

Technical Specification

Manufacture:	Siemens Healthineers
System Name:	ARTIS icono Biplane
System Description:	Digital Flat Panel Detector Typed X-ray System

A APPLICATIONS

1. Biplane Digital Angiography System

B FEATURES

1. Fully integrated intervention lab environment
- imaging, recording, networking and reporting.
2. Excellent image quality through advanced flat panel detector technology and image compensation software.
3. More diagnostic confidence through multi-modality viewing in the intervention lab.
4. Light weight and space saving digital flat monitor displays for crisp-clear image visualization.
5. Comprehensive radiation protection package.

C CONFIGURATIONS

1. C-arm Unit	1	Set
2. Patient Table	1	Set
3. X-ray Tube unit	1	Set
4. X-ray Generator	2	Set
5. Digital Flat Panel Detector	1	Set
6. System controller in exam room	1	Set
7. Display in exam room	1	Set
8. Display ceiling suspension	1	Set
9. Main workstation in control room	1	Set
10. Angiography imaging applications	1	Set
11. Advanced imaging applications	1	Set
12. Radiation dose saving program	1	Set
13. Image Optimization Program	1	Set
14. Unique Features	1	Set
15. Standard Accessories	1	Lot
16. Local Accessories	1	Lot

D SPECIFICATIONS

1. C-arm Unit	1	Set
a. Frontal Plane		
1) Motorized or manual control	: Yes	
2) Head Position Lateral Movement (Left/Right)	: 190 cm	
3) Head Position Cranial/Caudal	: +55° / -49°	
4) Head Position LAO/RAO	: +130° / -130°	
5) Side Position Cranial/Caudal	: +46° / -46°	
6) Side Position LAO/RAO	: +81° / -65°	
7) Stand Rotation	: +160° / -160°	
8) C-arm position memory locations	: Yes	
9) Variable focal spot-to-detector distance	: 90 - 120 cm	
b. Lateral Plane		
1) Motorized or manual control	: Yes	
2) C-arm Angulation	: +100° / -100°	
3) C-arm Rotation	: 270°	
4) C-arm position memory locations	: Yes	
5) Variable focal spot-to-detector distance	: 94 - 124 cm	
2. Patient Table	1	Set
1) Floor mounted patient table with carbon fiber tabletop	: Yes	
2) Table length(incl. table top)	: 295.6 cm	
3) Table height	: 75 - 110 cm	
4) Tabletop width	: 48 cm	
5) Sliding rails for table side control boxes	: Yes	
6) Table rotation	: ± 120° (3° adjust)	

7) Maximum table load	: 440 kg	
3. X-ray Tube unit		1 Set
a. Frontal Plane		
1) High performance X-ray tube with liquid bearing technology	: Yes	
2) Max. exposure voltage	: 125 kV	
3) Focal spots	: 0.3 / 0.4 / 0.7 mm	
4) Focal Spot nominal power	: 26 / 40 / 90 kW	
5) Max. Fluoro power	: 250 mA	
6) Anode heat capacity	: 5,200 kHU	
b. Lateral Plane		
1) High performance X-ray tube with liquid bearing technology	: Yes	
2) Max. exposure voltage	: 125 kV	
3) Focal spots	: 0.3 / 0.4 / 0.7 mm	
4) Focal Spot nominal power	: 26 / 40 / 90 kW	
5) Max. Fluoro power	: 250 mA	
6) Anode heat capacity	: 5,200 kHU	
4. X-ray Generator		2 Set
1) Microprocessor controlled high-frequency X-ray generator	: Yes	
2) Max. generator power	: 1,000 mA at 100 kV	
3) Max. continuous power in fluoro mode (8hrs)	: 4,500 W	
5. Digital Flat Panel Detector		1 Set
a. Frontal Plane		
1) Amorphous silicon flat detector	: Yes	
2) Detector size (Diagonal)	: 20 inch	
3) Input fields	: 49 / 40 / 32 / 25 / 20 / 16 / 13 / 10 cm	
4) Pixel size	: 154 um	
5) Image matrix	: 2,584 x 1,904	
6) Detector Bit depth	: 16 Bit	
7) Detector Bit depth in 3D imaging	: 16 Bit	
8) Detector spatial resolution	: 3.25 LP/mm	
9) Detective Quantum Efficiency	: 77%	
10) Cooling type	: Liquid cooling	
b. Lateral Plane		
1) Amorphous silicon flat detector	: Yes	
2) Detector size (Diagonal)	: 20 inch	
3) Input fields	: 49 / 40 / 32 / 25 / 20 / 16 / 13 / 10 cm	
4) Pixel size	: 154 um	
5) Image matrix	: 2,584 x 1,904	
6) Detector Bit depth	: 16 Bit	
7) Detector spatial resolution	: 3.25 LP/mm	
8) Detective Quantum Efficiency	: 77%	
9) Cooling type	: Liquid cooling	
6. System controller in exam room		1 Set
1) Attached to patient table rail	: Yes	
2) Touchscreen controller for system software	: Yes	
3) Joystick controllers for C-arm, Detector, Collimator	: Yes	
4) Run and Image Selection, Exam and Run for Storage, Storing Reference Image to Reference Monitors, Subtraction and Image Mask Selection	: Multi-functional Joy Stick	
5) Table lock release button for floating movement	: Yes	
6) Wireless & Wired foot switch for acquisition and table unlock	: Yes	
7) Handswitch for acquisition	: Yes	
8) Synchronized mouse pointer function for communication between exam room and control room	: Yes	
7. Display in exam room		1 Set
1) Display Size	: 55"	
2) Monitor Panel	: IPS	
3) Resolution	: 3,840 X 2,160	
4) Resize and single click capture function	: Yes	
5) Brightness	: 400 - 700 cd/m ²	
6) Contrast ratio	: 1,450 : 1	
7) Emergency backup display integrated	: Yes	

