Tackle every challenge

Artis zee with PURE®

HDR

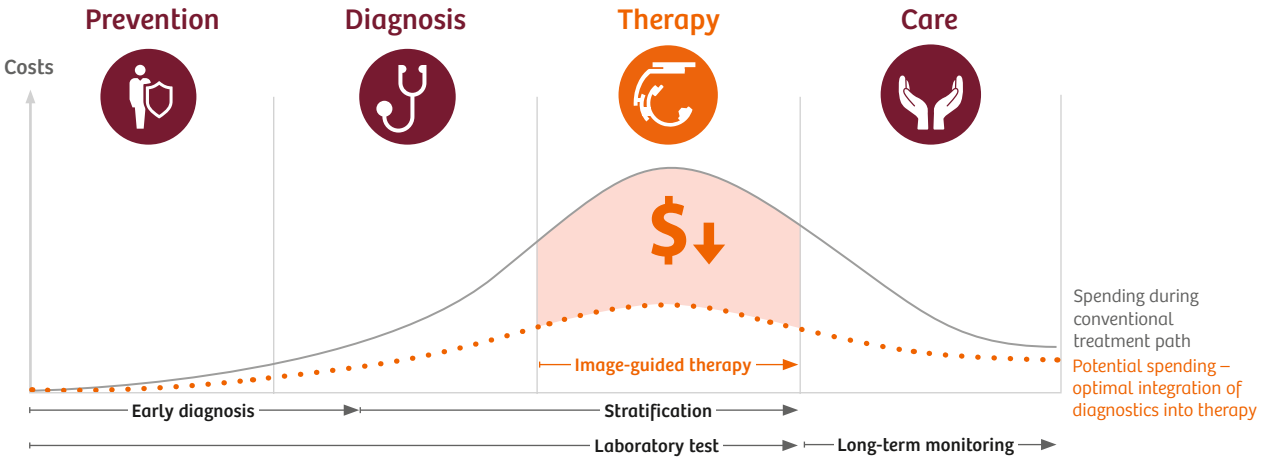
SIEMENS Healthineers

siemens.com/artis-zee

Investing intelligently for long-term sustainability

Healthcare today faces a predicament. Simply put, costs are increasing, budgets are not. In light of declining reimbursement rates and evolving technology, it is clear that an investment such as an angiography system must be not only cost effective; ideally, it should also serve you reliably for many years to come.

Imaging is essential in therapy and can result in better patient care and lower cost



Only when they deliver correct and reliable results, medical imaging and clinical lab tests can enable optimized and individualized treatment – and help lower costs.

Reimbursement cuts

>25%

Percentage of European institutions operating with a significant reduction in reimbursement[1].

A growing population puts enormous pressure on healthcare systems around the globe. As a result, many have responded with significant cuts in reimbursement.

1) European Society of Radiology. The consequences of the economic crisis in radiology, Insights Imaging (2015)

All set for future trends?

New technical developments and techniques are constantly changing the face of care delivery. What's customary today can be outdated tomorrow. Only a flexible angiography system that can easily adapt to new ways is a future-safe investment.

Trends in Interventional Radiology

Stroke

Increase of **interventional stroke treatment** due to superiority of mechanical thrombectomy.

TACE

New and established **embolization procedures** are on the rise, ranging from, e.g., TACE to PAE.

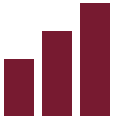
CLI

Use of **endovascular re-canalizations** to minimize amputations in patients with CLI.

Trends in Cardiology

Complex procedures

The number of **complex procedures** such as bifurcation lesions or CTOs is increasing, also leading to a higher need for diagnostic devices (OCT, IVUS, and FFR).



SHD

The highest **growth rates** in Cardiology are seen in Structural Heart Disease (SHD). TAVI was just the beginning; further procedures are on the rise.

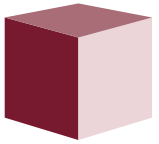
Procedure mix

The **procedure mix** in the cath lab is getting broader: 2/3 of all cath labs are used for noncardiac procedures, and the treatment of resistant hypertension is one of the biggest challenges.

Trends in Surgery

Surgery

Instead of open surgery, most surgeries will be performed **minimally invasively.**



3D imaging

3D imaging will become increasingly important to guide surgical procedures.

Robotics

3D imaging will also **enable robotics** to play a larger role in Surgery.

SIEMENS

Ready for whatever comes your way

Every imaging system is an investment in the future. The future, however, is hard to predict and can change rapidly. The solution? A system that grows with your requirements. A system that expands your possibilities – today and tomorrow. Like our Artis zee.

Designed for versatility and flexibility, Artis zee is in line with the growing demand in angiography. It supports you in meeting all your challenges and can be easily upgraded as your requirements evolve. The proven and reliable system delivers optimal image quality at the lowest possible dose, enabling you to optimize your procedure mix and invest with confidence. It is equipped with industry-leading imaging technology, unique dose management tools, and an extensive application portfolio.

Ideal for both routine and complex procedures, Artis zee gives you the flexibility and confidence you need to tackle an increasingly diverse case mix. It supports you in making the right decisions for individual patients and allows you to grow with future developments. Simply put, it is a system that prepares you for whatever comes your way.

Artis zee. Tackle every challenge.

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Artis zee at a glance

See every detail

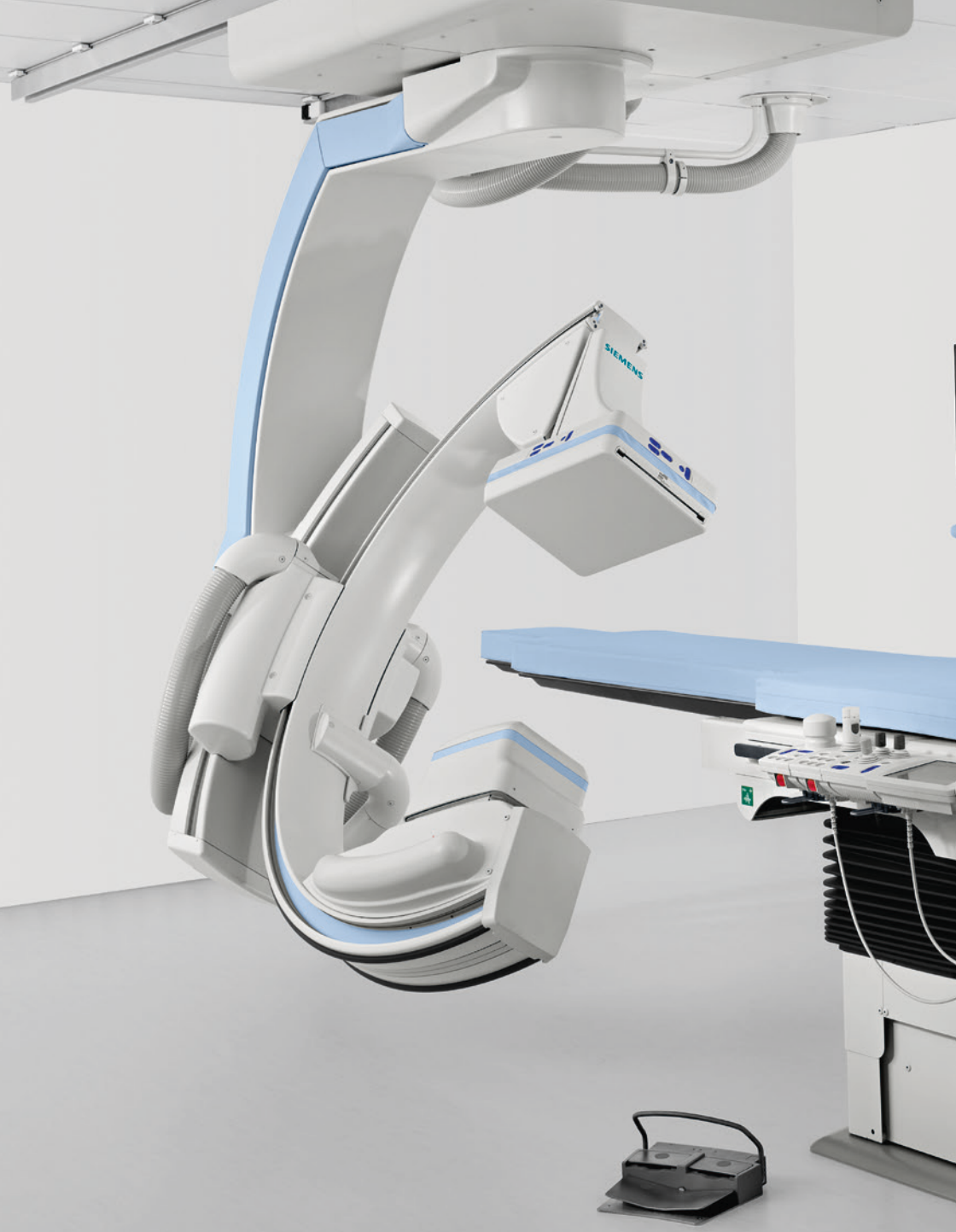
To make reliable decisions confidently on the spot, you need to clearly see every anatomical detail. Artis zee delivers excellent image quality for every patient and every case – every time.

