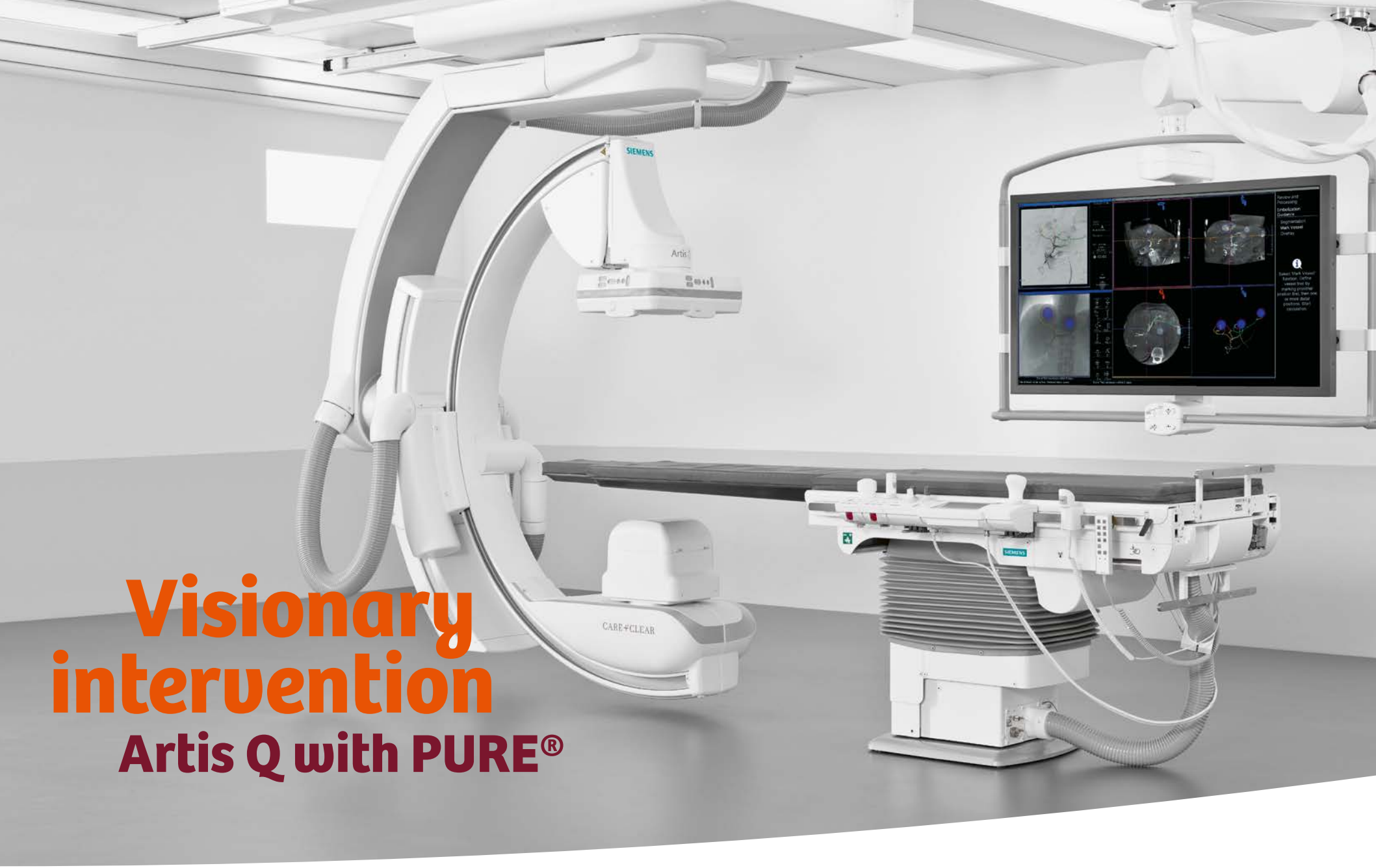


Visionary intervention

Artis Q with PURE®

siemens-healthineers.com/artis-q

SIEMENS Healthineers

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 What's customary today can be outdated tomorrow.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.

Proce-dure 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.

Take performance and precision to the next level

Artis Q
Visionary in performance.
Visionary in precision.

Every imaging system is an investment in the future. But the future is hard to predict. Experience a visionary breakthrough in X-ray generation and detection that is designed with your challenges in mind: Artis Q.

The new, powerful GIGALIX X-ray tube offers unparalleled performance. Enhance image quality in advanced 3D imaging with the high dynamic range detector and with a high contrast resolution at any angle and any patient size.

In the fight against the most threatening diseases such as coronary artery disease, stroke, and tumors, Artis Q delivers innovative applications. Expand precision medicine with enhanced guidance during interventional procedures in cardiology, radiology, and surgery.

Take performance and precision to the next level. **Artis Q. Visionary Intervention.**

Contents

Not all features shown are necessarily standard and available in all countries.

Artis Q at a glance

See more details

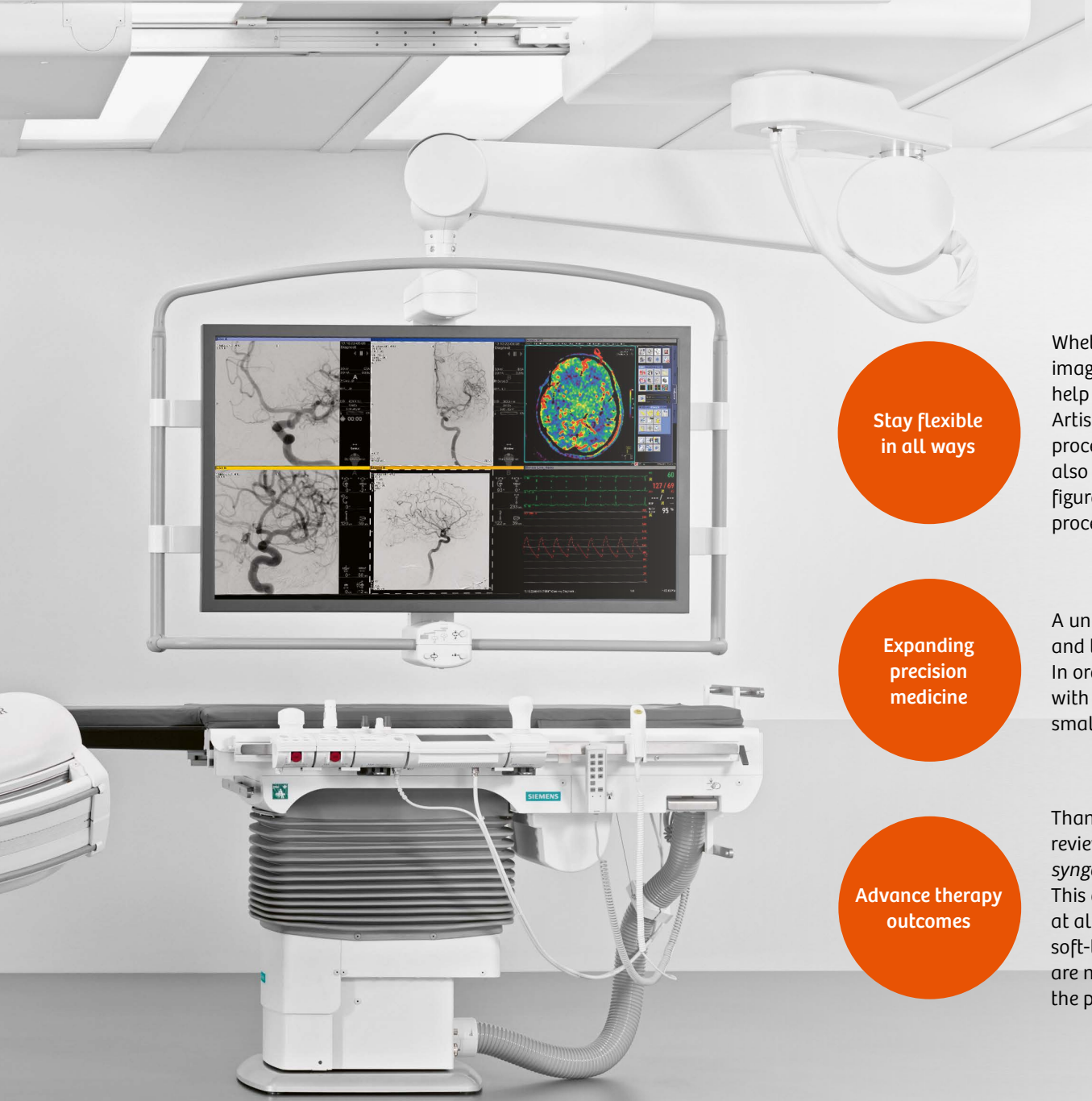
To make reliable decisions confidently on the spot, you need to precisely see every anatomical detail. With high contrast resolution at any angle and any patient size, Artis Q offers unparalleled performance with the new, powerful GIGALIX X-ray tube.

