



SIEMENS

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Everything you value.  
We've taken it to heart.

Image-guided solutions for interventional cardiology

Answers for life.





# Putting our hearts into your work

As an interventional cardiologist, you put all your dedication into treating your patients – and you expect the same dedication from the people developing the equipment you use.

Excellent images to do an excellent job and enable you to present your cases during conferences. Tools and service you can trust to never let you down. Systems adapted to your everyday work needs with everything in place to speed up your schedule. The peace of mind of being ready for the future, right now.

**Everything you value. We've taken it to heart.**

Image-guided solutions for interventional cardiology

## 2 Convenience



## 16 Efficiency



## 18 Beyond PCI



# Convince your eyes

With exceptional image quality suiting your needs

When facing a complex left main lesion inside an overweight patient, have you ever felt like you were missing information when using the typical spider view because the image contrast was too low?



Industry-leading Megalix Cat Plus X-ray tube employing Siemens-unique flat emitter technology together with the CLEAR image chain will give you the excellent images you need to deliver excellent results for your patients – and to present them during clinical conferences. And due to CARE dose saving technology all acquired at the lowest possible dose level.

Megalix Cat Plus, CLEAR and CARE are not an option, they are standard with every Artis **zee** system.

## Key benefits

- Industry-leading Megalix CAT Plus X-ray tube using Siemens-unique flat emitter technology
- Excellent images acquired with CLEAR imaging chain
- Minimized X-ray dose with CARE dose-saving technology

“I can only treat safely,  
what I clearly see.”

Andreas Zeiher, M.D. | University hospital Frankfurt



Thanks to Siemens-exclusive flat emitter technology employed in the MEGALIX Cat Plus X-ray tube we can deliver the images you need with excellent image sharpness. And with industry-leading maximum fluoro current of up to 250 mA, topping any model currently on the market, you will get the image contrast you need to achieve an excellent outcome. And with its high heat storage capacity, you have the resources necessary to conduct lengthy procedures without interruptions.



### Increased device visibility – fully automatically

The fast-moving heart, very fine devices moving with it, steep viewing angles required to adequately visualize all parts of the coronary arteries and large differences in tissue density within the patient's thorax make cardiac imaging most challenging. Sophisticated exposure control and additional real-time image processing are the tools to overcome the difficulties without increasing the radiation exposure to patients and staff.

#### Minimal overexposure and great looking images

CLEARcontrol adjusts exposure parameters to ensure homogeneous gray scale distribution and avoid typical under- and overexposed regions in images. CLEAR processing also improves edge definition and decreases inherent noise to provide clear, crisp images with outstanding contrast and resolution.

#### Customized images

Because your imaging requirements are specific to you, Artis zee systems now feature CLEARchoice. Sharpness, edge enhancement, noise reduction, vessel contrast: Choose from the image gallery and save your preferred image display to work with a customized exam set presenting images the way you want them.

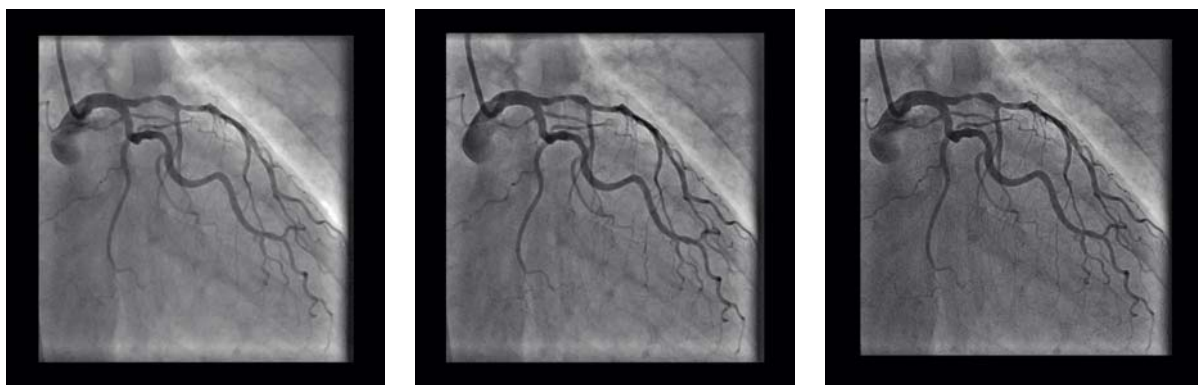
#### Next-level stent visualization

With increasingly finer coronary stent struts, their visibility on fluoroscopy images gets more and more challenging. Still, stent visibility is key to assess correct deployment. At the press of a button, CLEARstent\* enhances stent visibility fully automatically. Directly at tableside.

