syngo Expert-i

syngo Expert-i enables the physician to interact with the *syngo* X Workplace from virtually anywhere. When clinical questions arise at the *syngo* X Workplace, a second user with a Windows PC can quickly and efficiently access the *syngo* X Workplace via the network. He or she can assume full control of every application on the *syngo* X Workplace and can see all screen content that is displayed for the local user on the main monitor. This allows the parties involved to discuss clinical questions via phone and quickly reach solutions on a joint basis.

DICOM

Industrial standard for the transmission of information between DICOM-compatible units from different manufacturers. The scope of functions is described in detail in the DICOM Conformance Statement and in the standard version includes the Transmission/ Reception, Query/ Retrieve and Basic Print functions.

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 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.

Product Name: Lower body radiation protection

Item Nr: 15

Part Nr: 14432953

This radiation shield protects the user from scattered radiation when standing at the table side. It can be attached to the accessory rails either on the right or on the left side of the patient positioning table. It provides the user an additional accessory rail.

It includes a basic unit (l x w)

- 71.5 cm x 75 cm / 28.2" x 29.5";
7.7 kg / 16.98 lbs

One lower body radiation protection pivot swivel element (l x w):

- 77 cm x 48 cm / 30.3" x 18.9";
3.8 kg / 8.4 lbs

Three clip-on units (l x h)

- 57 cm / 22.4" x 33 cm / 12.99";
2.2 kg / 4.85 lbs
- 27 cm / 10.6" x 33cm / 12.99";
0.9 kg / 1.98 lbs

- 27 cm / 10.6" x 25cm / 9.8";
1 kg / 2.2 lbs
with a lead of 0.5 mm / 0.02" Pb

The maximum weight of the accessory rails is 40 kg (88.2 lbs)

Intended only for use with Artis / ARTIS tables.

Product Name: Moveable upper body rad. protection

Item Nr: 16

Part Nr: 14434157

This radiation shield protects the user from scattered radiation.

It includes a ceiling rail (4 m / 157.5"), a ceiling mounted and movable stand (80 cm or 57 cm / 31.5" or 22.4"), a support arm (94 cm x 91 cm / 37" x 35.8") and an acrylic glass.

The shield is made of acrylic glass with lead equivalent of 0.5 mm

(w x h: 61 cm x 76 cm / 24" x 29.9"), which can pivot and rotate around a fixed point with a range of 360 degrees.

The operation range is limited when used with Artis floor/biplane MN.

Max. weight: 18 kg / 39.68 lbs.

Product Name: LED Exam Light

Item Nr: 17

Part Nr: 14440512

Ceiling-mounted, flexible positionable examination light with focusable light system. It is fully integrated into the ceiling-installed radiation protection mounting unit.

- Luminance:
Min 70.000 Lux for 100 cm / 39.4" distance
- Working distance:
70 to 140 cm / 27.6" to 55.1"
- Focusable light field:
14 to 25 cm / 5.5" to 9.8"
- Color rendering index Ra at 4500 Kelvin:
min. 95
- Color temperature: 4,100+-200 Kelvin
- Total input power: Max. 24 VA

Product Name: Intercom - Comfort

Item Nr: 18

Part Nr: 14440411

Intercom system for communication between examination room and control room.

It includes:

- A microphone with a control box for the control room.
- A microphone with an adaptive acoustic filter for background noise suppression for the examination room.

- A footswitch for conversation selection for the examination room.

Product Name: Tabletop extension

Item Nr: 19

Part Nr: 14440465

Provides additional arm support for large / obese patients. Slides underneath the patient mattress and is held in place by the patient's weight. Patient arms can be fixed with Velcro straps.

The kit includes a board made of radiolucent carbon fiber material, four arm pads (two pairs with two different heights) made of washable plastic foam material and Velcro straps of two different lengths.

The maximum weight per side is 20 kg (44.09 lbs.).