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 X-ray pulse to reduce radiation by up to 60% and CLEARpulse for sharp images and low dose.

Improve diagnostic accuracy

Our large HDR (High Dynamic Range) detector offers excellent contrast resolution across the entire image – for every patient. The high dynamic range for enhanced soft-tissue resolution in 3D imaging together with high dose efficiency enables better image quality at less radiation. With water cooling, the detector meets the demands of high hygienic standards and provides stable image quality.



Stay flexible in all ways

Whether cardiology, interventional radiology, or image-guided surgery, precise guidance is crucial to help improve clinical outcomes during interventions. Artis Q 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.

Expanding precision medicine

A unique combination of the true 16 bit image chain and the powerful GIGALIX tube with highest power. In order to expand precision medicine, it is combined with smallest focal spot sizes. This enables to image smaller devices and more complex anatomies.

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.

Adding smooth to smart

Artis with PURE®

In angiography, many physicians do not get to experience the full capabilities of their modern interventional systems as both procedures and system interaction get increasingly complex. The new PURE® platform for Artis zee, Artis Q, and Artis Q.zen is changing this now: adding smooth use to Siemens' smart technologies.

Increase your process efficiency in the angio suite, enable all your staff members to get the full potential of the system, and enhance your patient treatment outcomes – with an angio system that combines better ease of use, integrated expert therapy guidance, and tools providing better diagnostic information.

For a PURE® experience in angiography.

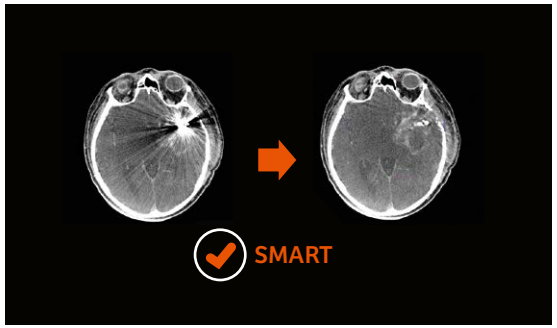
Smooth interaction

Save time during procedures. Fewer steps. More efficiency.

Smart performance

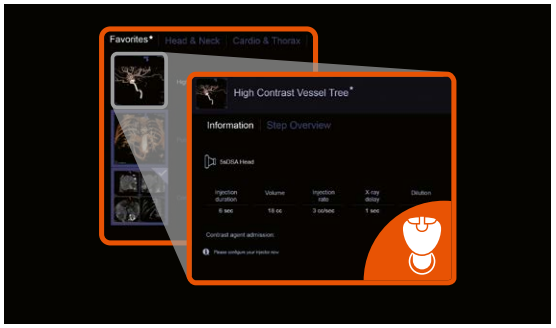
Expand your capabilities. More confidence. Better outcomes.

Some highlights of the PURE® platform:



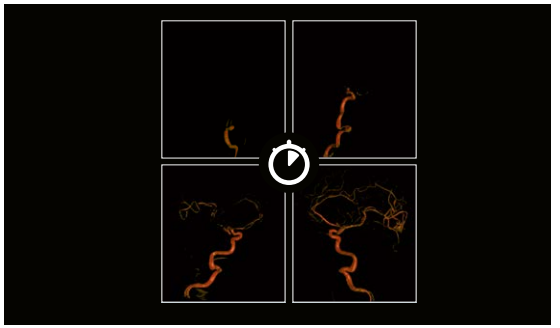
Reduce metal artifacts to see the unseen
***syngo* DynaCT SMART**

Important diagnostic information can be obscured by metal artifacts. Reduce these artifacts with *syngo* DynaCT SMART. This helps you increase diagnostic confidence and increases the chance for visualizing complications such as bleedings close to metallic objects.



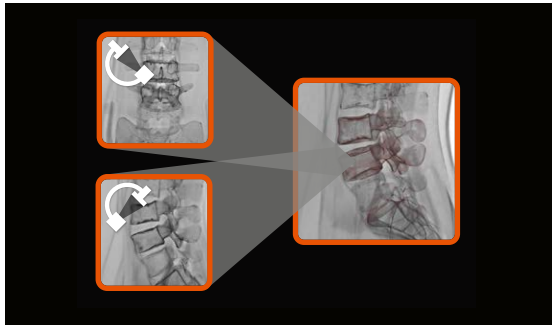
Simplify 3D imaging with expert guidance
3D Wizard

Choosing an optimal 3D protocol is not always easy. The 3D Wizard provides step-by-step expert guidance to achieve the desired imaging results. Increase your confidence when using 3D and get the full benefits from your system.



Welcome the 4th dimension to the angio suite
***syngo* Dyna4D**

Direct 3D flow information was limited to CT, MRI, and ultrasound – yesterday. With *syngo* Dyna4D, you can now see flow patterns in 3D, providing a virtually unlimited number of DSA runs at no additional dose and contrast media. *syngo* Dyna4D helps you expand your clinical capabilities in the angio suite by optimizing patient selection and individualized treatment strategies.



Save 99% dose when integrating pre-op volumes for live image guidance[1)]
***syngo* 2D/3D Fusion**

Pre-op CT, MR, or PET data is often available, but remains unused in the angio suite. With *syngo* 2D/3D Fusion, only two fluoro projections are required to easily fuse 3D volumes from other imaging modalities for live image guidance. Expand your capabilities while saving radiation dose and contrast media.

1) This measurement was performed with an Alderson phantom using fluoroscopy with 10 images per 2D projection and a low-dose 6-s DCT body program. Results in actual clinical practice may vary.

Visionary in ... performance

To see any device and anatomical structure in any patient and at any angulation is one of the main challenges in interventional imaging. For better performance and diagnostics, Artis Q provides enhanced image quality to see small devices. It offers high contrast resolution even at steep angulations. And it enables sharp images of moving objects such as coronary arteries while the optimized X-ray pulse helps to reduce radiation by up to 60%. The new large HDR detector offers high dynamic range for excellent soft-tissue resolution in 3D.

Focused power

GIGALIX

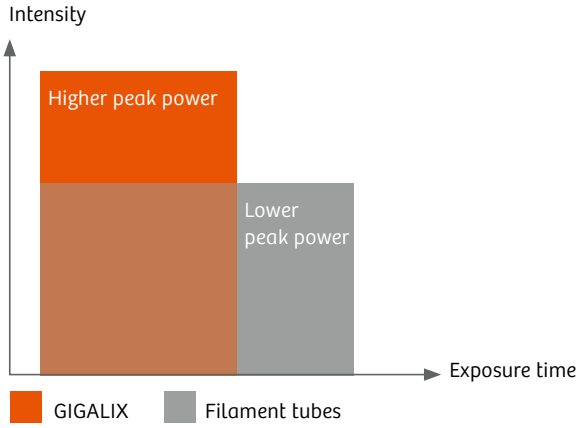
Designed around a unique emitter technology, the GIGALIX X-ray tube generates powerful short pulses. Compared to filament technology, the higher maximum current of the flat emitter enables CLEARpulse and enhances image quality in challenging situations such as with obese patients or in steep angulations. The small, square focal spots of the GIGALIX X-ray tube result in higher spatial resolution for all clinical applications and help to better visualize small devices and vessels.