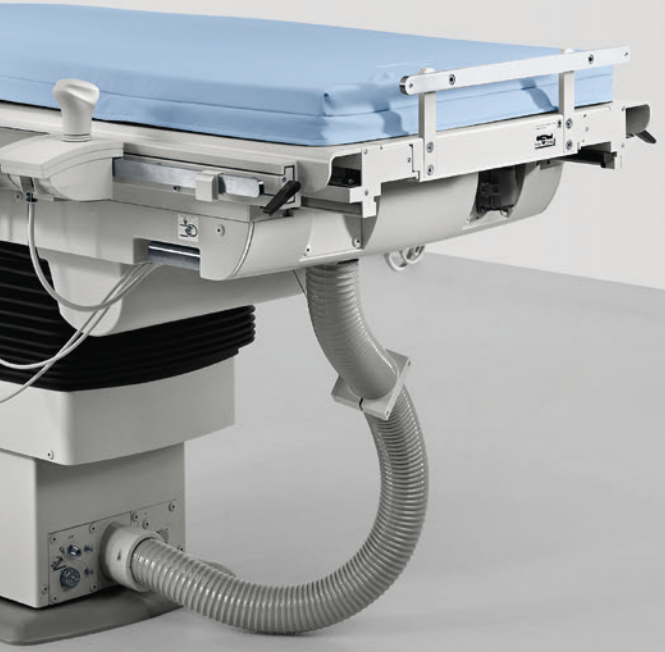
Increase patient safety

While images rich in information are important, you also have to maintain a high level of safety for both patients and staff. For this, we offer smart tools that help you intelligently balance dose and image quality.

Improve diagnostic accuracy

Our large HDR (High Dynamic Range) flat detector as40HDR offers excellent contrast resolution across the entire image – for every patient. Together with our proven MEGALIX Cat Plus X-ray tube it makes the perfect match for 2D and 3D imaging and supports you in excellently distinguishing soft tissues at the lowest possible dose.





Stay flexible in all ways

Whether Interventional Radiology, Interventional Cardiology, Neuroradiology or Surgery: Artis zee can be easily adapted to your individual procedure mix – today and tomorrow. The system also supports a flexible setup, a broad range of configuration possibilities, flexible room usage for multiple procedures, and accommodation for extra staff.

Make a smart investment

We designed Artis zee with sustainability in mind. Benefit from a system that provides unique features that have been proven in numerous sites around the world, offers high system uptime, and can grow with your clinical needs.

Advance therapy outcomes

Thanks to our PURE® platform, you can acquire, review, and manipulate 3D as well as CT-like *syngo* DynaCT images directly in the angio suite. This allows you to stay in the examination room at all times and provides you with additional 3D soft-tissue information during interventions that are not apparent in DSA – without having to transfer the patient to your CT scanner.

40.0 kV
10.0 mA
DSA
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A
DR Overview
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Review
Store Reference

Deliver optimal image quality

Regardless of the kind of patient you treat, regardless of procedure: Artis zee helps you address all clinical challenges with excellent image quality at lowest possible dose.

Procedures in Interventional Angiography are becoming increasingly diverse and complex. In order to provide optimal care, optimal image quality is more important than ever. For example, in Interventional Oncology and Neuroradiology, the HDR detector – combined with our proven 16-bit imaging chain – lets you get the best output from the images acquired.

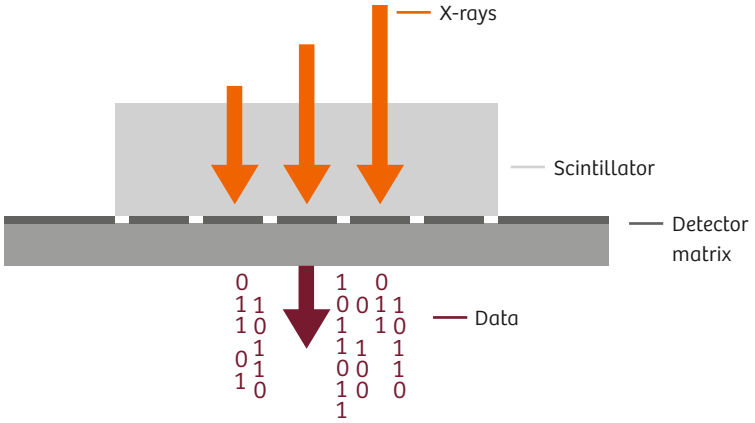
Besides preparing you for a broad variety of patients and clinical challenges, it is essential that your system also offers dedicated features for the ideal balance between image quality and dose. To this end, Artis zee supports you with automated dose management in combination with technology that delivers outstanding image quality.

You profit from diagnostic confidence and excellent image quality both for everyday use and complex cases. Industry-leading technology and unique dose management tools prepare you always to deliver optimal images – and tackle all challenges.

A perfect team – a perfect match

See the previously unseen
Intracranial bleedings, for example, are difficult to detect in the angio suite, and patients usually have to be transferred to a modality with excellent low-contrast detectability, such as CT or MRI.

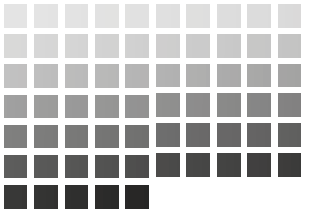
The HDR flat detector as40HDR and proven MEGALIX Cat Plus X-ray tube make a perfect match for Interventional Radiology and Neuroradiology procedures: Together, they enhance 3D image quality and deliver excellent low-contrast images directly in the angio suite – even for challenging applications. This means you save precious time and free up your CT and MRI.



Smart scintillator technology for dose efficiency
Having a thicker cesium iodide layer than conventional detectors, the HDR detector increases dose efficiency, which is especially beneficial at low dose levels.

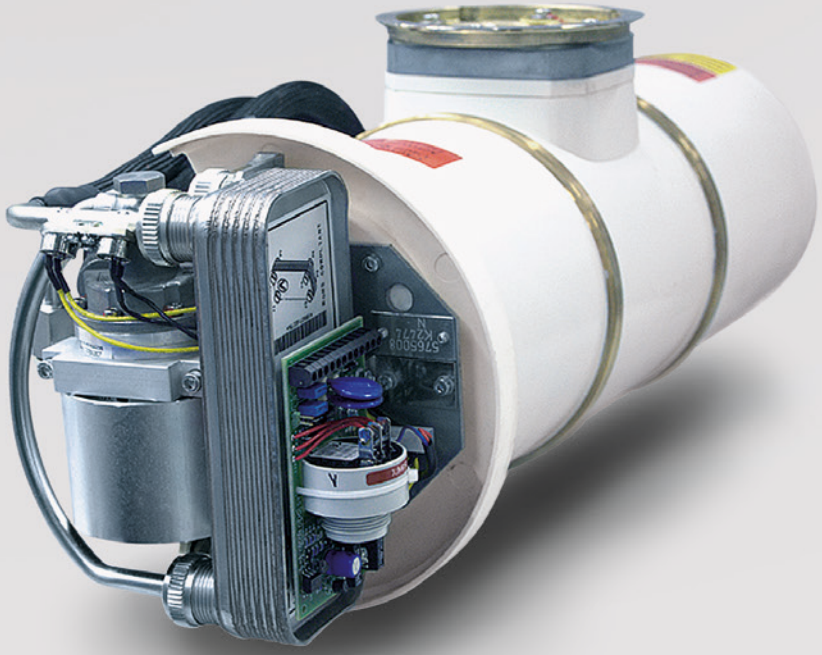
14 bit

16 bit



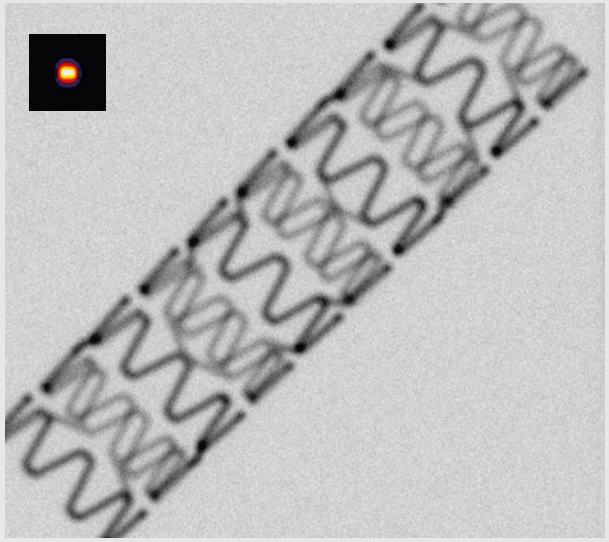
Improved imaging chain with the HDR detector
The HDR detector delivers high-contrast images that show soft tissue in CT-like quality – across the entire image. The reason for this is its 16-bit image processing: Generating more than 65,000 differentiable gray values, it lets you see lesions in 3D with four times more gray values compared to conventional 14-bit detectors with 16,000 gray values.