Length: 45 cm / 17.7"

Width: 85 cm / 33.5"

Weight: 2.3 kg / 5.07 lbs.

Dimension thick cushion: 10 cm x 34.5 cm x 7 cm / 3.9" x 13.58" x 2.76" (l x w x h)

Weight thick cushion: 0.25 kg / 0.55 lbs.

Dimension thin cushion: 10 cm x 34.5 cm x 4 cm / 3.9" x 13.58" x 1.57" (l x w x h)

Weight thin cushion: 0.15 kg / 0.33 lbs.

Intended only for use with Artis / ARTIS tables.

Product Name: Handgrips with support (2)

Item Nr: 20

Part Nr: 14432930

The patient can hold on to these handgrips with his arms above his head resting comfortably on the supports.

This is beneficial for examinations requiring the arms to be held in a specific position.

The two stainless steel handgrips with two radiolucent arm rests (12.5 x 24.5 cm / 4.9" x 9.65") are mounted to the accessory rails of the head-end holder.

Weight: 2.35 kg / 5.18 lbs.

Intended only for use in combination with Artis / ARTIS narrow tabletop and head-end holder.

Product Name: Large Display

Item Nr: 21

Part Nr: 14434172

Preparation for the large color flat screen display on a ceiling-mounted, longitudinally mobile, swiveling, rotating, and height-adjustable display holder in the examination room.

Note:

If a Large Display is selected, the Artis basic configuration includes a connection kit for the Large Display instead of the displays for the examination room.

The type of large display can be chosen with a separate position.

Display mount

Preparation for the large display. The large display area allows for both large display and the free positioning of examination-relevant video signals.

The fully integrated tableside control allows for selection from among twelve layout variants.

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.

Video signals 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 position, 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:

- Native live fluoro image during fluoroscopy, otherwise Last Image Hold.
- Native live fluoro image during roadmap / subtracted fluoroscopy, otherwise Last Image Hold.
- Native live acquisition during DSA acquisition; otherwise native max-fill image.

If the dual reference function is available, parallel static reference images are displayed on both reference monitors.

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).

Display mount

The longitudinally mobile, swiveling, rotating, and height adjustable display holder with normal working range contains a large color flat display. All cables are integrated.

Technical data for the display holder:

- 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

Note:

The type of large display can be chosen with a separate position.

Product Name: Large Display video controller 9

Item Nr: 22

Part Nr: 14434175

Large Display Video Controller 9 is the smallest of three different video controller versions. A maximum of 9 video signals can be connected and displayed simultaneously on the Large Display.

The Large Display video controller 9 receives various internal and external video signals for presentation to scale on the Large Display.

Up to 9 external and internal video sources can be connected (max. 7 DVI-D and 2 analog (VGA) channels).

The Large Display video controller 9 receives various internal and external video signals for presentation to scale on the Large Display.

Up to 9 external and internal video sources can be connected (max. 7 DVI-D and 2 analog (VGA) channels).

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

An enlarged or reduced display can be selected individually via the display configurations at the fully integrated tableside control. The video controller then takes over interpolation and adaptation of image size.

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.

Product Name: LD High Contrast panel size 55"

Item Nr: 23

Part Nr: 14443012

Large color flat screen display (including cables) for the examination room, with a panel diagonal of 55". This large display version provides an excellent clinical image quality due to its new IPS panel technology.

Large color flat display

The IPS panel technology combined with the large display area represents a new dimension in medical image display.

This technology combines high luminance and high contrast, consistent for all viewing angles. It provides an incomparable image impression especially for gray scale images.

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 55" display:

- Display size: (W x H) 55", 121 cm x 68 cm
- Screen size: 55", 139 cm
- Resolution: 3840 x 2160 (pixels); 8 megapixels at 4 x HD
- Color depth: 1.07 10⁹ colors
- Excellent brightness over the lifetime: 400 cd/m² at a contrast ratio of 1450:1
- Flicker-free and distortion-free image 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).