8. Display ceiling suspension	1 Set
1) Ceiling-mounted suspension system for main monitor 2) Manual height adjustment, longitudinal travel or swivel 3) Travel range of ceiling-mounted carriage 4) Rotation range of displays 5) Separated display mount from that of the radiation protector and LED light	: Yes : Yes : 315 cm : 330° : Yes
9. Main workstation in control room	1 Set
1) Patient registration and system functions are integrated in one console 2) Image storage capacity 3) DVD drive for digital image storage on DVD-ROM for data exchange in DICOM format 4) Dual workstation for enhanced system stability 5) Med-Grade display monitor for system setting and imaging 6) Keyboard and Mouse 7) Handswitch for acquisition 8) Wired Footswitch in control room	: Yes : 200,000 images in 1,024x1,024x12-bits : Yes : Yes : 31.5" x 2 : Yes : Yes : Yes
10. Angiography imaging applications	1 Set
1) Pulsed fluoroscopy 2) Digital Subtracted Angiography 3) Roadmap 4) DSA Roadmap 5) Overlapped bone image on DSA image for review 6) Storage and display of dynamic fluoro sequences 7) Image Opacification adjustment for DSA 8) Vascular analysis software Package 9) Live Pixel Shift 10) Synchronous rotation of Tube, Detector, Table for heads-up image	: 0.5 - 30 p/s : 0.5 - 7.5 f/s : Yes : Yes : Yes : 68s at 15 p/s : Yes : Yes : Yes : Straight View
11. Advanced imaging applications	1 Set
1) Digital rotational angiography for acquisition for 3D volume Advanced Reconstruction Workstation is integrated in Imaging system Rotation speed Acquisition rate 2) Low-Contrast Computed Tomography imaging Volume matrix 3) Superimposed visualization of 2 different 3D volumes 4) Overlay 3D volume on fluoro image with real-time adjustment of C-arm and table 5) Import CT/MR/PETCT volume and register patient geometry with rotational imaging 6) Import CT/MR/PETCT volume and register patient geometry with 3 fluoro images 7) Independent workstation control between control room with exam room 8) Supports 4D tools through complex vessel structures, enhancing clinical outcomes 9) Supports 2D image review tool box 10) Scene parallel comparison for pre/post images 11) Small VOI low-contrast imaging with 1X1 binning 12) Automated 3D subtracted image for Dual Volume Native, Fill, Subtracted 3D image with 2 rotations in 1 run 13) Advanced embolization planning and guidance with one click 14) 3D biplane Bookmark for biplane intervention planning 15) Biplane planning for working view angulation 16) 3D analysis for Aneurysm case	: syngo Dyna3D : 60°/s : 85 f/s : syngo DynaCT : 512x512 : syngo Dual Volume : syngo 3D Roadmap : syngo 3D Fusion : syngo 2D Fusion : Patient Parallel Processing : syngo 3D Toolbox : syngo angio Tab : syngo Scene Compare : syngo DynaCT Micro : syngo Dyna3D DSA : syngo Embolization Guidance : Biplane Bookmark : Plane A+B : syngo Aneurysm Guidance
12. Radiation dose saving program	1 Set
1) Variable slow fluoro pulse rates 2) Automatic Cu prefiltration for reduction of skin dose 3) Radiation-free adjustment of collimators and semitransparent filter position setting 4) Up to 67% reduction of acquisition imaging 5) Radiation-free object positioning via central beam and image edges in the LIH image 6) Monitoring accumulated peak skin entrance dose in real-time	: CARE Package : CAREvision : CAREfilter : CAREprofile : Low-dose acquisition : CAREposition : CAREmonitor
13. Image Optimization Program	1 Set
1) Enhanced contrast and visibility of vessel edges without increasing the noise 2) Efficient compensation of motion artifacts 3) Customized image quality to multiple individual preferences 4) Advanced asymmetric edge enhancement imaging algorithm without extra dose	: CLEAR Package : CLEARvessel : CLEARmotion : CLEARchoice : CLEARmax