Technology for optimal image quality



It all starts with the tube
Image quality starts with the X-ray tube. This is why the **MEGALIX Cat Plus** tube has been designed to combine durability and power to deliver sharp images no matter what. With up to 40 % greater fluoro power and higher current, it is best equipped for larger patients and steeper angles.

The unique **flat emitter technology**, which the MEGALIX Cat Plus tube provides on the small focus, gives you sharper images due to a smaller focal spot. Its quadratic shape makes it possible to obtain sharper images in all directions – for enhanced image quality even in challenging situations.



Tackle every challenge …

"We are performing increasingly complex procedures: Patients are getting older, and the guidelines allow us to perform more complex procedures. So it's important to have the right software to ensure that such complex cases can be properly treated with suitably high image quality."

… with Artis zee

"With the Artis zee, image quality is truly outstanding. It's improved again significantly. The radiation dose is also considerably lower."

Prof. Matthias Pauschinger, MD
Medical Director of Cardiology,
Nuremberg General Hospital,
Germany

… and applications to take it further

Reduce dose but still maintain image quality
Every Artis system comes with a comprehensive portfolio of applications for dose saving and image quality enhancements: our Combined Applications to Reduce Exposure (CARE) and CLEAR. This continues our strong legacy of developing technologies that allow users to reduce dose without compromising image quality.

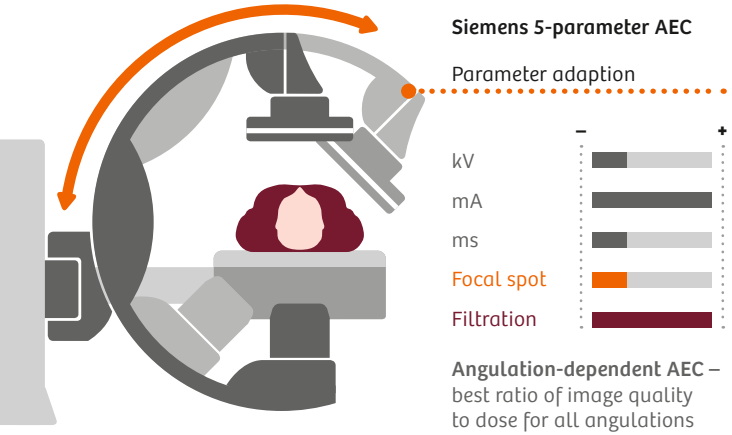
CARE applications are designed to help you deliver better care at the lowest possible dose, thus reducing exposure to both patients and staff. CAREposition, for example, avoids fluoroscopy during repositioning and CAREvision reduces dose by adapting the frame rate. In addition, CARE features let you monitor radiation during procedures and easily compile structured dose reports.

CLEAR functions automatically enhance image quality – during acquisition and processing. For example, CLEARcontrol automatically enhances image brightness and CLEARview reduces noise in low-dose images. Whether you want to optimize contrast or sharpness, or customize the image according to your preferences: The CLEAR portfolio helps you achieve optimal image quality to increase certainty during interventions.

"Within the last 10 years, Siemens has reduced the detector entrance dose for low-dose imaging significantly."

Source: Siemens White Paper
"Low-dose imaging is becoming a clinical reality" (2014)

Intelligent dose optimization



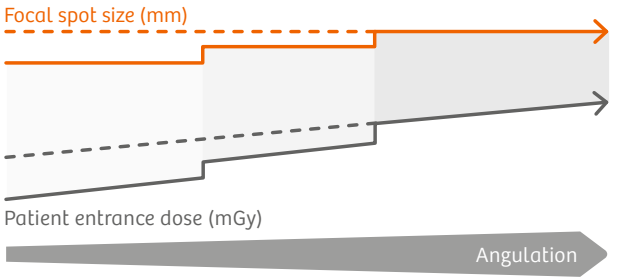
Five that make a difference
Effective dose reduction is important in every intervention. But only with the Artis system families do both your team and your patients benefit from X-ray regulation featuring five independent, self-adjusting, and angulation-driven parameters (Automatic Exposure Control, or AEC).

Compared to systems with only three manually adjustable parameters, for instance, AEC significantly helps increase image quality while reducing entrance air kerma. For small attenuations, the five-parameter AEC even enables you to increase dose efficiency by up to 43% for fluoroscopy and up to 128%[1)] for acquisition – which is especially beneficial for pediatrics.

"Using 5-parameter versus 3-parameter technique showed clear improvements over all thicknesses. Entrance air kerma rate was reduced by 13% and 27% for fluoroscopy and acquisition modes [...] and showed benefit in terms of image quality and patient dose ..."

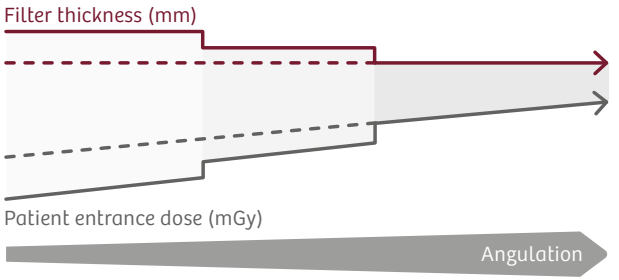
Hilde Bosmans, PhD
Head of Medical Physics & Quality Assessment,
UZ Leuven, Belgium

Effect of focal spot size on patient entrance dose



Comparison of **focal spot adjustment** (orange arrow) with a fixed focal spot (orange dashed arrow) and the corresponding effects on dose (gray arrow and gray dashed arrow).

Effect of copper filter thickness on patient entrance dose

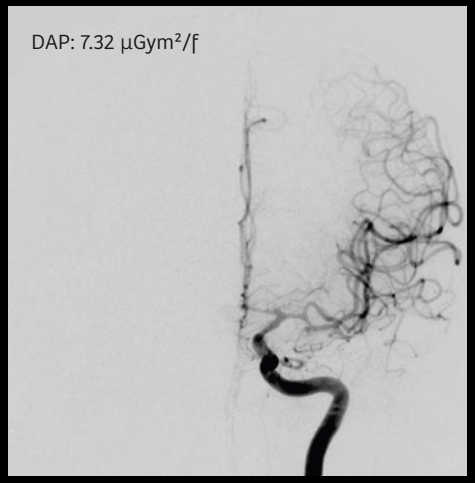


Comparison of **CAREfilter** (red arrow) with fixed prefiltration (red dashed arrow) and the corresponding effects on dose (gray arrow and gray dashed arrow).

1) M Dehairs, H Bosmans, W Desmet, and N W Marshall; 2017 Evaluation of automatic dose rate control for flat panel imaging using a spatial frequency domain figure of merit, Phys. Med. Biol. 62

Excellent low-dose results
The dose area product (DAP) values for the following images show that Artis zee delivers excellent image quality at a low dose.