Product Name: Large Display diagn. protection

Item Nr: 24

Part Nr: 14465217

55" laminated glass protective screen for the monitor panel.

The high-quality 55" laminated glass protective screen protects the panel of the monitor against mechanical damage and fluid ingress on the front. The protective screen is suited for clinical image evaluation.

Features:

- The laminated glass enforces high mechanical strength and resistivity against mechanical impact.
- Special coating reduces reflections for a continuous image quality.

- Excellent spectral transmission of at least 98%.
- Screensize: 55"
- Weight: approx. 12kg

Note:

Observe the maximum permissible load of the display suspension.

A combination with other options mounted to the display suspension might be restricted.

Product Name: Connection - 3rd Party Carrier Sys.

Item Nr: 25

Part Nr: 14432877

Note:

For safety reasons, the third-party display holders must meet the following criteria:

To prevent injuring the patient when positioning the display holder above the table, it has to be possible to manually move the third-party display holder vertically with a force of up to 85 N.

In the event that the angiography system comes into contact with the third-party display holder, it must be possible to push away the holder in a horizontal direction with a force less than 50 N. Otherwise, there is a risk of crush injury to persons or material damage.

Please note that components supplied by Siemens (displays, cables) can be installed on an existing third-party display holder only by the manufacturer of that holder.

Product Name: 2 19" b/w displays (live+ref)

Item Nr: 26

Part Nr: 14434165

Two 19" high-contrast displays for live and reference image display in the examination room.

Flat displays in TFT technology:

- Screen size: 19" (48 cm)
- Resolution: 1280 x 1024 (pixels)
- Excellent brightness for the entire service life: 400 cd/m² at a contrast ratio of 1000:1
- Flicker-free and distortion-free image display
- Ambient light sensor for optimum adaptation of the image display to the room brightness

Product Name: 19" display (ref)

Item Nr: 27

Part Nr: 14434187

A 19" high-contrast -display for reference image display.

Flat display in TFT technology:

- Screen size 19": 48 cm
- Resolution: 1280 x 1024 (pixels)
- Excellent brightness for the entire service life: 400 cd/m² at a contrast ratio of 1000:1
- Flicker-free and distortion-free image display.
- Ambient light sensor for optimum adaptation of the image display to the room brightness.

Product Name: 160 kVA UPS (Emerson or Equivalent) 10min

Item Nr: L28

Product Name: Angio Programmable Single Head Power Injector (Medtron/Medrad)

Item Nr: L29

Brand Name: Medtron Germany.

Model: Accutron HP-D283

Product Name: Thyroid Shields (Protech-USA or Eq)

Item Nr: L30

Product Name: Trolley Mounted Hangers for Lead Aprons

Item Nr: L31

Product Name: Lead Glass 4 x 1 Meter

Item Nr: L32

Product Name: Lead Goggles/ PB Glasses

Item Nr: L33

Part Nr: PK_GHA001

GEL

Product Name: Lead Aprons Double Side (Protech USA or Eq.)

Item Nr: L34

Product Name: PRESHIPMENT INSPECTION & TRAINING

Item Nr: 35

Pre-shipment inspection visit of two personnel for three days to the manufacturer site with all expenses.

Product Name: Laser crosshairs

Item Nr: 36

Laser crosshairs integrated in the cover of the flat detector and tableside operation for easier, quicker, and dose-saving positioning of the patient (with biplane systems only plane A).

Product Name: syngo NeedleGuidance

Item Nr: 37

A software module for planning and control of needle procedures.

The application enables the planning of one or multiple needle paths based on intraoperative *syngo* DynaCT images, or a preoperative 3D volume of a CT, PET/CT, or MR system, in combination with Fusion functionality.

Optimal progression views for easy control during needle insertion are calculated and suggested by the system and the planned needle path is overlaid on the live 2D image for easy guidance. Interventions such as

vertebroplasties, kyphoplasties, pedicle screwing, biopsies, drainages, and ablations can be performed on the angiography system with greater confidence.

syngo Needle Guidance workflow provides a guided intuitive 3 step approach, for consistent needle positioning results:

Step 1:

Definition and check of the needle path on a DynaCT or an external CT or MR or PET-CT dataset.