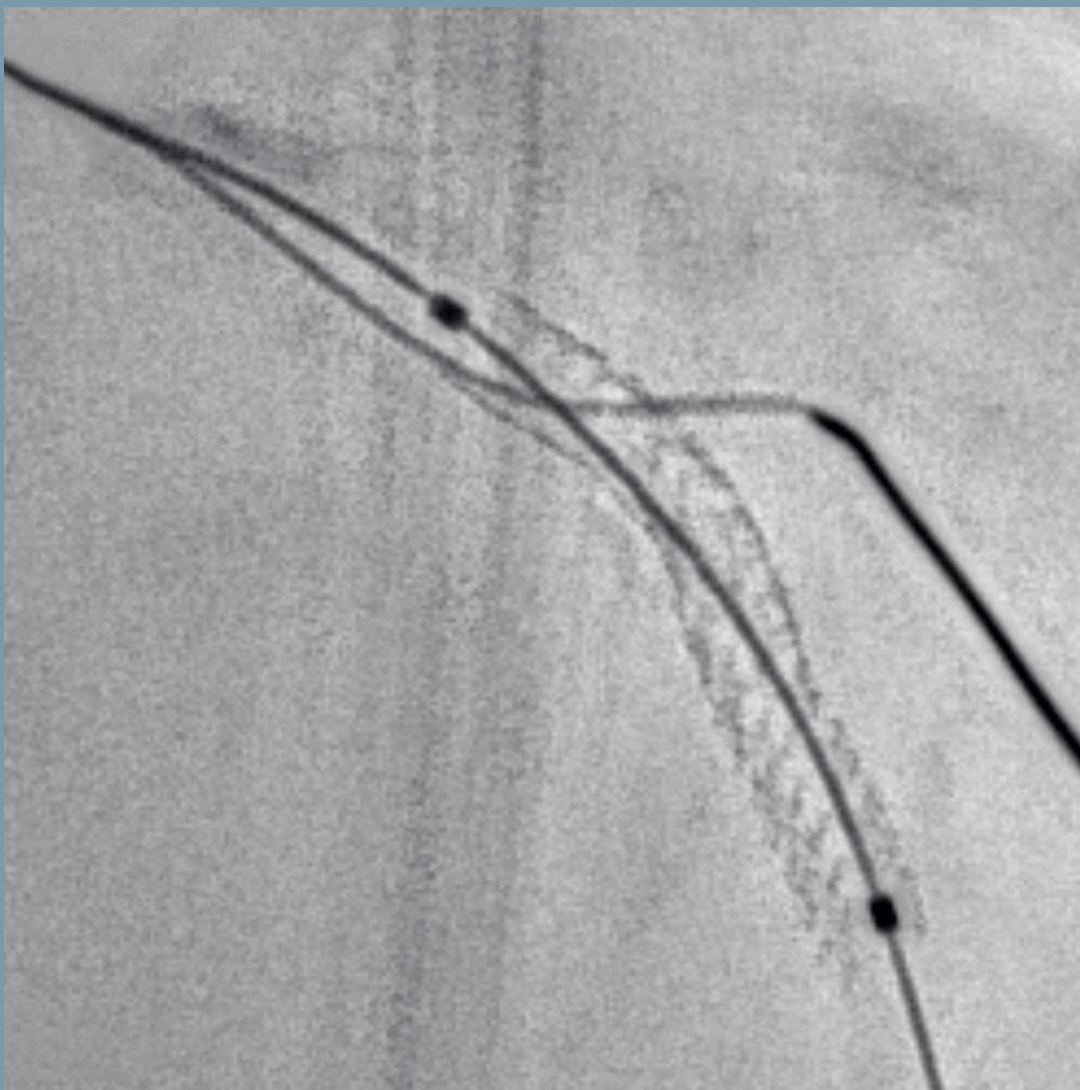
Depending on the presence of contrast agent, CLEARstent\* either shows the stent enhanced image on the reference screen or automatically toggles between the stent enhanced image and the contrast-filled vessel.