DSA of the lung. Courtesy: St. James's Hospital, Dublin, Ireland



Anterior communicating artery aneurysm after treatment. Control DSA. Courtesy: University of Michigan Hospital, USA

DSA of the left renal artery. Courtesy: St. James's Hospital, Dublin, Ireland

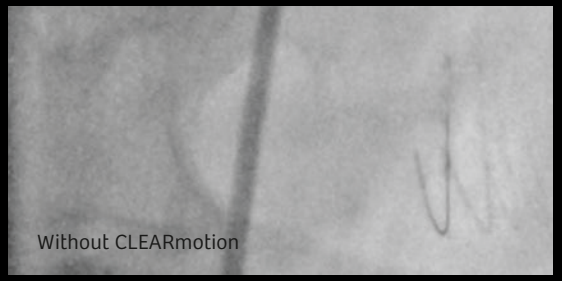
DSA of the iliac arteries before uterine fibroid embolization. Courtesy: St. James's Hospital, Dublin, Ireland

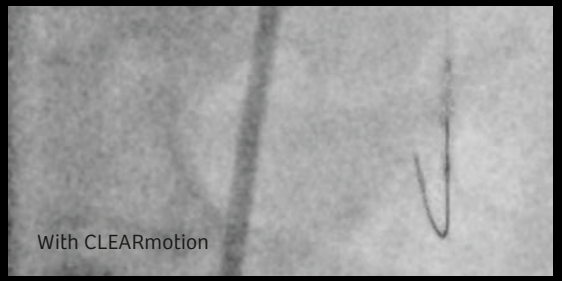
Clearly better images

For angiographic and fluoroscopic procedures in Neuro Interventions or Cardiology, CLEAR applications reduce noise, increase image sharpness, and compensate motion artifacts. From enhanced image quality in Roadmap and 2D guidance with Overlay Reference to real-time pixel shift, Artis zee systems equip you to achieve optimal image quality in 2D.

CLEARmatch compensates for patient movement with next-generation pixel shift in DSA and Roadmap. It retains the live image while pixel-shifting the mask image in real time.

This delivers consistent image quality in Roadmap as well as sharper images and enhanced treatment even in challenging situations.



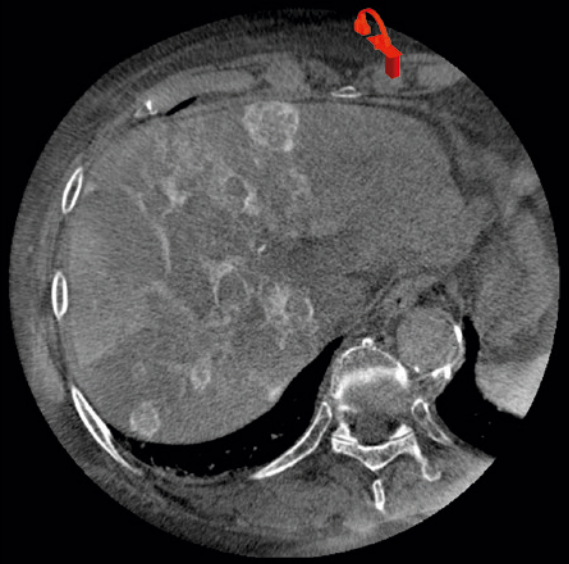


CLEARmotion detects small moving objects, especially guidewires or fine vessels, and enhances the visibility of these structures. As a result, moving objects can be clearly visualized without motion artifacts.

Clinical images courtesy: Alfried Krupp Hospital, Essen, Germany

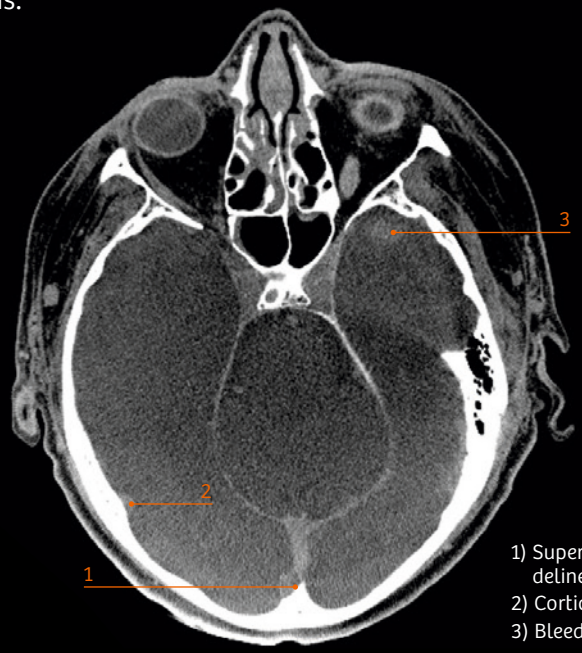
Excellent soft-tissue differentiation

With *syngo* DynaCT, an application from the company that first brought to market cone-beam CT (CBCT) in angiography, you can be sure to get state-of-the-art 3D imaging and soft tissue visualization. The exquisite 3D image quality and the high level of detail provided by *syngo* DynaCT allow you to tackle any challenge and increase your confidence in treatment decisions.



***syngo* DynaCT** enables CT-like cross-sectional imaging. It can provide information not apparent in DSA and therefore supports sounder decision-making during interventions. Visualize soft tissue and high-contrast objects such as stents, clips, bones, and contrast-filled vessels.

Clinical images courtesy: Osaka City University Hospital, Japan



1) Superior sagittal sinus, clearly delineated close to the skull
2) Cortical vein/transversal sinus
3) Bleeding

***syngo* DynaCT with HDR detector technology** translates into excellent low-contrast resolution for displaying soft tissue. Clearly detect and diagnose small intracranial bleedings that can result from a head injury, hemorrhagic stroke or an aneurysm. Before, these bleedings could only be visualized using modalities with high low-contrast detectability, such as CT or MRI.

Clinical images courtesy: University Hospital Magdeburg, Germany

Image was acquired with HDR technology on another Artis system.

Artis
With PURE®
zee
HDR
Artis zee

Broaden your procedure mix

Perform angiography procedures that may not have been possible before – thanks to Artis zee's extensive range of applications and positioning flexibility.

As Interventional Angiography is evolving and new procedures are gaining wider acceptance, the demands on angiography suites are increasing. A consequence of the rapidly expanding spectrum of clinical cases is not only a higher number of procedures per day, but also the need to accommodate multiple specialists in the room. This calls for a system that helps you optimize your procedure mix – a system that is versatile and easy to use.

Artis zee prepares you with an extensive range of applications and increased positioning flexibility. This enables you to use the room for multiple procedures – with various working positions and optimal patient access. At the same time, Artis zee is equipped with optimized user guidance for smoother processes.

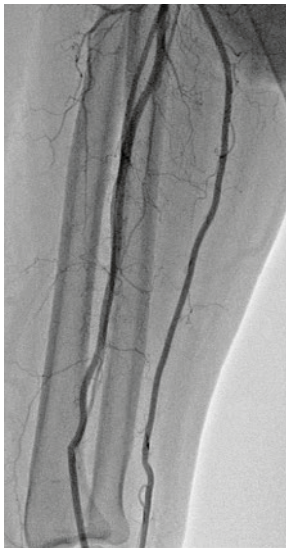
For you, this means expanded capabilities, smoother procedures, and freedom of choice. Whether in Interventional Radiology, Interventional Cardiology, Neuroradiology, or Surgery, with Artis zee you are better prepared to tackle whatever challenge comes your way.

Adapt the system to your needs

Flexible positioning is key
A versatile system is not simply a broad application portfolio – the system itself needs to be flexible. Artis zee is therefore available with unique features that expand your flexibility (such as MULTISPACE.F, IsoTilt, or InFocus) and in several different configurations: floor-mounted, ceiling-mounted, and biplane. Depending on your needs, you can tailor your system for more working positions, optimal patient access, or room to accommodate extra staff such as an anesthetist (for more about the different setups, see pp. 26–35).

Ensuring upright images during radial access
StraightView enables the synchronous rotation of flat detector and X-ray collimator. For instance, you can view the patient's arm in upright orientation while exactly collimating the arm. StraightView has now been optimized for radial access: No matter how you position the C-arm or the patient table, StraightView automatically maintains images in the natural orientation.

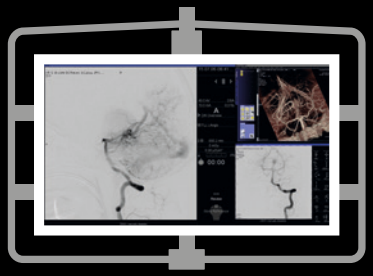
MULTISPACE.F:
Additional system positions for Artis zee floor



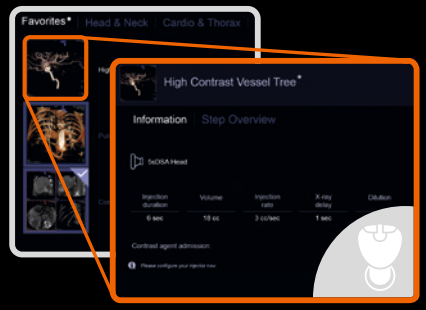
User guidance with PURE®

To expand your range of procedures and make them run more smoothly, Artis zee comes with optimized user guidance, especially for 3D. With PURE®, you increase your process efficiency in the angio suite, enable all your staff members to get the full potential from the system, and enhance your patient treatment outcomes – adding smooth to smart.