Step 2:

Check of automatically proposed progression views that will be used for monitoring the needle procedure.

Step 3:

Alignment and progression of the needle under fluoro control while the planned needle path is overlaid on the live image of the acquisition system. Easy switch between the defined progression views to control the real needle position and direction in all three dimensions.

Subsequently, a control scan can be performed and automatically fused with the planning volume using fusion functionality. *syngo* DynaCT, CT, PET or MR images are accepted for the image fusion.

Product Name: Sensis Vibe Hemo

Item Nr: 38

Hemodynamic recording system for invasive cardiovascular procedures.

- Vital signs monitoring and recording.
- Invasive blood pressure monitoring and recording.
- Hygienic, IPX4-compliant signal input unit (HemoBox) with mounting flexibility for use in hybrid OR environments.
- Calculation and derivation of hemodynamic parameters.
- Log of procedure events in a procedure database.
- Optional procedure data management and reporting software available.
- Optional installation in a network of acquisition, post-processing and reporting clients with a central database available.

Sensis Vibe is the vital core where all events, decisions, measurements, and data from your procedures are captured. It reduces administrative effort and standardizes documentation and reporting* across interventional entities. Sensis Vibe intuitively blends into the rhythm of the interventional floor and tunes up your workflow efficiency.

*For documentation and reporting, see recommended options.

System hardware configuration

HemoBox signal input unit (dimensions 147 x 230 x 80 mm; with cabling, pressure transducer adapter for previous signal input box and mounting kit for Modura table rail and IV poles; liquid ingress protection class IPX4).

For non-invasive blood pressure, four invasive pressure inputs, four invasive pressures dP/dt, SpO2 oxygen saturation, 12-channel ECG, respiration rate from capnography (option). With table-side buttons for balancing, NIBP measurement, cardiac output and muting audible vital signs alarms.

Examination room:

Either cabling kit for connection to Large Display and mid-size display (Artis one) or one 19" monitor with mounting kit and cabling:

- Resolution: 1,280 x 1,024 (pixel)
- Excellent brightness for the entire service life: 137 cd/m² at a contrast ratio of 300:1.
- Flicker-free and distortion-free image display.
- Meeting the strictest medical, safety and EMC emission standards.

Control room:

- PC, keyboard, mouse

19" Monitors:

- Resolution: 1,280 x 1,024 (pixel)
- Excellent brightness for the entire service life: 137 cd/m² at a contrast ratio of 300:1.
- Flicker-free and distortion-free image display.
- Meeting the strictest medical, safety and EMC emission standards.

The "Respiration from ECG" is not longer available in VD15 and later. Due to regulatory reasons their future availability cannot be guaranteed. Please contact your local Siemens Healthineers organization for further details.

Acquisition software

Sensis Hemo application

Acquisition software to support monitoring and full disclosure recording of vital signs and invasive measurements and calculations of hemodynamic parameters in adult and pediatric cardiovascular interventions, such as left and right heart catheterizations, heart valve examinations and general angiography procedures.

The system features a comprehensive, user-adaptable catheter site list. Pullback measurements can be done using one of the following methods: single pullback, sequential pullback, virtual pullback.

As a standard, the system provides the following calculated and derived hemodynamic parameters: pressure calculations, rate of pressure change (dP/dtmax), gradients, shunts, cardiac output, valve area, work and power, cardiac index, flow and stroke volume, resistances, regurgitation.

Measured values, calculated and derived parameters can be compared, analyzed and edited (what-if scenarios) in flow sheet structured by procedure conditions.

Sensis Vibe comes with a redesigned, lean user interface for mouse- and keyboard-based operation with customizable hot keys and adjustable split-screen mode.

Waveforms display can be programmed for layout and color. Can be displayed on up to five configurable pages per procedure type.