The image or sequence is saved as a regular DICOM scene and can be manipulated accordingly, e.g. started, stopped, accelerated, decelerated, windowed or zoomed. It can also be stored to PACS to be reviewed on any DICOM viewer.

*\* Option*

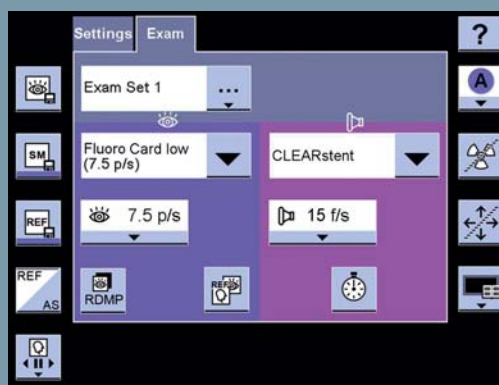


CLEARchoice allows customizing the image quality to your preferences.



Images courtesy of Klinikum Coburg GmbH,  
Prof. Dr. Johannes Brachmann

Stent used:  
Xience V RX 2.75/23 by Abbot Vascular



### Safety as a standard package

Interventional cardiology procedures are also becoming more and more complex. A chronic total occlusion treatment, for example, is usually a lengthy procedure. Special attention must be given to protecting the patient and the cath lab staff from too much radiation exposure.

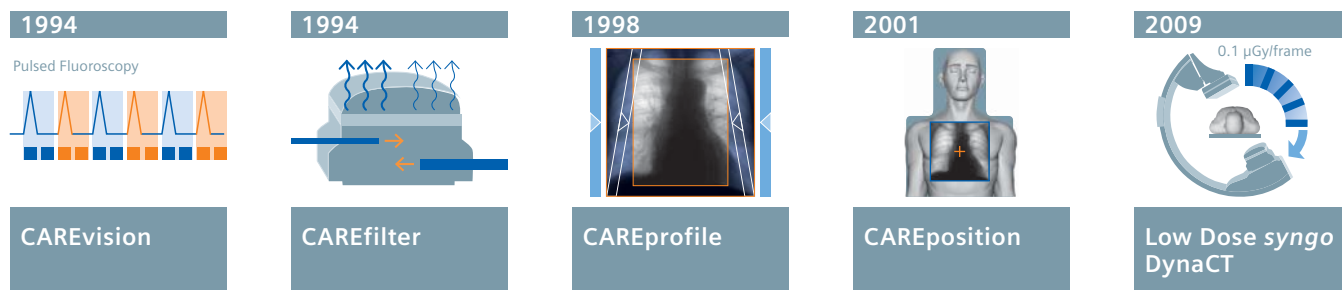
#### Artis zee CARE package – automatically supporting the ALARA principle

CARE stands for combined applications to reduce exposure. And CARE is our comprehensive dose reduction package, a combination of tools to significantly reduce the amount of radiation used. Depending on the procedure and the settings used, CARE can achieve dose savings well above 60%.

The newest addition to our CARE portfolio features CAREmonitor, angulation-dependent, real-time dose monitoring. And while CAREreport automatically generates a DICOM structured report of the dose applied, CAREanalytics\* allows for statistical analysis of the data.

CARE is not an option. It comes standard with every Artis **zee** system.

*\*CAREanalytics runs on a separate PC and can be obtained on CD free of charge.*



Almost 20 years of Siemens innovations to reduce, monitor and report dose in cardiac angiography





2009



CAREreport

2009

Acquisition Low Dose Acquisition



Low-Dose Acquisition

2010

Skin dose alert on the touchscreen



CAREguard

2011

Enhanced dose control

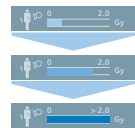


Stand-alone PC CARE Analytics

CARE Analytics

2011

Enhanced dose reporting



CAREmonitor

# Trust your tools

With proven system dependability

Can you afford a system breakdown when you have a full cath lab schedule? More importantly you and your staff need to perform the procedures fast and efficiently, and for that you need to fully rely on your imaging system.