Together with the higher contrast resolution, this results in up to 70% better visibility of small devices.[1)]

Moving objects, such as coronary vessels, can be visualized more sharply with shortened pulse length. CLEARpulse also optimizes the X-ray spectrum by lowering the required tube voltage and allowing for additional filtration.

Together with small focal spots, this generates equal image quality with up to 60% less dose.[1)]

The GIGALIX X-ray tube in the Artis Q product line transforms care delivery with enhanced image quality at a significantly lower dose for both patients and staff.

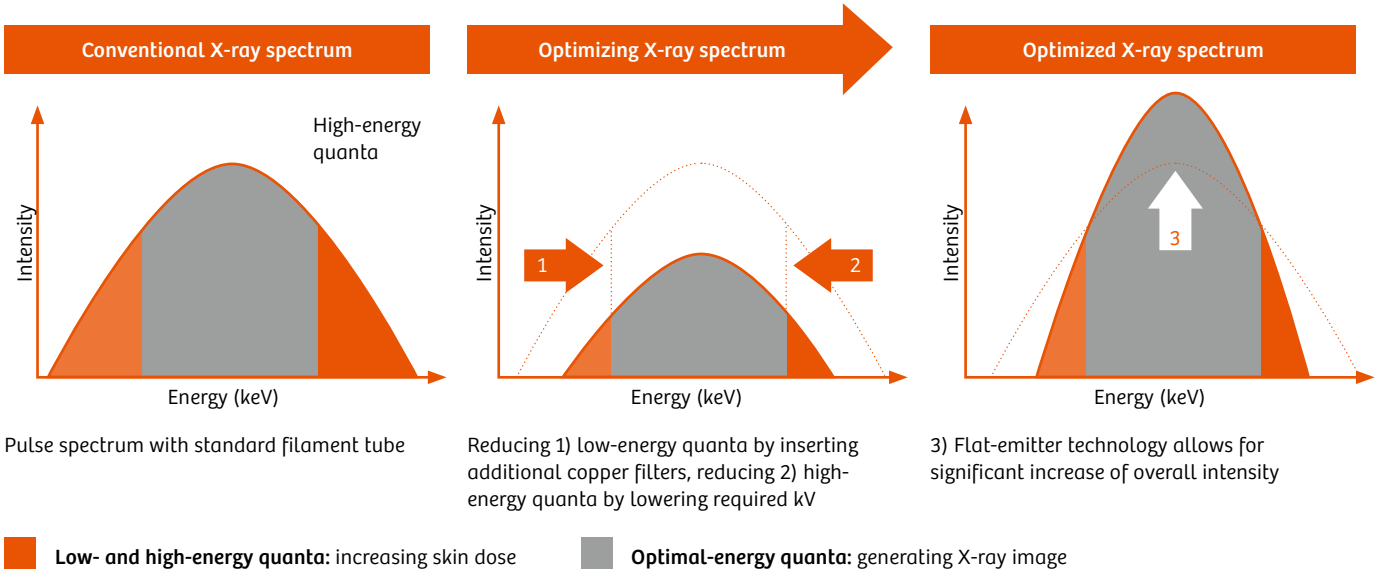


Sharp images and low dose – CLEARpulse

- High contrast resolution even at steep angulations with flat-emitter technology
- Excellent spatial resolution to see more details with small, square focal spots
- Sharp images and low dose with CLEARpulse

1) Compared to previous X-ray tube technology. Data on file.

How to optimize the X-ray spectrum with the GIGALIX tube



Pulse spectrum with standard filament tube

Reducing 1) low-energy quanta by inserting additional copper filters, reducing 2) high-energy quanta by lowering required kV

3) Flat-emitter technology allows for significant increase of overall intensity

Low- and high-energy quanta: increasing skin dose

Optimal-energy quanta: generating X-ray image

*Up to **70%** better visibility of small vessels[1)]*

*Up to **43%** shorter pulses for better images and optimized dose[1)]*

1) Compared to previous X-ray tube technology. Data on file.

Dose efficiency and high dynamic range

Large HDR detector

In addition to X-ray generation, X-ray detection is crucial for high image quality. Enhance soft-tissue contrast in 3D imaging, especially at image borders (e.g., close to bones like the skull), with the new large HDR detector.

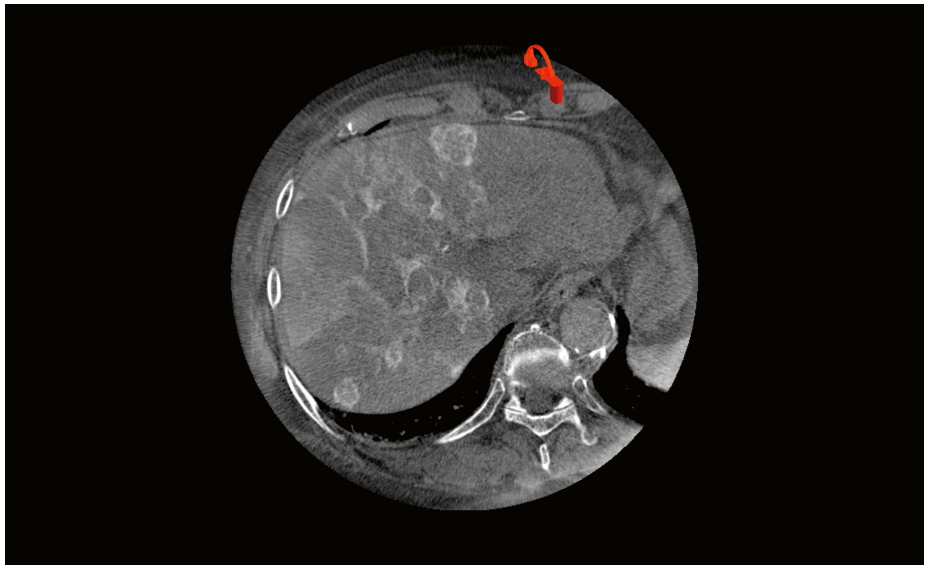
Increased scintillator thickness enables higher detective quantum efficiency. This provides imaging excellence even in challenging situations and helps to reduce radiation.

The water-cooled design meets high hygienic requirements, especially in hybrid operating rooms. In addition, it reduces unwarranted variations by supporting stable image quality even in long-lasting procedures.