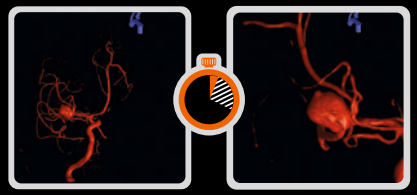
Artis with PURE®



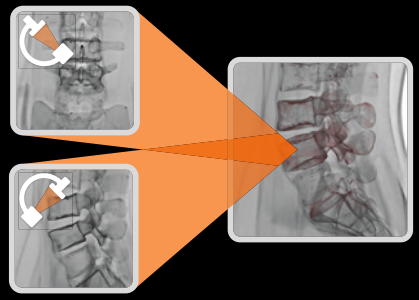
The **Heads-Up Display** helps keep the user's attention where it is needed. The context-sensitive on-screen menu allows intuitive interaction with the system – without the need to look down when manipulating 3D volumes.



The **3D Wizard** offers step-by-step guidance to allow even non-experienced users achieve the 3D imaging results they want. Choose the desired image from a predefined pool and let the system guide you through the 3D scan.



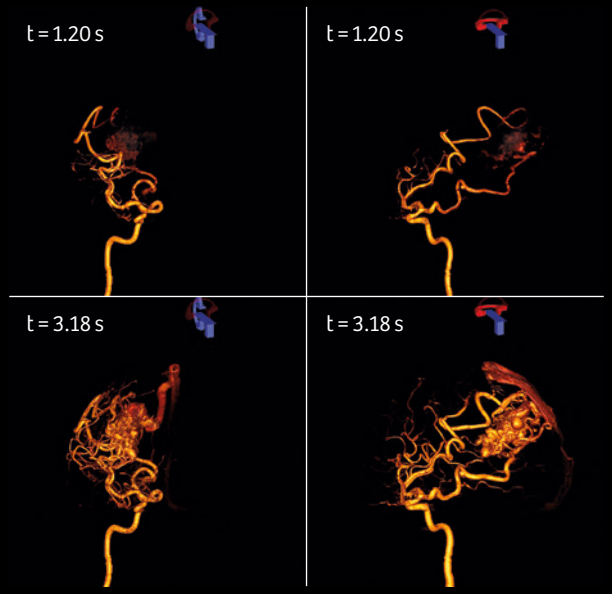
QuickZoom speeds up your workflow by letting you focus and zoom within a 3D volume at tableside with just one click. Just click on your region of interest – and QuickZoom centers and zooms automatically.



The ***syngo* Fusion Package** lets you integrate pre-op CT, MR, or PET volumes for live image guidance. With only two fluoro projections, you can easily fuse 3D volumes – and save both dose and contrast media.

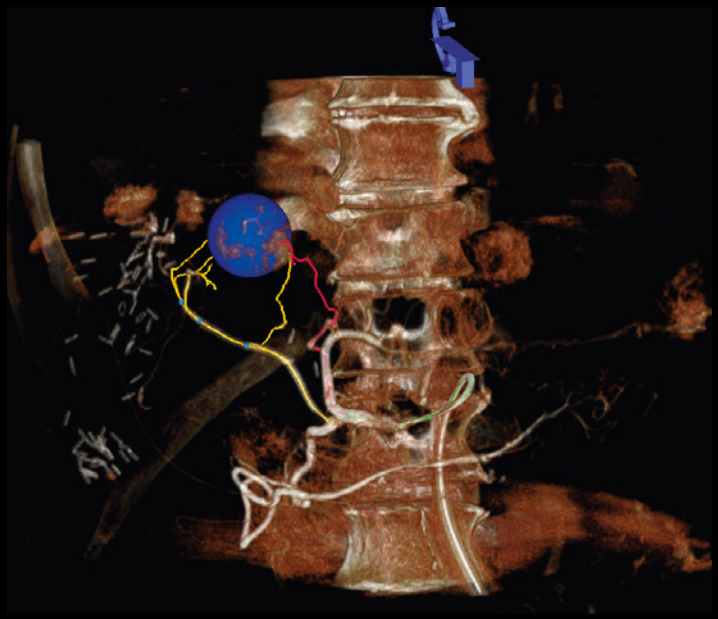
Develop your clinical scope

Whether you want to expand your procedure mix or speed up workflows, Artis zee offers a wide range of applications that give you the flexibility to meet different demands and challenges. Both for 2D and 3D, these applications provide relevant information and guidance that increase your confidence, especially in complex procedures.



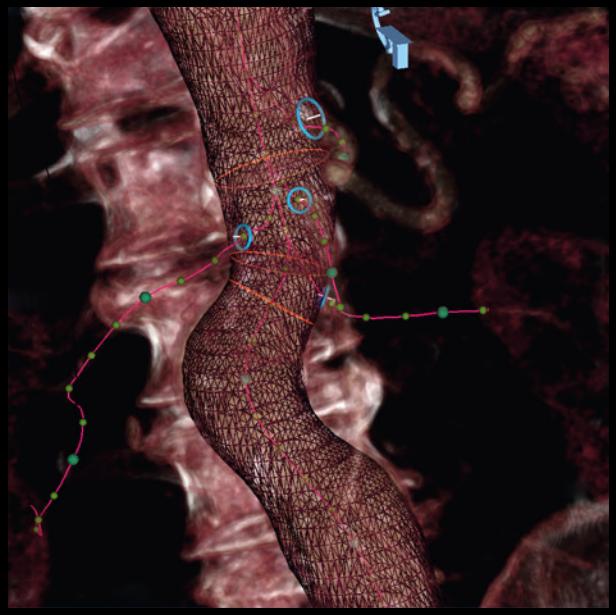
***syngo* Dyna4D** lets you expand your angio suite's capabilities. It helps you see flow patterns in 3D, providing a virtually unlimited number of DSA runs at no additional dose or contrast media. Optimize patient selection and individualize treatment strategies.

Courtesy: University of Wisconsin School of Medicine and Public Health, USA



***syngo* Embolization Guidance** automatically detects tumor-feeding vessels in the liver for targeted embolization. After automatically calculating the tumor sphere and safety margin, it color-codes the detected vessels and subtrees for precise location of the vessels of interest. Overlaying the color-coded vessel map with the live fluoroscopy image allows for fast, efficient, and targeted microcatheter navigation. Save as much healthy surrounding tissue as possible and let patients benefit from less contrast media and dose.

Courtesy: Hannover Medical School, Hanover, Germany

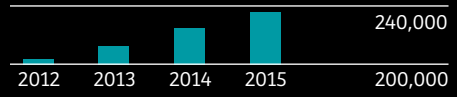


***syngo* EVAR Guidance** automatically segments, marks, and labels the important vessels in a CT dataset. It calculates the vessel wall and places ostia rings on the main branching vessels for 3D image guidance during EVAR cases – typically in less than a minute. In addition, it suggests the optimal C-arm angulation for precise deployment. Reduce procedure time and save dose.

Courtesy: University Hospital Heidelberg, Heidelberg, Germany

Tackle every challenge ...

The number of abdominal and thoracic aortic repair procedures is constantly increasing at a growth rate of 5.2 % per year. More and more often, clinicians perform complex fenestrated aortic stent graft placements in their daily routine.



Abdominal and thoracic aortic repair procedures: world estimates 2012–2015

... with Artis zee

Artis zee offers dedicated applications to support clinicians in complex procedures: *syngo* EVAR Guidance, for instance, is a complete automated workflow for endovascular aortic repair. Not only does it make the procedure easier, it is also more precise and saves time, contrast medium, and dose.

Source: Millennium Research Group, Frost & Sullivan

Invest with confidence

A smart investment that grows with your requirements: Whether you are looking for a rapid return on investment, shared use, access to latest clinical applications, or future upgradability – Artis zee is ready.

Simply put, healthcare today faces a predicament: Costs are increasing, budgets are not. In light of declining reimbursement rates and evolving technology, it is clear that an investment such as an angiography system must be not only cost-effective; ideally it should also serve you for many years to come.

Designed for this purpose, Artis zee is a proven and reliable system that achieves sustainable performance. With unique and pioneering features and over eight years of experience, it provides an uptime of up to 99%. But Artis zee is more: It is upgradable whenever you want, giving you access to the latest technology for optimal care to your patients.

Artis zee is a smart investment that grows with your needs. It helps you minimize downtime, stay on top of technological developments, and effectively utilize the angio suite, as the flexibility of the system allows many specialties to use and share the lab. Invest confidently in a sustainable system that prepares you for the challenges that lie ahead.