With Artis **zee** you can count on being able to accomplish your tasks, day in, day out. In fact, over 700 Siemens interventional labs in hospitals around the world have been in operation for more than 10 years. Backed by a comprehensive Siemens global support network.



## Key benefits

- Proven operational dependability
- Global support 24/7
- Real-time remote system monitoring as part of proactive service solutions

“ Since installing our Siemens Coroskop cardiac cath lab in 2001, the system has performed more than 10,000 examinations without fail.”

Dr. med. Christan Vahlhaus | Dept. of Cardiology and Angiology,  
Klinikum Leer, Germany

### A solid track record

With thousands of angiography systems in use around the world, Siemens has a reputation as a provider of top-quality products and solid global support. An investment in Siemens is an investment in proven dependability for years to come.

### Backup redundancy

All Artis **zee** systems have a built-in multilevel backup redundancy e.g. automatic change of tube focus in case of malfunction or automatic activation of bypass mode in case of image system breakdown. This allows you to finish a procedure, even if certain functions should fail.

### Global service and spare parts

With a Siemens service contract, you will be connected to the Siemens Service Center via Siemens Remote Service, the efficient and comprehensive infrastructure for the complete spectrum of remote support. Many services, updates and even immediate repairs that previously required on-site visits are now performed remotely. Up to

50% of all deviations can be detected via remote connection before interference with your workflow.

Almost 4000 service experts are working for Siemens Healthcare in 128 countries throughout the world. At a 3-hour on-site response average they achieve a first-time fix rate of more than 70%.

Powered by Siemens Remote Service, our proactive service solutions help increase your system availability, reliability, workflow efficiency and utilization. Our Siemens Guardian Program™, for example, provides real-time remote system monitoring to detect and resolve system errors before malfunctions occur. And should a spare part be needed we are able to deliver 97% of all parts required within 24 hours.

Finally a broad portfolio of service contracts with different levels of coverage complements our offering to protect and maintain your investment.

The Siemens Guardian Program™ ensures system availability with proactive real-time monitoring for system errors. These are detected and resolved before malfunctions occur. On-site services are scheduled at your convenience to keep downtime to a minimum.



# Ease your workday

With systems adapted to your daily workflow

To offer higher patient comfort, an increasing number of cardiologists are using the radial approach for cardiac catheterization. Artis **zee** StraightView ensures always upright images and collimation for this procedure.

Artis **zee** StraightView is only one example of how optimally Artis **zee** systems are adapted to your daily workflow.

## Key benefits

- Systems ideally suited to support cardio workflows
- Upright Artis **zee** StraightView images for radial approach
- Superb positioning flexibility and maneuverability



“I appreciate the fact that my angio images are always aligned straight on the monitor, no matter how I position the C-arm.”

Prof. Josef Ludwig | Senior Cardiologist, University Hospital, Erlangen, Germany





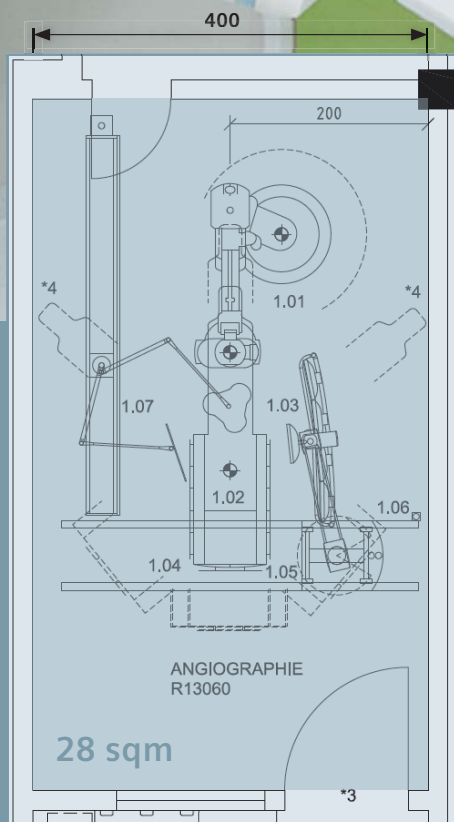
Artis zee StraightView



The synchronous rotation of flat detector and X-ray collimator called Artis **zee** StraightView allows displaying the patient's arm in an upright orientation while exactly collimating the arm at the same time, saving unnecessary radiation.