- High dynamic range for enhanced soft-tissue resolution in 3D imaging
- High dose efficiency enables better image quality at less radiation
- Water cooling to meet the demands of high hygienic standards and to provide stable image quality

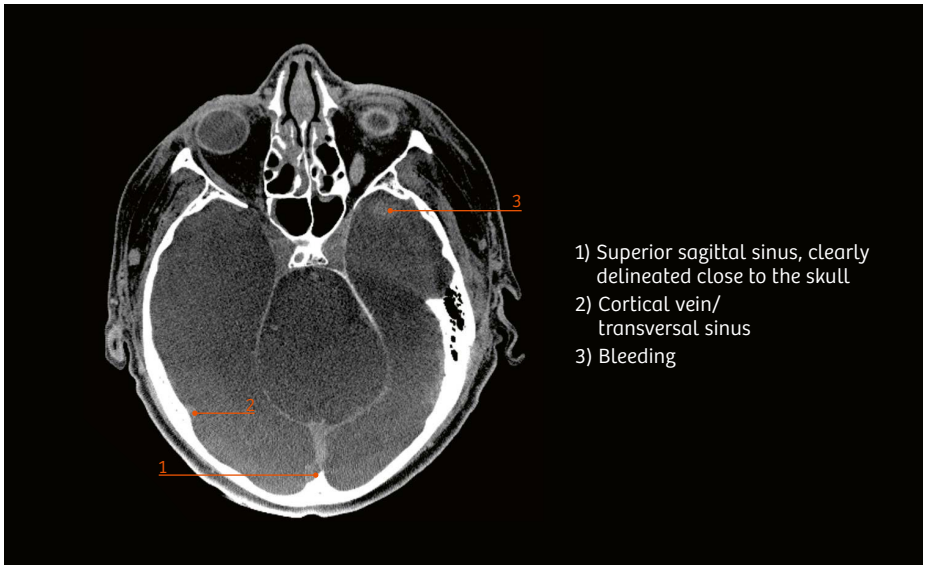
Excellent soft-tissue differentiation

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.

Osaka City University Hospital, Japan

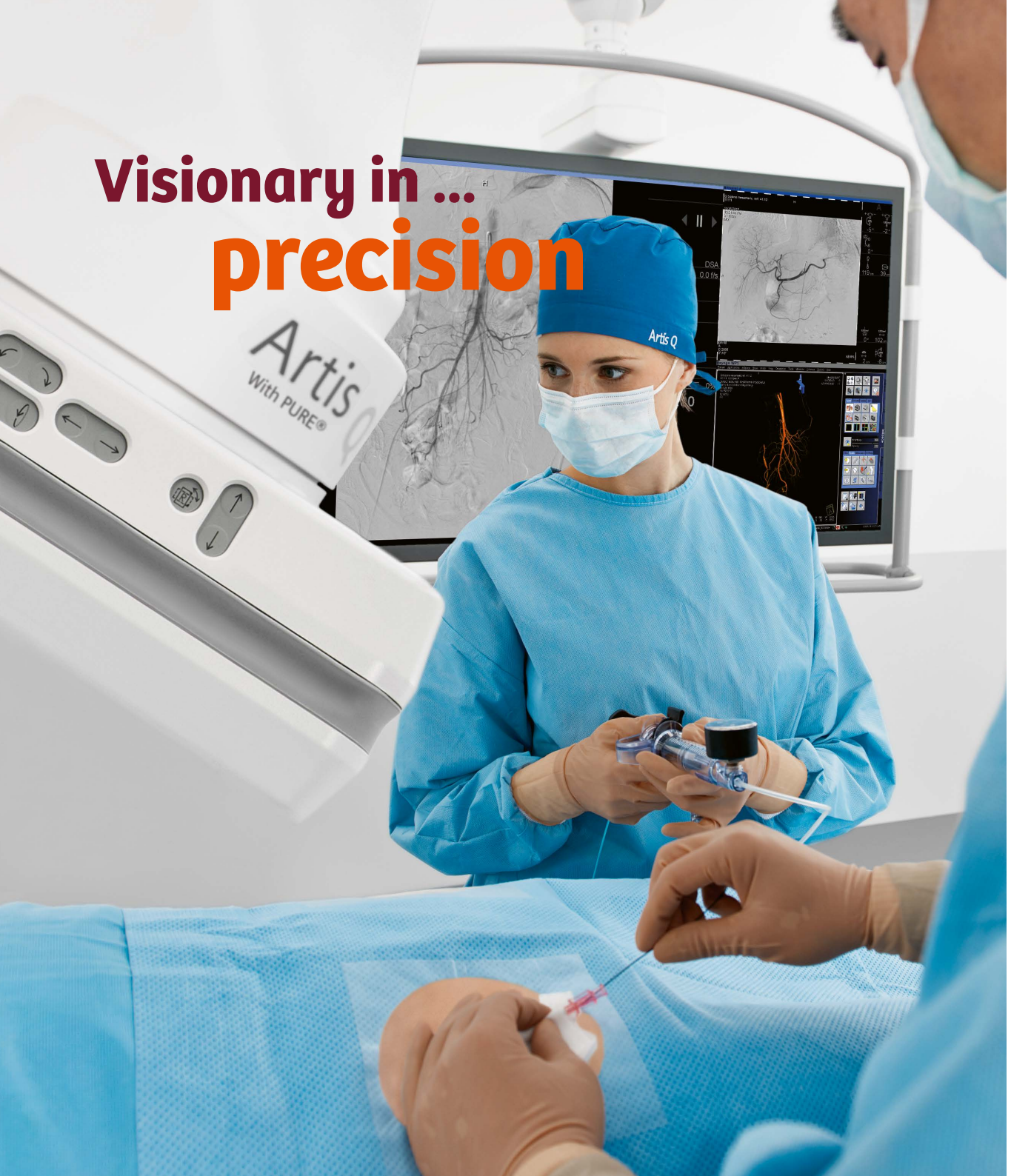


***syngo* DynaCT with HDR detector technology** translates into excellent low-contrast resolution for displaying soft tissue. Clearly detect and diagnose small intracranial bleedings that can result from a head injury, hemorrhagic stroke, or an aneurysm. Before, these bleedings could only be visualized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

University Hospital Magdeburg, Germany

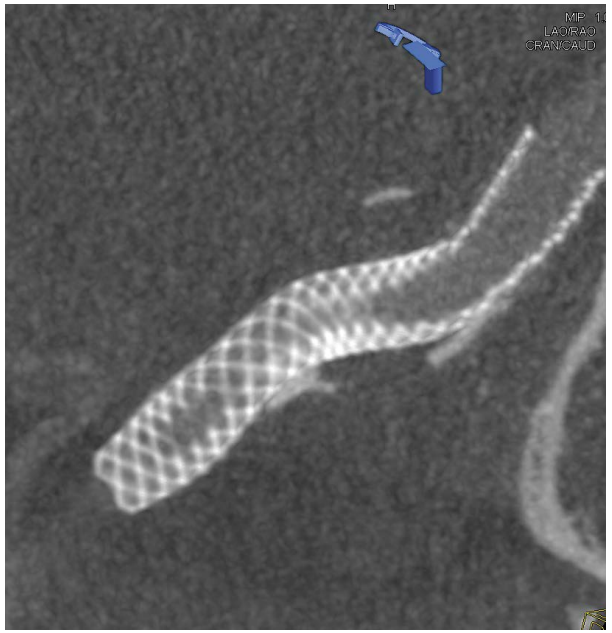
Image was acquired with HDR technology on another Artis system.

Visionary in … precision



Precise guidance is needed to help improve clinical outcomes during interventions. Expand precision medicine with Artis Q – offering applications for cardiology, interventional radiology, and image-guided surgery.