- Workflow support license
- Vital signs alarms license and audio module
- FFR and DFR licenses to integrate Boston Scientific, Abbott, ACIST and OpSens FFR devices.

Productivity Tools:

- *syngo* multitasking operating system
- *syngo* database system
- Sensis Security Manager
- Sensis Communication Manager
- Sensis Configuration Manager
- Artis interface for bi-directional data exchange (patient data, X-ray snapshots, dose data, ECG signal, table-side Sensis operation), ethernet-based.

- Ethernet communication to hospital network
- DICOM worklist
- DICOM MPPS license
- Export waveforms**
- Generic printer interface (see data sheet for minimum requirements)
- Archiving via central DICOM nodes
- Export of discrete values via ASCII flat file or XML.

**These products/features are not commercially available in all countries. Due to regulatory reasons their future availability cannot be guaranteed. Please contact your local Siemens Healthineers organization for further details.

Accessories and parts included in delivery:

- Starter kit vital signs
- ECG cable kit (IEC1 and IEC2)
- HemoBox analog out cable

Recommended options (not included in delivery):

- Sensis UPS
- Sensis Vibe FlashDoc (Master or Client)
- Additional interfaces (if applicable)
- Report workstation licenses to enhance the documentation workflow outside the control room.
- Upgrades to Sensis Vibe or compatible versions for your existing Sensis units.
- Starter kits to ensure everything is in place for your first Sensis Vibe-guided procedure.

Ready for:

- Siemens Remote Service (during warranty, option for service contract)
- Interface and database customizing (offered via customer service)

It is mandatory to have a power backup for Sensis. A UPS needs to be provided either by the hospital or purchased from Siemens Healthineers. The minimum requirements for the UPS are defined in the Sensis data sheet.

Training

Siemens Healthineers recognizes the significant investment you are making in purchasing a new recording system and are determined that you are able to realize the full capability of this new system. Siemens clinical applications training ensures you have every opportunity to fully utilize your new system.

Content of user training:

- Instruction on system, operator and patient safety
- Instruction on operation of the system
- Instruction on proper cleaning of the system
- Instruction on basic and advanced waveform set-up and processing

PEPconnect:

Your smarter connection to knowledge in digitalizing healthcare (<https://pep.siemens-info.com>).

Delivery & duration of the user training varies and may be country specific. For additional information please contact your local Siemens Healthineers representative.

Product Name: ECG radiolucent cable

Item Nr: 39

Accessory kit for 12-lead ECG with radiolucent components.

Contains:

- Radiolucent limb lead electrode cable kit
- Radiolucent chest lead electrode cable kit

Product Name: Starter kit CO Thermo

Item Nr: 40

Accessory kit for measuring cardiac output by thermodilution.

Sensis VC12 and Sensis Vibe Combo:

- CO intermediate cable (1.0m) connecting the CO accessories with the HemoMed pod.
- CO catheter cable connecting the CO catheter with the intermediate cable.
- CO Thermistor Cable connecting with the Ohmeda Thermistors.
- CO Thermistor Cable connecting with Edwards Thermistors.

Sensis Vibe Hemo:

- Edwards CO Trunk Cable connecting the CO accessories with the HemoBox.
- Argon CO Trunk Cable connecting the CO accessories with the HemoBox.

Product Name: IBP adapter Y-splitter

Item Nr: 41

IBP Y- adapter for connecting pressure transducer via generic 6-pin MS, type IBP female socket, with Sensis Vibe Hemo Box.

Product Name: Head-end operation w/ trolley

Item Nr: 42

Trolley for individual head-end positioning of Artis control modules.

It includes a trolley

(l x w x h): 62 cm x 64 cm x 107 cm / 24.4" x 25.2" x 42.13") with two accessory rails (43 cm / 16.93"), an operation module cable extension (5 m / 196.85"), an operation module Data cable (5.2 m / 204.72"), Cable holder and a Control modules connection kit.