And it works both ways: Independent of how you position the C-arm in relation to the table – right or left – or how you rotate the catheterization table, StraightView fully automatically ensures upright images of the patient.





Less than 30 square meters (350 square feet)  
in examination room

Schwabing Clinic Munich,  
Germany

### Flexibility made for cardiology

With its fast, easy maneuverability, its extremely steep angulations, and its versatile table, a system like Artis **zee** floor is ideally suited to the needs of interventional cardiology.

#### Made for small rooms

Artis **zee** floor fits rooms as small as 30 square meters (less than 350 square feet), much less than the ACC-recommended 45-55 sqm (500-600 sq ft). That way, there is enough space left for the equipment, in-room storage, the patient and the clinical team in the room.

#### Made for your preferences

Conveniently operated with the customizable touchscreen control console, Siemens imaging systems also offer great configuration flexibility. Frequently used projection angles, including collimator settings and table height can be saved and easily retrieved via the on-screen menu. Also, an optional wireless footswitch\* clears the floor of any cables one could stumble across.

#### Robust, transformable table

Easy manual movement, motorized height adjustment and a table base rotation of +/- 120°. In addition to that a maximum weight capacity of up to 250 kg (550 lbs) and a floating tabletop. Finally, as the tabletops are easily interchangeable, the Artis **zee** range of slim and large table tops accommodate different clinical procedures and patients.

\* Option



# Control your time

With automated patient registration and reporting

When performing several hundred percutaneous interventions per year, you have to plan your time efficiently.



Artis **zee** and AXIOM Sensis XP systems let you use time to your advantage. With fast startup protocols, emergency registration and default settings. With automated background archiving and reporting. And with ready-to-use diagnostic tools like FFR and IVUS.

## Key benefits

- 65 seconds until emergency readiness and "one-click" emergency registration
- Automated background archiving and reporting
- Ready-to-use diagnostic tools

“ Archiving and reporting are things we don't need to bother with. Artis **zee** and Sensis do that for us.”

Yolandi Theron | Hollywood Private Hospital, Australia



Automatic FFR calculation and display integrated into AXIOM Sensis XP\*

### Emergency readiness

In emergency situations, there is no time for patient registration. For example, when a patient with an acute myocardial infarction requiring immediate catheterization is admitted to your institution at night. The system lets you acquire images in emergency fluoroscopy mode only 65 seconds after system start and "one-click" registration lets you bypass cumbersome patient data entry and puts Artis **zee** and AXIOM Sensis at default settings. After the procedure, all acquisitions and hemodynamic recordings are securely stored and archived for later processing.



### Automated background archiving

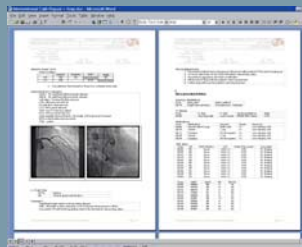
Whether on DVD or a cardiac PACS, the system automatically performs background archiving at the end of the procedure. All acquisition data is stored on the hard disk of the Artis **zee** system. And also in your archive. Without any user interaction.

### Ready-to-use diagnostic tools

The Sensis recording system incorporates key diagnostic tools such as FFR\* as ready-to-use, onboard functions requiring no setup time.

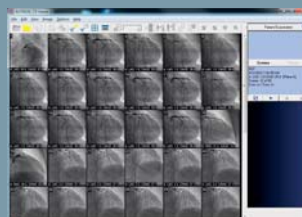
### Automated reporting

The system also automatically creates a comprehensive DICOM-structured report and stores it together with the images on the hard disk. In addition, the data is transferred to the Sensis database to be used in the overall final examination report.



### Image Review

ACOM.PC turns every standard PC into a professional cardiac workstation and allows you to e.g. prepare reports independently of the cath lab's routine. Image processing is tailored to the cardiologists' needs offering review of cardiac scenes with up to 30 frames/second and even display of ultrasound images.