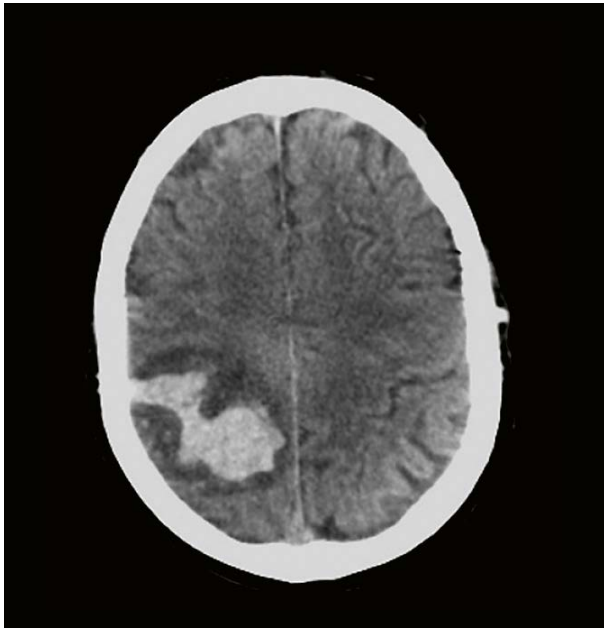
Applications for advanced interventional imaging



Boosting the level of detail
***syngo* DynaCT Micro**

- 40% increased spatial resolution compared to standard *syngo* DynaCT
- Better visualization of finest structures
- Enhanced evaluation of, e.g., stents, flow diverters, or stapes prosthesis

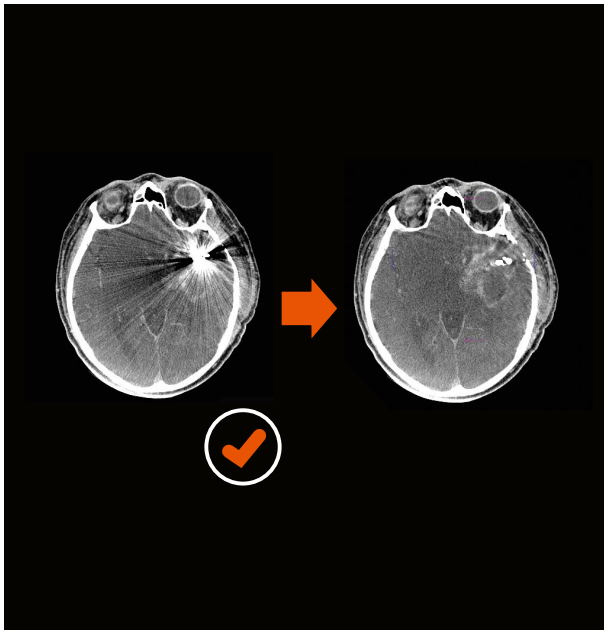
University Hospital Erlangen, Germany



16-bit HDR detector technology
***syngo* DynaCT**

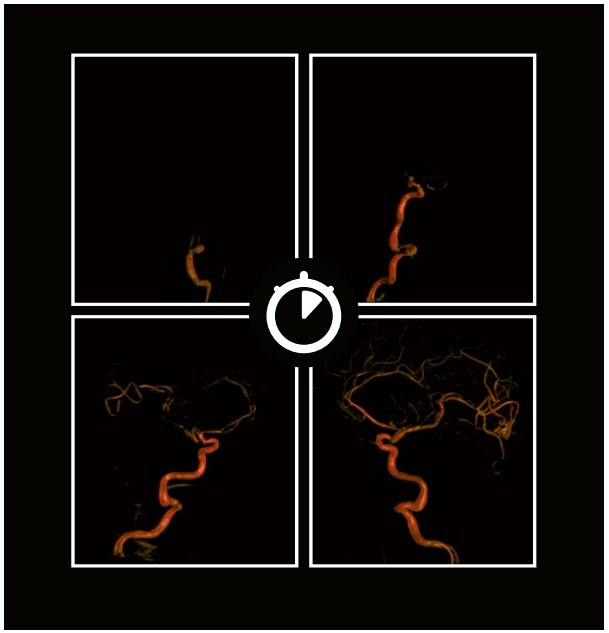
- Homogeneous image representation
- Excellent soft-tissue resolution, also near the skull
- Visualization of bleedings

University Hospital Magdeburg, Germany



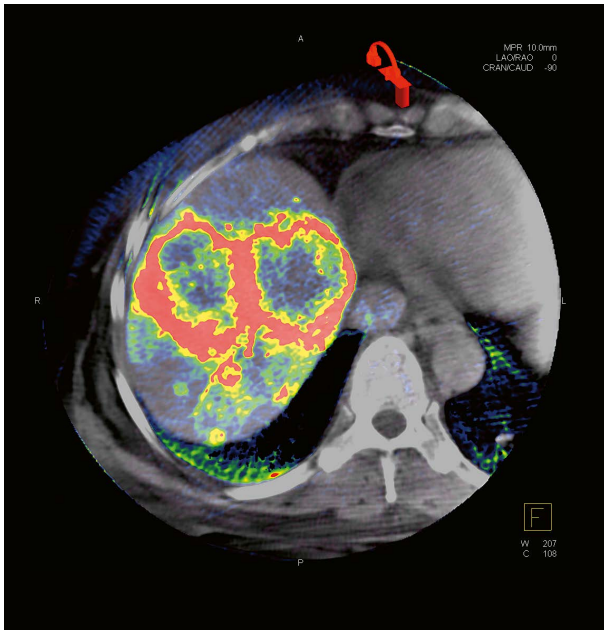
Reduce metal artifacts to see the unseen
***syngo* DynaCT SMART**

- Reduce artifacts from dense objects using the iterative *syngo* DynaCT SMART volume reconstruction
- Make relevant aspects in soft tissue visible even close to, e.g., coil packages or glue for sounder decision-making during interventions



Welcome the 4th dimension to the angio suite
***syngo* Dyna4D**

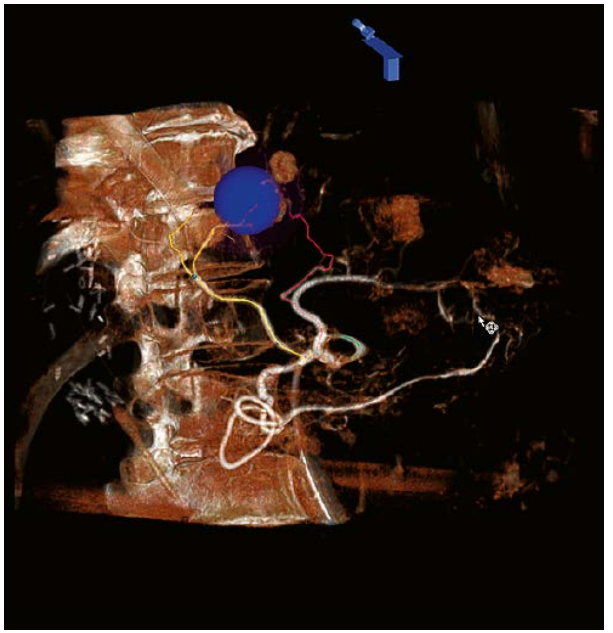
- See flow patterns in 3D, providing a virtually unlimited number of DSA runs at no additional dose
- No additional contrast media compared to standard 3D[1)]
- Expand your clinical capabilities in the angio suite by optimizing patient selection and individualized treatment strategies



Evaluate perfusion for personalized therapy
***syngo* DynaPBV Body**

- Provides visualization of blood distribution directly in the angio suite
- Supports end point determination during embolization
- Potential to identify nonresponders directly after interventional therapy

University Hospital Frankfurt, Germany



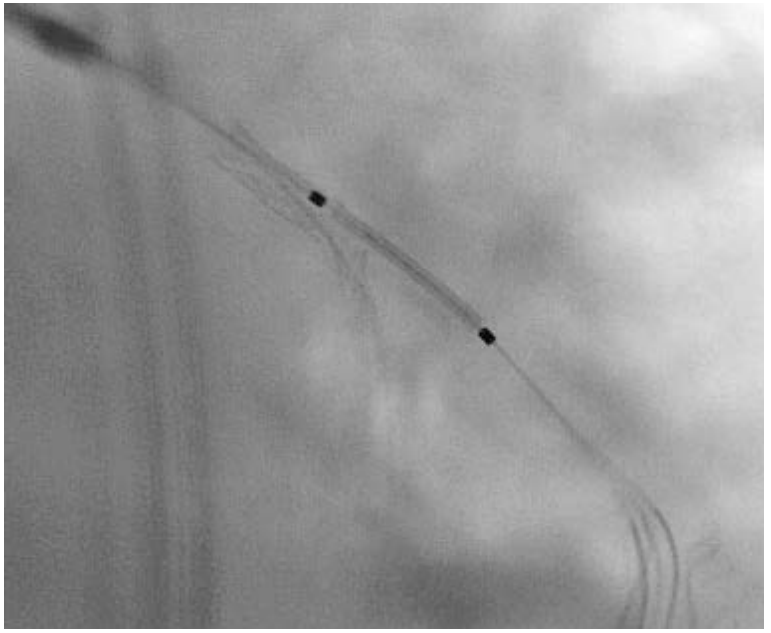
Automatic detection and targeted embolization
***syngo* Embolization Guidance**

- Automatic catheter and feeding-vessel detection
- Easy one-click solution with tableside operation
- Vessel tree graphics overlay during fluoroscopy for guidance

Hannover Medical School, Germany

1) This is the experience of individual users. Results may vary.