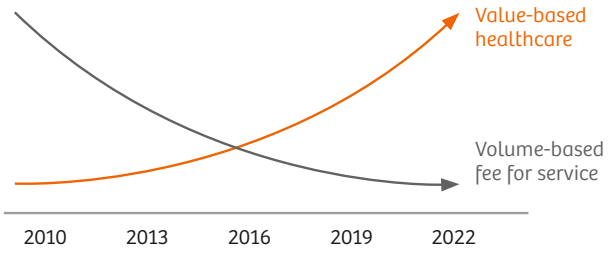
Customize it

Optimize your angio lab for shared use
Artis zee supports a broad range of applications for cardiac, interventional radiology, neuro, and surgical procedures. In order to accommodate various clinical disciplines in one room, a high degree of flexibility is needed. Artis zee is therefore available as a floor, ceiling, or biplane system (in combination with either a large or small detector) and also as a multi-purpose system (with a large detector). In addition, Artis zee works with three different angio tables and a breakable OR table from Trumpf[1)]. Artis zee offers the perfect configuration to optimize your procedure mix.

Customize and upgrade your system
The Artis PURE® platform is just one example of the innovations available for the Artis zee product family. To maximize your versatility and flexibility, Artis zee is individually customizable and can be upgraded with our latest software. The system can grow with your needs and gives you access to evolving technology.

Tackle every challenge ...

Despite decades of cost containment and operational improvement, healthcare costs continue to rise, putting unrelenting pressure on hospital budgets. Strategic organizations focus on better health outcomes and greater healthcare value to differentiate themselves from their peers.



... with Artis zee

Artis zee is key to increasing the value of your interventional services. It takes the pressure off your budget and allows you to grow your angiography services as your business grows.

Source: HHS Press Release, January 26, 2015

1) Artis zee ceiling only

Rely on it

Up to 99% uptime with Siemens service
With thousands of angiography systems in use around the world, Siemens Healthineers is known as a provider of top-quality products and global support. An investment in our solutions is an investment in proven reliability for years to come. Depending on your chosen contract, we can deliver up to 99% uptime.

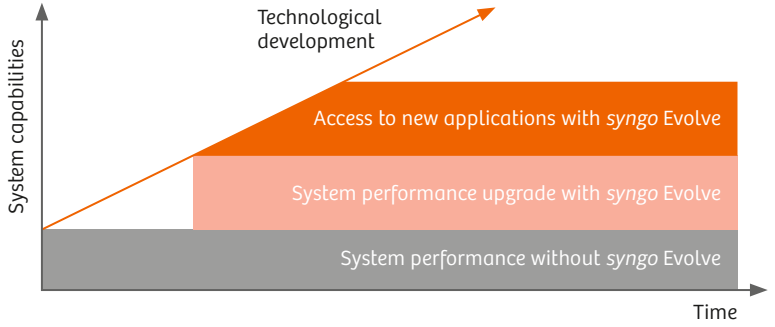
A broad portfolio of service contracts with different levels of coverage helps you protect and maintain your investment. With a Siemens service contract, you will be connected to the Siemens Service Center via **Siemens Remote Service**, our efficient and comprehensive infrastructure for the complete spectrum of remote support. Many services, updates, and even immediate repairs that previously required on-site visits are now performed remotely.

Our **Siemens Guardian Program™**, for example, provides real-time remote system monitoring to detect and resolve system errors before malfunctions occur. Should a spare part be needed, we are able to deliver 97% of all parts within 24 hours.

Maximize uptime and minimize downtime with *syngo* Evolve for Artis *zee*
Innovation cycles keep getting shorter – and efficiency and performance of modern systems are expected to grow over time. *syngo* Evolve for Artis *zee* gives customers the ability to participate in future technological developments. With *syngo* Evolve, you can count on a planned upgrade of your Artis *zee* system about three years after system delivery.

"We chose Artis zee for its good image quality, reliability, and its intuitive platform that allows us to take complete advantage of the system."

Martha Elizalde, MD
Chief of Radiology,
Star Medica Infantil Privado,
Mexico City



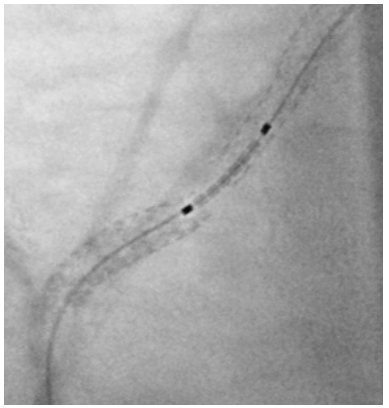
- With *syngo* Evolve, you get access to innovative applications to expand the capabilities of your system.
- A well-planned software and hardware upgrade with *syngo* Evolve will bring your system to the next level of performance.
- Without *syngo* Evolve, your system remains at the same performance level over its entire lifecycle.

Artis zee in Cardiology

Tackle every challenge with a versatile solution for routine and complex procedures: Artis zee.

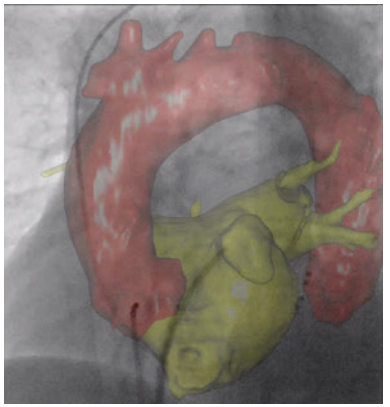
Cardiology is not only expanding, it is also changing. There is a continuous influx of new procedures and devices, resulting, of course, in ever-changing workflows. Meanwhile, the demands are consistently high: Patients and staff want the lowest possible dose during procedures as well as steady improvement of clinical outcomes, while costs should be kept as low as possible.

In this increasingly competitive environment, you need versatile solutions that help you deliver better, faster, and more effective care – both in complex procedures and in your daily routine. The versatile Artis zee family combined with dedicated applications such as CLEARstent and CLEARstent Live or IVUSmap help you tackle the toughest challenges in treating coronary artery disease. In cases of structural heart disease, *syngo* DynaCT Cardiac and *syngo* Aortic Valve Guidance seamlessly fit into your workflow.



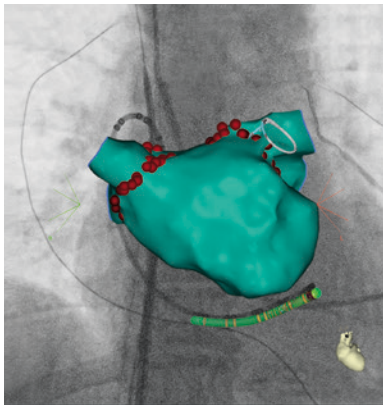
CLEARstent Live: Real-time verification of stent positioning while moving the device, eliminating cardiac movement.

Clinical image courtesy: University Hospital Erlangen, Germany



***syngo* LA Segmentation:** Acquisition of anatomical data of the left atrium with one step on the footswitch. High-quality 3D results within seconds.

Clinical images courtesy: University of Insubria, Varese, Italy



Integration with EP Mapping systems: Artis zee is compatible with EP mapping systems from Biosense Webster and from St. Jude Medical.

Floor-mounted system

The **floor-mounted** Artis zee is the ideal solution for routine Interventional Cardiology, providing fast movement and steep angulations for all cardiac exams. Its C-arm can be conveniently positioned around the table – for head-to-toe coverage of the patient: right-side for pacemaker implantation, head-side for abdominal procedures, and left-side for standard peripheral procedures. Its compact and slimline C-arm design has a small footprint, requires minimal room preparation work, and can fit into an examination room size of only 25 m^2.

The floor-mounted system is available with both a small and a large detector.

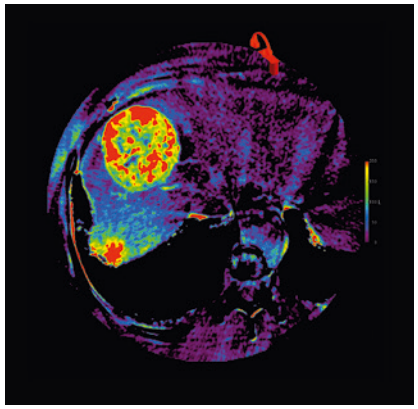
Artis zee biplane with large display for electrophysiology
For electrophysiology, Artis zee biplane offers integrated solutions for enhanced patient care – covering everything from imaging to 3D guidance and co-registration. Profit from the latest mapping and navigation systems and low-dose imaging for highly complex procedures.