14. Unique Features

1 Set

- | | |
|---|--|
| 1) Automatic self adjusting post processing of noise and contrast to pre-set personal image quality flavor
Maintain selected image flavor and optimal radiation at any angulation | : OPTIQ |
| 2) Specialized dose saving program that greatly enhances efficiency of X-ray
Material specific algorithm exploits the material's by absorption characteristics | : Structure Scout |
| 3) Fluoroscopy & Roadmap in full 2k resolution
Maintain image sharpness when displayed on large display | : Live 2K imaging |
| 4) Instant 3D imaging without having the Lateral Plane to move to parking position
Optimizes and speeds up procedural workflow | : Twin Spin |
| 5) Tube Position of Lateral Plane can be moved to the opposite side | : Lateral Plane Switch |
| 6) Full-filled vessel image overlaid on live image for image guidance
Change vessel map density for better image quality on live fluoro
Seamless integration into workflow and in daily clinical practice | : Overlay Reference |
| 7) Individual windowing of vessel map and device image | : Roadmap Opacity |
| 8) Tube-Detector Synchronized Rotation for upright imaging for radial approach | : Straight View |
| 9) Adjust C-arm movement, angulation, SID and rotation | : Detector integrated control panel |
| 10) Fast rotation for motion-artifact-less 3D imaging
C-arm Rotation speed up to 100 degrees/sec | : Extra Highspeed Rotational Angiography |
| 11) Automatic Cu prefiltration for reduction of skin dose | : CAREfilter |
| 12) Time-resolved angiography to review and visualize blood flow in 3D volume
- Review contrast flow pattern in 3D to examine flow behavior of blood
- Acquire with single injection: Reduce contrast dose use and radiation exposure | : Dyna4D |
| 13) Non-linear interpolation method VOI customizable metal artifact reduction | : syngo DynaCT SMART |
| 14) Automatic cropping of bony structures from syngo DynaCT datasets | : syngo DynaCT Bone Removal |
| 15) Extended storage for Angiography Images up to 600,000 images | |

15. Standard Accessories

1 Lot

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|------------------------------------|-------|
| 1) Tabletop mattress | 1 Set |
| 2) Lower body radiation protection | 1 Set |
| 3) Upper body radiation protection | 1 Set |
| 4) LED Lamp (70,000 Lux) | 1 Set |
| 5) Arm Holder | 1 Set |
| 6) Arm rest | 1 Set |
| 7) Head rest | 1 Set |
| 8) Infusion bottle holder | 1 Set |
| 9) Intercom | 1 Set |
| 10) Head Holder | 1 Set |
| 11) Instrument tray | 1 Set |

16. Local Accessories

1 Lot

- | | |
|-------------------------------------|-------|
| 1) Auto injector(Mobile) | 1 Set |
| 2) Furniture | 3 Set |
| 3) Infusion Pump | 1 Set |
| 4) Ultra sound & Mobile scanner | 1 Set |
| 5) Patient monitor (sqO2/PR 측정기 포함) | 1 Set |
| 6) Mobile Protector | 1 Set |
| 7) Apron & Tyroid | 3 Set |
| 8) Live Streaming Recording System | 1 Set |

F REMARKS

1. Warranty Conditions

Contractor or Supplier should be responsible free of charge after service (A/S) during three years after the equipment is accepted. (Including X-ray Tube and Detector).

2. System Installation and Operation Test

Installation of this equipment at customer's promise shall be done on the contract's responsibility.
This equipment shall be accepted by customer only after the equipment operates for four weeks properly.

영상의학과 교수 :

노지영

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