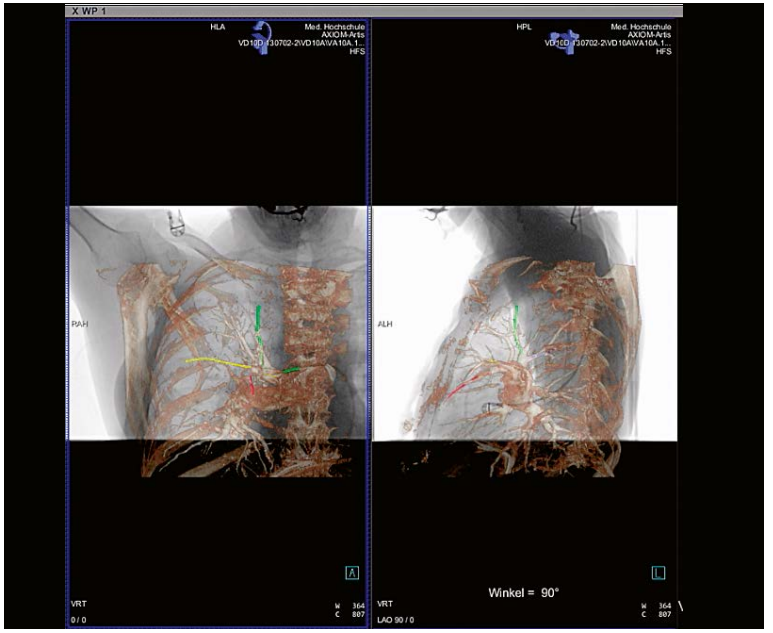
Applications for advanced interventional imaging



Real-time stent enhancement software
CLEARstent Live

- Support of complex procedures
- Real-time verification of stent positioning while moving the device
- Potential to speed up procedures and to save contrast agent

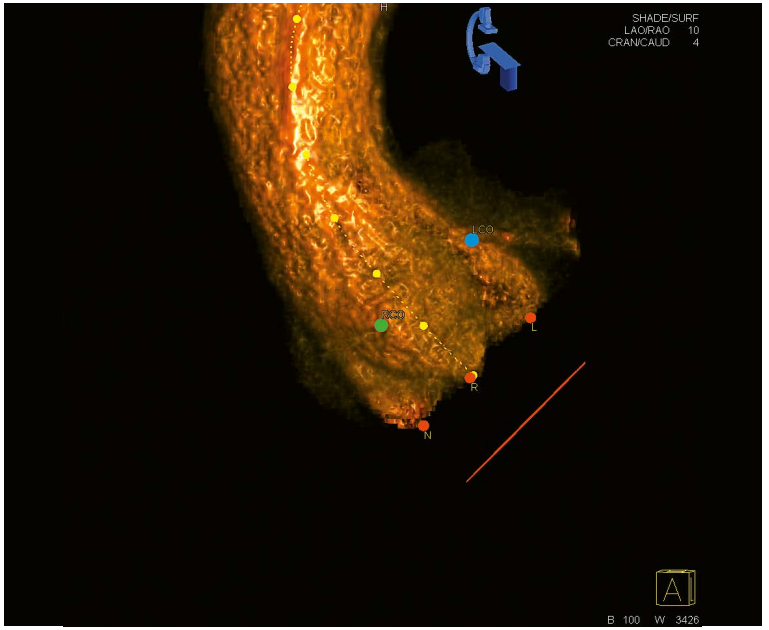
AZ Maria Middelares, Ghent, Belgium



Integrate the information of MRI, CT, or PET·CT into your angio image
***syngo* Fusion Package**

- Select between *syngo* 3D/3D Fusion, or *syngo* 2D/3D Fusion for easy multimodality integration, which does not require an intraprocedural 3D scan
- Overlay information from other modalities using *syngo* 3D Roadmap or utilize applications like *syngo* Toolbox with existing three-dimensional data sets

Hanover Medical School, Germany

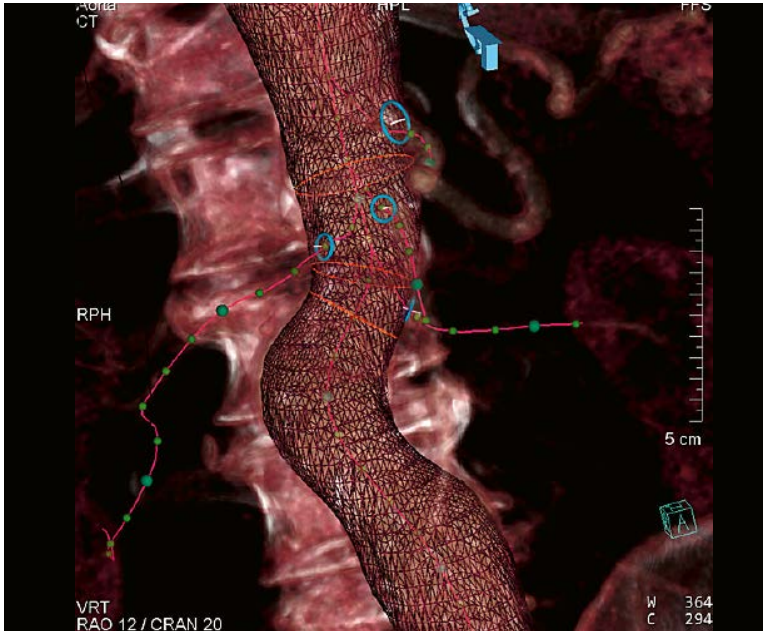


A new level of valve positioning convenience

***syngo* Aortic Valve Guidance**

- Automated aortic root segmentation and visualization of anatomical landmarks in seconds
- Automated C-arm positioning to orthogonal view without fluoroscopy, allowing for dose and contrast medium savings
- Improved guidance through overlay of aortic contour and landmarks onto live 2D image

Oulu University Hospital, Finland



Automated workflow for endovascular repair

***syngo* EVAR Guidance**

- Automated detection of aorta wall and all branched vessels
- Graphical representation of ostia rings and stent graft landing zones
- Automated image fusion and calculation of optimal C-arm angulations

University Hospital Heidelberg, Germany

When vision becomes reality ...

Experience the future of interventional imaging and learn more about Artis Q system configurations and options.

Artis Q

Ceiling-mounted system

High positioning flexibility for the C-arm at any angle with the Artis Q ceiling-mounted system.

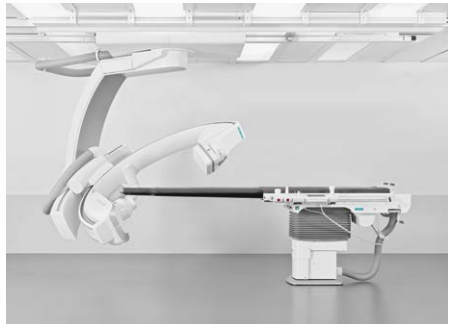
Conveniently position the C-arm around the patient's left, right, or head side, and any angle in between. This enables optimum patient access. The longitudinal ceiling travel offers maximum coverage from head to toe as well as easy parking away from the table.