Artis zee in Interventional Radiology

Convenient positioning and uncompromised imaging: Artis zee systems support your specific needs for interventional procedures.

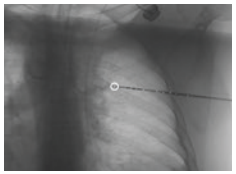
Interventional Radiology is rapidly becoming an integral part of patient treatment. Interventional radiologists help fight the most threatening diseases, prolong patients' lives, and improve their quality of life. Fundamental to all procedures – from routine to innovative endovascular and percutaneous treatments – are efficient imaging techniques.

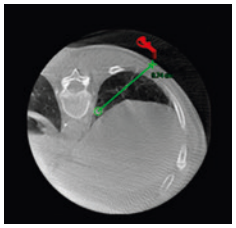
The Artis zee product line is the most extensive system portfolio to support your specific needs in the angio suite. Profit from a broad scope of dedicated innovative applications and workflows – for example, *syngo* DynaPBV Body and *syngo* Needle Guidance.

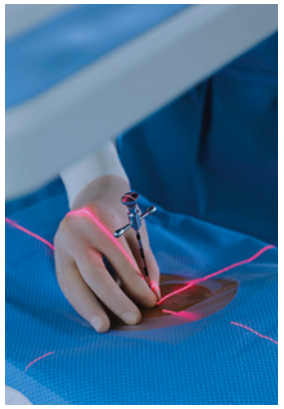


***syngo* DynaPBV Body:** 3D functional imaging application to check distribution of blood in lesions and surrounding tissue. Personalize therapy and control the optimal endpoint of interventions.

Clinical image courtesy: Hacettepe University School of Medicine, Ankara, Turkey







***syngo* Needle Guidance:** Unique integrated cross-hair laser light visualizes skin-entry point and allows for radiation-free needle advancement for easy needle positioning.

Clinical images courtesy: Hôpital européen Georges-Pompidou, Paris, France

Ceiling-mounted system

Ideally suited for body Interventional Radiology, Artis zee **ceiling-mounted** systems provide the highest positioning flexibility with the largest patient coverage. The C-arm can be conveniently positioned around the patient's left-, right-, or head-side – and any angle in between. This enables optimum patient access. Our unique InFocus and IsoTilt maintain the projection angle during stand rotation and during table tilting. In addition, the system provides the uncompromised soft-tissue imaging of *syngo* DynaCT from the left-side to also cover the patient's lower abdomen.

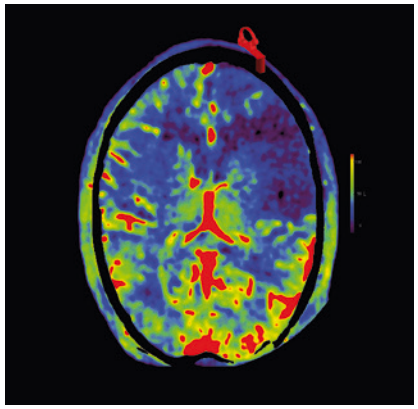
The ceiling-mounted system is also available for Cardiology with a small detector.

Artis zee multi-purpose – your Diagnostic Radiology solution
The Artis zee multi-purpose system features flexible architecture with versatile clinical applications for angiography and fluoroscopy examinations.

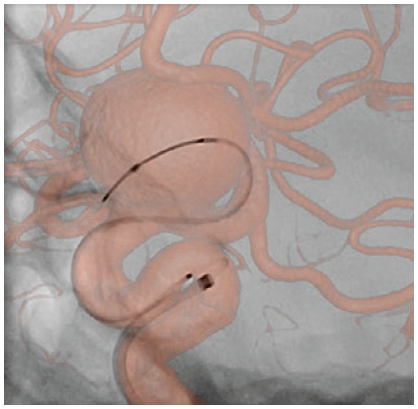
Artis zee in Neuro Interventions

Optimal patient access and extensive coverage – Artis zee offers an ideal solution for your neuroradiological imaging needs.

The introduction of new techniques and devices in neuro interventions not only opens up more possibilities for physicians – it also creates new challenges. With the Artis zee family, we have set the bar in interventional imaging and prepare you for whatever challenge comes your way. Its cutting-edge technology such as flat-emitter X-ray tubes and innovative features such as *syngo* DynaPBV Neuro and *syngo* Dyna4D enable you to shape the future of Neuroradiology.

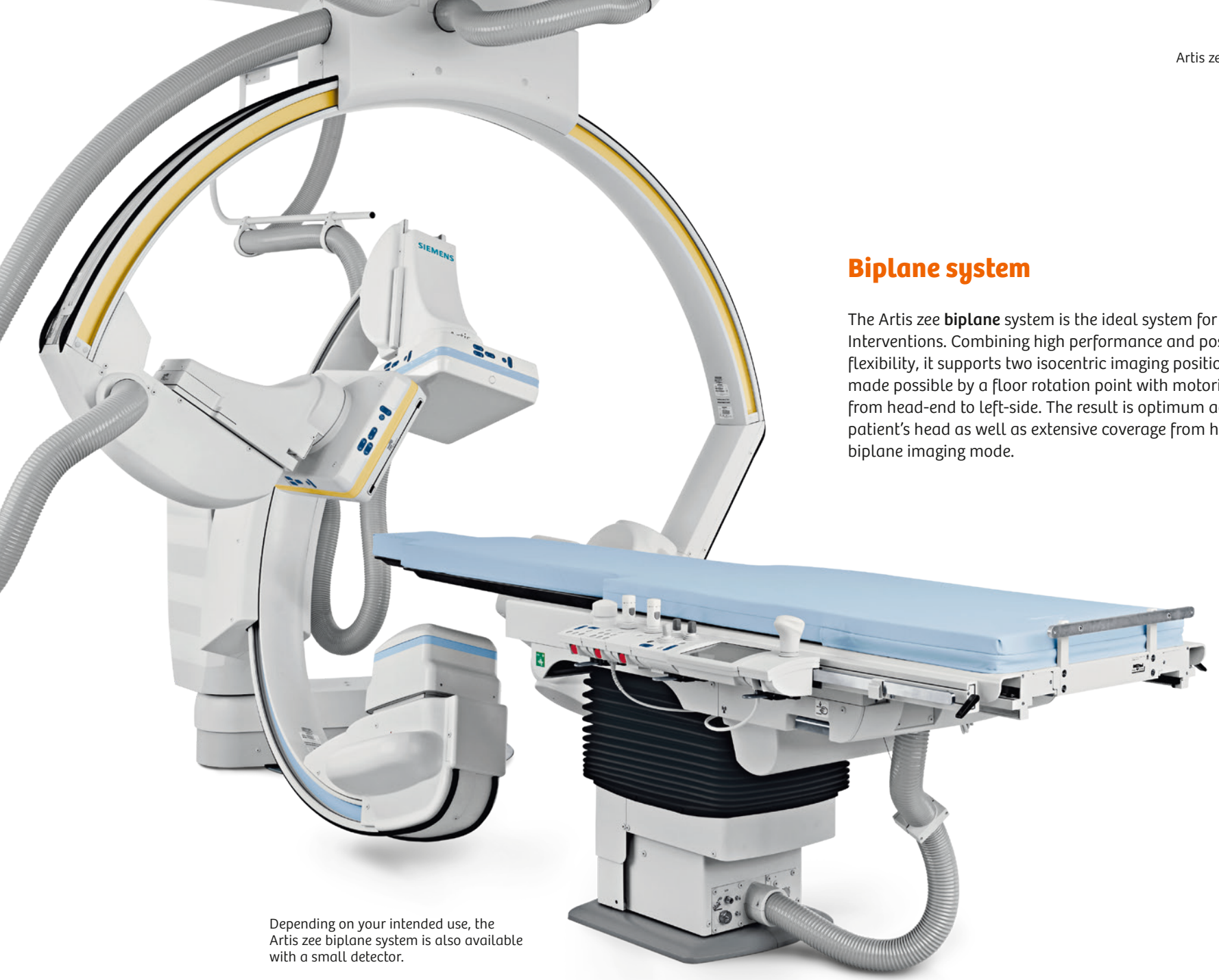


***syngo* DynaPBV Neuro:** Visualizes the parenchymal blood volume of the entire brain in one acquisition. It helps you monitor the functional state during, for example, endovascular stroke treatment.



***syngo* 3D Roadmap:** Provides visualization and fading between the live 2D fluoro image and the matching 3D dataset – for effective guidance during interventional procedures.