Product Name: Operating Table (Trumpf Medical)

Item Nr: 43

MODEL: TRUSYSTEM 7500

1 x TRANSPORTER (SHUTTLE)

for transporting just, the operating table top or the table top plus a mobile operating table column; running gear with four electrically conductive swivel wheels, pedal for braking and a 5th wheel to support directional travel; made of aluminum; maximum load: 794 lbs (360 kg)

1 x MOBILE COLUMN

Operating table column with electrically motorized adjustment of height, lateral tilting and Trendelenburg/ anti-Trendelenburg; power supply integrated in column as well as integrated high-capacity battery; column and table top can be operated with the column keypad or the cable or wireless remote control or foot control; column cladding and base plate are made of stainless steel.

1 x OR TABLE TOP U24 H V WITH PAD

Two-part operating table top with hook coupling point and electrically motorized adjustment of leg section joints, back section, back section joints and longitudinal shift; with Velcro; stainless steel load-bearing structure; dimensions (LxW): 42.1 in x 23.6 in (1070 mm x 600 mm) dimensions side rail: 0.89 in x 0.39 in (25 mm x 10 mm) longitudinal shift: 15.8 in (400 mm)

1 x LEG SECTION WITH PADS

to attach to foot sided Trumpf Medical coupling points; stainless steel coupling points; dimensions (LxW): 29 in x 11 in dimensions side rail: 0.89 in x 0.39 in

1 x HEAD SECTION

for head positioning: viscous elastic FoamLine pads, used for decubitus prophylaxis, electrically conductive, soft and detachable, with Velcro strap; dimensions (LxW): 15.2 in x 24.6 in

Technical Specifications:

- Rotation: 360° without stop
- Column height: 520 - 1070 mm
- Height adjustment without pads: 550 mm
- Sliding table top: 400 mm
- Trendelenburg /Anti-Trend: $\pm 45^\circ (\pm 2^\circ)$
- Tilt: $\pm 30^\circ (\pm 2^\circ)$
- Leg Section Up/down: $+ 90^\circ / - 105^\circ (\pm 2^\circ)$
- Back Section Up/down: $+ 90^\circ / - 105^\circ (\pm 2^\circ)$
- Load Capacity: 400 kg

STANDARD ACCESSORIES

- 1 x Arm rest with clamp (pair)
- 1 x Anaesthesia Screen
- 1 x Large width body strap
- 1 x Adjustable bottle holder rod
- 1 x Shoulder support (pair)
- 1 x U shape head rest for general surgery

FULLY RADIOLUCENT CARBON TABLE TOP WITH FLOAT LINE SENSOR

one-part operating table top made of carbon fibre; with electrically motorized adjustment of longitudinal and transversal shift; with coupling point at head end for attaching head positioning accessories; 360° radiolucent; with Velcro;

dimensions (LxW): 90.1 in x 22.0 in (2290 mm x 560 mm)
 dimensions side rail: 0.89 in x 0.39 in (25 mm x 10 mm)
 X-ray area head-sided:
 59.0 in x 20.5 in (1500 mm x 520 mm)
 longitudinal shift:
 25.6 in (650 mm)
 transversal shift: ± 4.9 in (± 125 mm)

Note:

If quoted 3rd party table selected, following items from the quoted list will be remove automatically.

Item Nr. 3 Siemen OR Table.

Item Nr. 15 Lower Body radiation protection.

Item Nr. 19 Table Extension.

Item Nr. 20 Handgrips with support (2)

Product Name: IVUS Model: IntraSight 5 Mobile System

Item Nr: 44

MODEL OF EQUIPMENT: IntraSight 5 Mobile System

MANUFACTURER: Phillips / Volcano Corporation

Phillips / Volcano New State of The art **IntraSight 5 Mobile System** having phased array OR mechanical Intra-vascular Ultrasound (IVUS), Fractional Flow Reserve (FFR) and Instant Wave Fractional Flow Reserve (IFR).