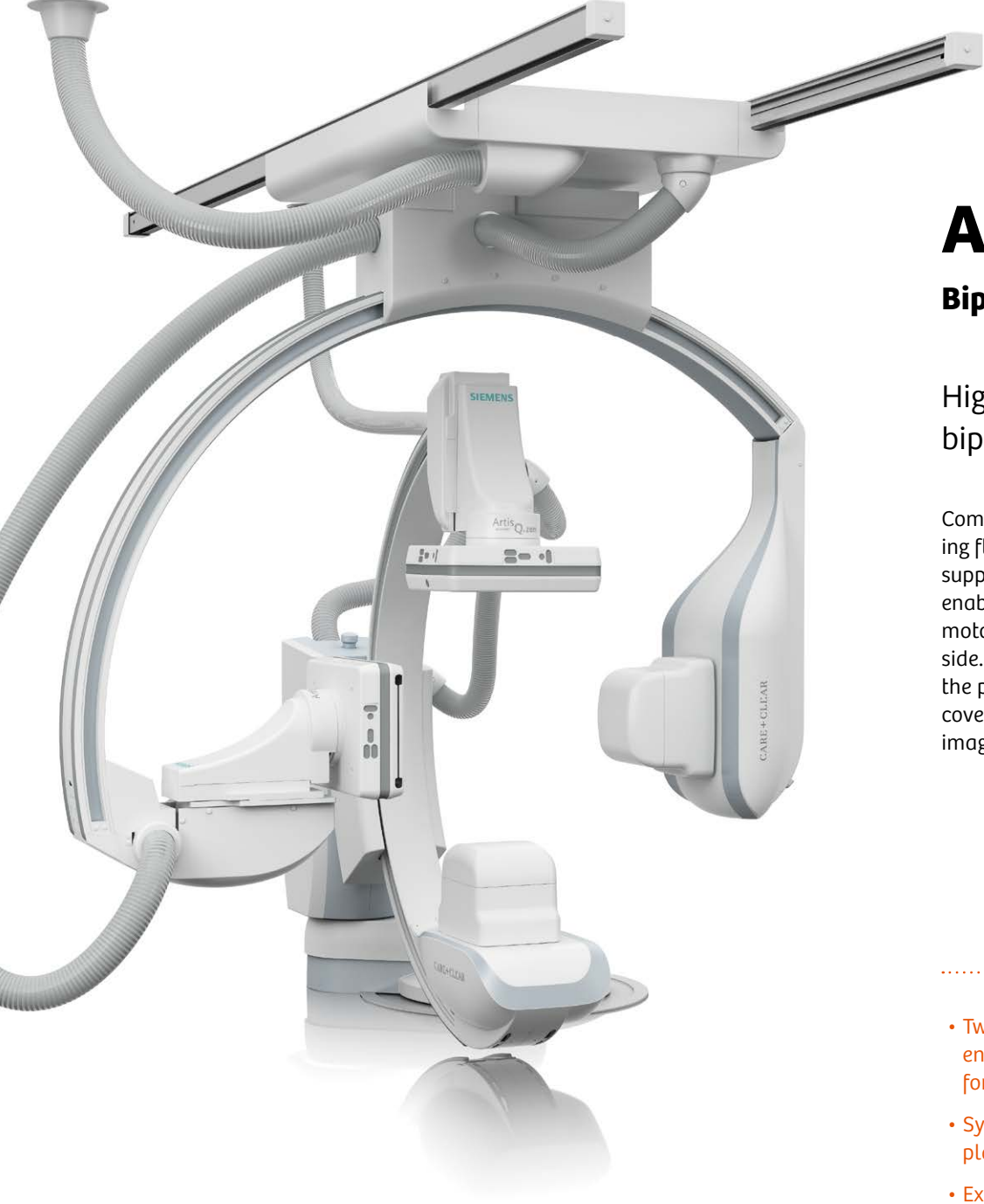
For increased imaging accuracy, InFocus maintains the projection angle during stand rotation, IsoTilt the projection angle during table tilting, and StraightView upright images for all positions of the C-arm and table.

In addition, the system provides the uncompromised image quality of *syngo* DynaCT in the lateral position.

Not only the Artis tables, but also surgery tables from Maquet and Trumpf can be integrated into the system.

- High positioning flexibility of the C-arm at any angle
- Easy parking away from the table
- Maximum patient coverage from head to toe
- High 3D image quality also in lateral acquisition





Artis Q

Biplane system

High positioning flexibility and easy patient access for biplane imaging with the Artis Q biplane system.

Combine high performance and positioning flexibility: Artis Q biplane system. It supports two isocentric imaging positions enabled by the floor rotation point with motorized swivel from head end to left side. This allows optimum access to the patient's head as well as extensive coverage from head to toe in biplane imaging mode.

In single-plane mode, the table and stand rotation allows access even to the patient's left side. A special orthogonal position with rotated table enables easy access to the patient's head for complex procedures under anesthesia. For increased imaging accuracy, IsoTilt maintains the projection angle during table tilting and Artis StraightView upright images for all C-arm and table positions.

- Two isocentric imaging positions enabling access to the patient's head for anesthesia in biplane mode
- Synchronized movements of both planes
- Extensive coverage from head to toe

Artis Q

Floor-mounted system

High positioning flexibility in a very small footprint with the Artis Q floor-mounted system.

The C-arm features a floor rotation point with motorized swivel – from the head-end position to a left-side position. This ensures optimum access to the patient's head as well as extensive coverage from head to toe.

Flexible positioning of the C-arm relative to the table is possible, e.g., allowing access to the patient's left side for pacemaker implantations.

A special orthogonal position with rotated table enables easy access to the patient's head and sides for hybrid procedures.

StraightView maintains upright images for all C-arm and table positions.

The compact and slim-line C-arm design has a small footprint requiring an examination room size of only 25 m^2.

- High positioning flexibility in a very small footprint
- Excellent access to the patient's head for complex procedures under anesthesia
- Extensive coverage from head to toe

Reduce dose, 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.

"Artis Q with its new generation X-ray tube and flat detector has further improved 2D and 3D imaging while at the same time decreasing dose."

Source: Siemens Healthineers Whitepaper "Artis Q: Technological Advancements and Clinical Advantages" (2016)

Additional products and services

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

Artis 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 with tilt and cradle functionality.

Featuring a radiolucent free-floating tabletop that allows for artifact-free 3D imaging, it is particularly well suited for procedures in cardiac and vascular surgery. This is the table of choice, particularly if the room is shared with interventionalists.

Artis Large Display
With the Artis Large Display, 9, 18, or 24 video signals can be connected to the screen. The screen layout can be changed from the tableside.

With its built-in backup concept, additional backup monitors are no longer necessary. Also, a special algorithm ensures sharp display of ECG signals in zoomed formats, which is especially important to precisely visualize intracardiac ECG signals.

Trumpf TruSystem7500 and Maquet Magnus
These surgery tables come with one-piece carbon or with segmented, radiolucent tabletops. These breakable tabletops are highly flexible and the segments are partially motorized. Shuttling allows convenient use of whichever tabletop best matches the requirements of a procedure.