### Third-party imaging integration

Imaging modalities such as IVUS\* from third-party providers are easily accessed at tableside with the help of the integrated control console and display.

\* Option

# See your options

With remarkable system versatility

If you want to expand your services beyond heart catheterization to address the increasing number of diseases of an aging population, a system offering the flexibility to handle a wide range of procedures is clearly your best bet – a system like Artis **zee** floor.



No matter if you plan on treating structural heart disease like aortic valve stenosis or if you want to take on hybrid procedures. Or maybe you want to conduct vascular or peripheral procedures? Artis **zee** empowers you with the flexibility to address the future – starting right now.

## Key benefits

- Cardiac treatment expansion (e.g. structural interventions)
- Flexibility to perform other vascular procedures
- Excellent patient access

“We’ve been using syngo DynaCT Cardiac for a long time now. It allows us to evaluate the anatomy of the aortic root and the position of the coronary ostia. The overlay of the intra-procedural 3D image over live fluoroscopy gives us an additional level of confidence for the valve implantation.”

William W. O’Neill | University of Miami, USA





Positioning flexibility of Artis zee floor

#### **syngo Dyna CT Cardiac and 3D Workstation\***

Save the costs and time of a pre-procedural CT or MRI scan prior to a structural intervention to gain a more comprehensive picture of the heart and vessels. syngo DynaCT Cardiac can provide 3D images of the anatomy right inside the cath lab and without moving the patient. These structures can then be overlaid with the live X-ray image, allowing you to quickly and confidently navigate the catheter without the use of additional contrast agent.

#### **Head-to-toe coverage**

Artis zee floor offers two different stand positions – a head side position for visualizing everything above the iliac bifurcation and a left side position for the limbs down to the feet – without repositioning the patient.

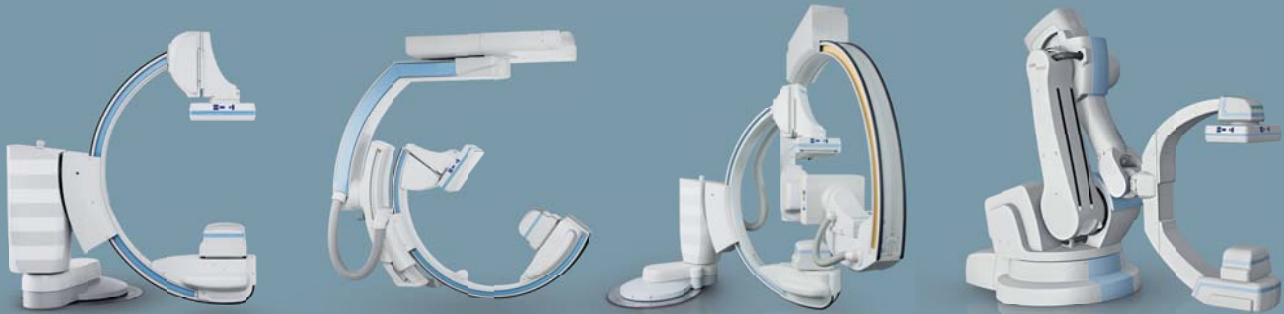
#### **Extended patient access**

When equipped with Multispace.F\*, the system gives you excellent patient access from both sides of the table, such as pacemaker implantations. A perpendicular left side position offers additional space around the patient's head for procedures requiring an anesthesiologist. In addition, an extended park position provides free access to the patient during surgical interventions.

#### **Specifically for pediatric interventions**

Digital subtraction angiography (DSA) with a roadmapping\* application is commonly used during general vascular interventions. Our Siemens-unique Low dose Subtraction\* function lets you create DSA images with a fraction of the needed X-ray dose.

\* Option



#### **Configuration flexibility**

Artis zee can be configured as floor, ceiling or biplane system or as Siemens unique Artis zeego robotic stand. No matter which configuration\*, the system can be equipped with either a 20 cm x 20 cm (7.9" x 7.9") detector for dedicated cardiac catheterizations or a 30 cm x 40 cm (11.8" x 15.8") detector for examinations requiring larger coverage. Even with the larger detector, the system performs all relevant cardiac projections superbly.

\*except for Artis zeego

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