TECHNICAL SPECIFICATIONS FOR INTRASIGHT 5:

IntraSight Mobile Series 5 Includes :

- Workstation, PROCESSOR - CPU Intel Core i7-7820EQ 3.0 GHz Quad Core (maximum turbo frequency of 3.7 GHz)
- 2400MHz BUS, RAM- 16 GB RAM
- HDD – 256 GB NVMe SSD, 1 TB SATA SSD
- OPERATING SYSTEM –Advance Data Encryption using Window 10
- Systems Controller ,
- 19" diagonal Display, 1280 x 1024 resolution
- DICOM storage to DVD / Blu-ray

IntraSight 5 has capability of displaying:

- Pre/ post Intervention side-comparison analysis
- Multiple image screen formats
- Biophysical inputs.ECG Pressure etc.
- Automatic and manual measurement and image analysis

IntraSight 5 has FRACTIONAL FLOW RESERVES(FFR) / PRESSURE WIRE SYSTEM integrated into the same platform enabling :

- Fractional Flow Reserve (FFR) measurement involves determining the ratio between the maximum achievable blood flow in the presence of stenosis

compared to the maximum flow in a normal coronary artery with a hypothetical absence of the stenosis

- System uses special FFR Wire to measure this pressure

IntraSight 5 Mobile System has Phillips proprietary iFR modality instant wave-Free Ratio-integrated into the same platform enabling :

- Trans-lesion pressure ratio measured during the wave-free period
- Helps assess lesion significance in about five heartbeats without hyperemic agents
The instantaneous pressure ratio, across a stenosis during the wave-free period, when *resistance is naturally constant* and minimized in the cardiac cycle
- iFR Scout pullback assessment reveals the physiologic profile of the entire vessel
- Simple graphical display of iFR values through the vessel
- Maps the ischemic contribution of each lesion without the confounding effects observed with FFR pullback
- Easily bookmark areas of interest

IntraSight 5 Mobile System :

Measure FFR / IVUS / iFR using same system as you switch application from IVUS to FFR to iFR using one button from console.

IVUS CATHETERS :

EAGLE EYE PLATINUM CATHETER are IVUS catheter with simplicity of plug and play for immediate imaging, having no moving parts so no repeated flushing , they are 0.014" guide wire compatible for both coronary and peripheral applications, their salient feature are:

- Proprietary solid state design eliminates NURD (non-uniform rotational distortion) and guide wire artifact
- 20 MHz ultrasound frequency and distortion-free image allow accurate cross-sectional area and diameter measurements
- Short, 10.5 mm transducer-to-tip distance facilitates visualization of distal anatomy
- Low crossing profile to access and cross distal, tight lesions via a 5F guide catheter having shaft diameter of 2.9F

Optional :

ROTATIONAL IVUS CATHETER

- The Revolution rotational IVUS imaging catheter is designed for excellent delivery and imaging accuracy you can trust.
- It features 45 MHz coronary imaging, high near field resolution, accurate measurements, and excellent deliverability with smooth, sheathed pullback.

PRESSURE WIRE :

OMNI PRESSUREWIRE ,pressure wire is 0.014" diameter high-performance guide wire suitable for diagnostic and interventional applications having following features & Benefits :

- High fidelity pressure sensor enables quick, accurate and reliable measurements
- Choice of SG (Soft Glide) and DS (Direct Support) wire for optimal device tracking and pushability
- Choice of straight tip and pre-shaped J-tip wires
- 185 cm and 300 cm lengths -
- Optimized for use with PHILIPS / Volcano's System

The Complete package for :

IntraSight 5 Mobile System Consist of :

- **IntraSight 5** Mobile Work Station
- (IVUS + FFR + IFR)
- 19 “ Monitor
- Patient Interface Module (PIM) for IVUS
- Patient Interface Module (PIM) for FFR / CFR

Product Name: IVUS Catheter

Item Nr. 45

Catheter for IVUS