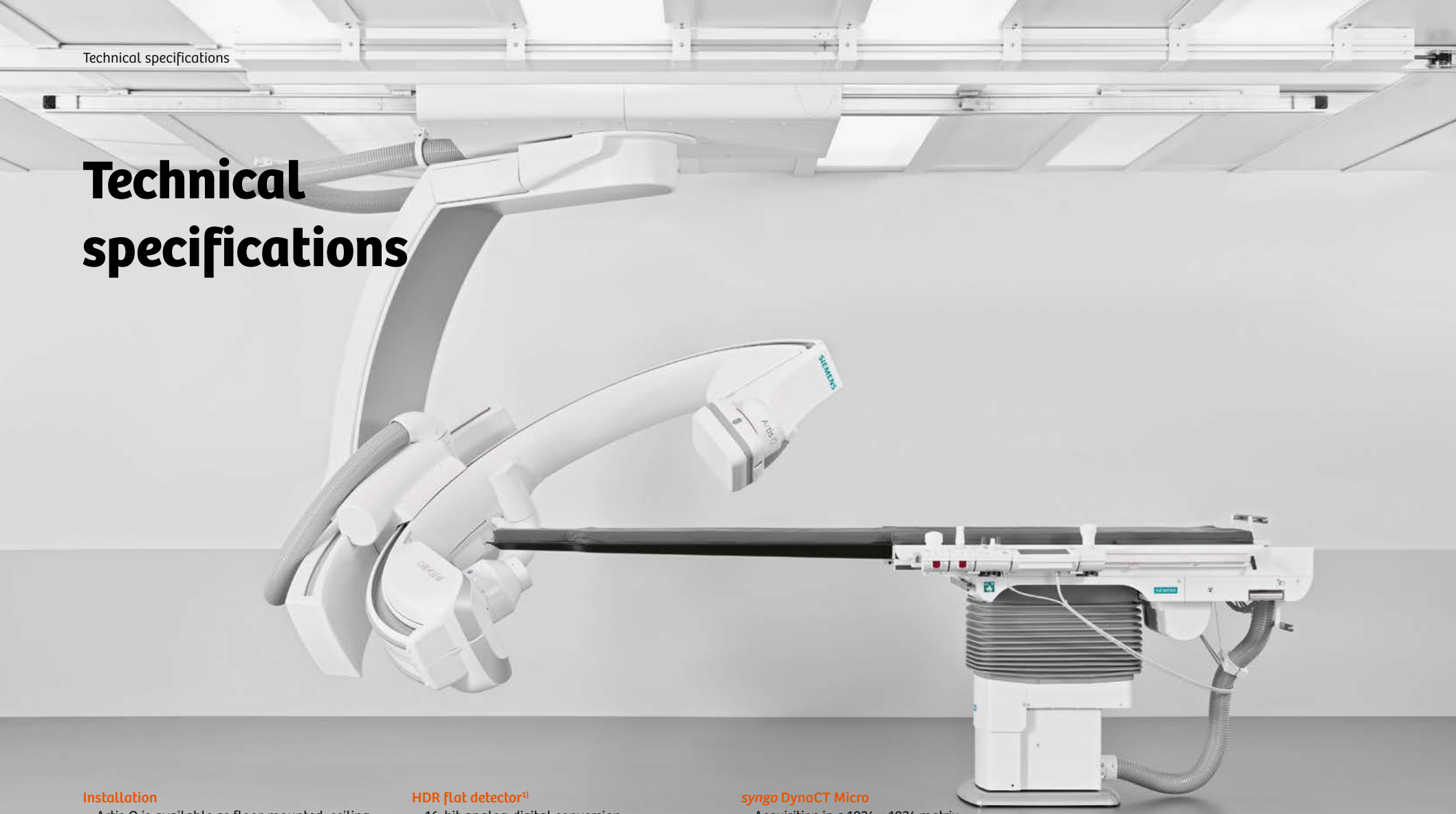
Therefore, the integrated surgery tables are optimally suited for multidisciplinary use or rooms with a high percentage of open surgical procedures. Most surgical disciplines require sophisticated patient positioning, i.e., neurosurgery, urology, trauma surgery, orthopedic surgery, abdominal surgery, and thoracic surgery. These integrated surgery tables provide the necessary flexibility.

Artis Cockpit
Stop running from one system to the next – let the Artis Cockpit consolidate all your information in one workplace. The 30-inch medical-grade monitor offers 4-megapixel resolution and high brightness for excellent image display. Up to 9 inputs can be simultaneously displayed and controlled, with a choice of four different layouts.

The position of the system inputs on the screen can be easily rearranged using the unique drag & drop functionality.

Artis Cockpit offers one single workplace that can be equipped with one or two keyboards and monitors. With so much more efficiency in the control room, you can focus on your procedure and your patient.

Technical specifications



Installation
- Artis Q is available as floor-mounted, ceiling-mounted, or biplane system

Flat-emitter technology with GIGALIX X-ray tube
- Up to 70% better visibility of small devices
- High currents in fluoroscopy (250 mA) and acquisition (1000 mA)
- High cooling capacity of 1.52 MHU/min with 140 mm diameter, 200 Hz rotation frequency, 75 m/s anode track

HDR flat detector[1)]
- 16-bit analog-digital conversion
- 65,000 differentiable gray levels
- Refresh rate of 270 Hz
- Almost artifact-free images with a resolution up to 2480 × 1920 pixels

syngo DynaCT Micro
- Acquisition in a 1024 × 1024 matrix covering approx. 155 mm × 155 mm FoV
- 1×1 binning

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

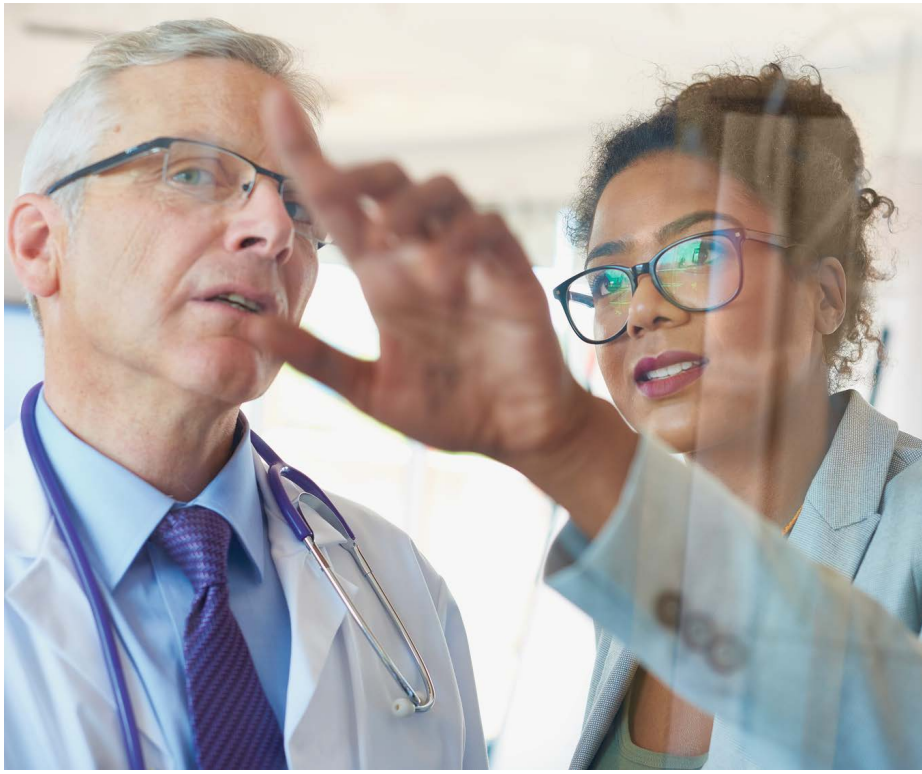
1) Only valid for as40HDR

Why Siemens Healthineers?

At Siemens Healthineers, our purpose is to enable healthcare providers to increase value by empowering them on their journey towards expanding precision medicine, transforming care delivery, and improving patient experience, all enabled by digitalizing healthcare.

An estimated 5 million patients globally everyday benefit from our innovative technologies and services in the areas of diagnostic and therapeutic imaging, laboratory diagnostics and molecular medicine, as well as digital health and enterprise services.

We are a leading medical technology company with over 170 years of experience and 18,000 patents globally. With more than 48,000 dedicated colleagues in 75 countries, we will continue to innovate and shape the future of healthcare.



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