Clinical images courtesy: Hacettepe University School of Medicine, Ankara, Turkey



Depending on your intended use, the Artis zee biplane system is also available with a small detector.

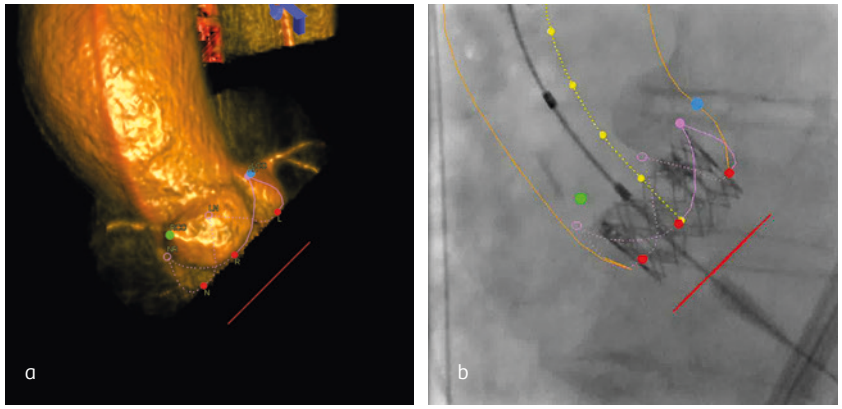
Biplane system

The Artis zee **biplane** system is the ideal system for your Neuro Interventions. Combining high performance and positioning flexibility, it supports two isocentric imaging positions. This is made possible by a floor rotation point with motorized swivel from head-end to left-side. The result is optimum access to the patient's head as well as extensive coverage from head to toe in biplane imaging mode.

Artis zee in Image-Guided Surgery

3D guidance and excellent image quality for complex procedures:
Artis zee also supports surgery in hybrid operating rooms.

Worldwide, demographic change is marked by increased life expectancy. This results in an aging population with a higher prevalence for complex aortic diseases. A significant percentage of patients also suffers from renal insufficiency and obesity. Hybrid operating rooms (OR) help to treat these patients with greater confidence. Compared to a conventional operating room with a mobile C-arm, the advanced imaging capabilities of fixed systems allow 3D guidance and excellent image quality at low dose levels. Advanced workflow capabilities in the hybrid OR make complex endovascular procedures possible at reduced procedure times.



***syngo* Aortic Valve Guidance**: a) Segments the aortic root and color-codes landmarks for the coronary ostia or the valve commissures. b) In combination with *syngo* 3D Roadmap, the 3D valve image can be overlaid on live fluoroscopy either in solid or in contour mode.

Clinical image courtesy: Herz- und Kreislaufzentrum, Rotenburg a. d. Fulda, Germany

Clinical image courtesy: Kerckhoff-Klinik Bad Nauheim, Germany

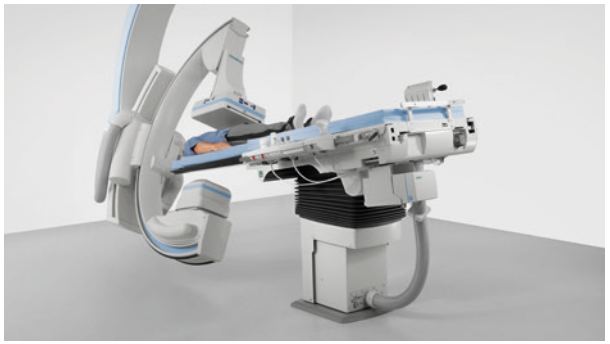
Floor-mounted system with large FD

Most operating rooms are only 40 m² in size. In order to conduct complex endovascular procedures, most existing ORs can be upgraded with Artis zee **floor-mounted** systems, sometimes even without changing the ceiling construction. An integrated Siemens OR table with a free-floating tabletop perfectly supports all endovascular procedures in vascular and cardiothoracic surgery.

The floor-mounted system is available with both a small and a large detector.

Additional products and services

Tailor your system: Choose from the following options to customize your Artis zee system.



Tables
Choose the table that works best for you. Our selection of free-floating tables have easily exchangeable tabletops, so they can be conveniently adapted to the different needs of clinical procedures within minutes. Users can also switch table accessories.

- Standard table: Free-floating tabletop with customizable tableside control module and rotation up to 120°.
- Tilting table: Additional tilting capability, which is useful for increasing patient blood pressure.
- OR table: Designed for easy patient access, superb positioning, and total body coverage, the integrated Artis OR table is a proven and reliable interventional table which is motorized in all directions and provides tilt and cradle functionality.

Artis Large Display
See the whole picture on one monitor. Seeing more can increase diagnostic and therapeutic confidence. Our Artis Large Display features a full-color 55- or 60-inch medical-grade screen that gives you a view of multiple inputs simultaneously.

- High-definition consolidated display
- Customized views
- Optimal resolution in any window size
- Fast, intuitive handling, tableside control
- Integrated emergency backup

Sensis Vibe
Sensis Vibe is an integrated recording and information system that can serve as your central point of data handling – from patient registration to reporting. Bidirectional communication with your Artis zee system allows automatic exchange of demographic patient data.

- One-stop patient registration and comprehensive reporting
- Seamless amplifier integration
- Flexible handling with tableside control
- Excellent signal quality for hemodynamic and electrophysiology applications
- Investment confidence due to scalability

Accessory solutions
Choosing a new imaging system may inspire other equipment renewals or additions at your workplace. Our accessory solutions portfolio offers a broad range of complementary products, such as radiation protection clothing/equipment, uninterrupted power supply solutions, contrast media injectors, and positioning aids. We will gladly tailor a package to your individual needs.

Technical specifications

Installation
- Artis zee is available as floor-mounted, ceiling-mounted, biplane or multi-purpose system

as20 or as40HDR detector with 16-bit technology
- 20 x 20 or 30 x 40 amorphous silicon flat detector
- High-resolution 2k[1)] matrix (2,480 x 1,920) with 154 µm pixel size and 16-bit digitization depth (as40HDR)
- Up to 75 f/s fps readout for 3D and *syngo* acquisitions for short scan times (as40HDR)

X-ray tube
- High-performance angiography X-ray tube MEGALIX Cat Plus (integrated in all Artis zee products)
- 40% greater fluoro power with flat-emitter technology
- Increased contrast during fluoroscopy, especially for examinations on obese patients

Operating modes
- Digital pulsed fluoroscopy at 0.5, 1, 2, 3, 4, 7.5, 10, 15, 30 p/s; acquisition at 7.5, 10, 15, and 30 f/s
- Acquisition, display, and storage in original matrix
- 12-bit overlay fade, online superimposing of active fluoro and reference images

Technologies
- CARE+CLEAR for dose reduction and image quality
- PURE® for a smoother workflow and better system performance

Display
- 19" Monochrome Flat Display
- 55" or 60" Artis Large Display

1) 2k matrix possible only with DR/DSA/PERIVISION or DYNAVISION mode up to 7.5 f/s

Why Siemens Healthineers?

At Siemens Healthineers, we enable healthcare providers to achieve better outcomes at lower costs by expanding precision medicine, transforming care delivery, improving patient experience, and digitalizing healthcare.

Healthcare providers around the world have long relied upon our engineering excellence – leading-edge, high-quality medical technologies across a broad portfolio. Our technologies touch an estimated 5 million patients[1)] globally every day. At the same time, they help hospital departments to continuously improve their clinical, operational, and financial outcomes.

We now consolidate this unprecedented volume of data and insights and turn them into pioneering enterprise and digital health services. With those, we maximize opportunities and share risks of your entire health system.

Partnerships are built on people. With Siemens Healthineers there is no team more committed and more connected than we are to realize your success together.

1) Siemens AG, "Sustainable healthcare strategy – Indicators in fiscal 2014", page 3–4

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The information in this document contains general descriptions of the technical options available and may not always apply in individual cases.

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In the interest of complying with legal requirements concerning the environmental compatibility of our products (protection of natural resources and waste conservation), we may recycle certain components where legally permissible. For recycled components we use the same extensive quality assurance measures as for factory-new components.

Any technical data contained in this document may vary within defined tolerances. Original images always lose a certain amount of detail when reproduced.

The statements by Siemens Healthineers' customers described herein are based on results that were achieved in the customer's unique setting. Since there is no "typical" hospital and many variables exist (e.g., hospital size, case mix, level of IT adoption) there can be no guarantee that other customers will achieve the same results.

The relative statement "Tackle every challenge" assumes typical treatment and patient morphology and refers to procedures within the scope of the cleared intended use.

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