SIEMENS

Artis Q

Visionary intervention

www.siemens.com/artis-q

Answers for life.

Experience the future of interventional imaging

Artis Q

Visionary in performance.
Visionary in precision.

The Artis Q product line for interventional imaging is a visionary breakthrough in X-ray generation and detection that takes **performance** and **precision** to the next level.

Artis Q offers unparalleled **performance** with the new powerful GIGALIX X-ray tube for high contrast resolution at any angle and any patient size while the high-dynamic range detector enables enhanced image quality in advanced 3D imaging.

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

Experience the future of interventional imaging.

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

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 image quality, Artis Q provides enhanced visualization 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.


CARE+CLEAR

GIGALIX

Focused power

The GIGALIX X-ray tube has been designed around a unique flat emitter technology that 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 result in higher spatial resolution for all clinical applications and help to better visualize small devices and vessels.

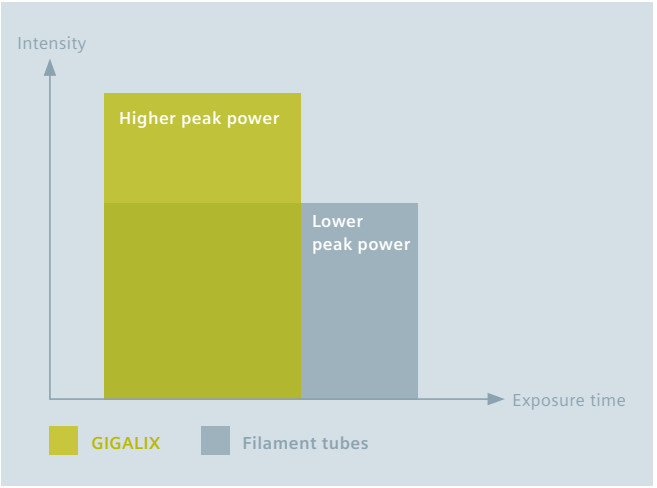
Together with the higher contrast resolution, this results in up to 70% better visibility of small devices.*

With CLEARpulse, the pulse length can be shortened. This allows visualizing moving objects such as coronary vessels more sharply.

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*.

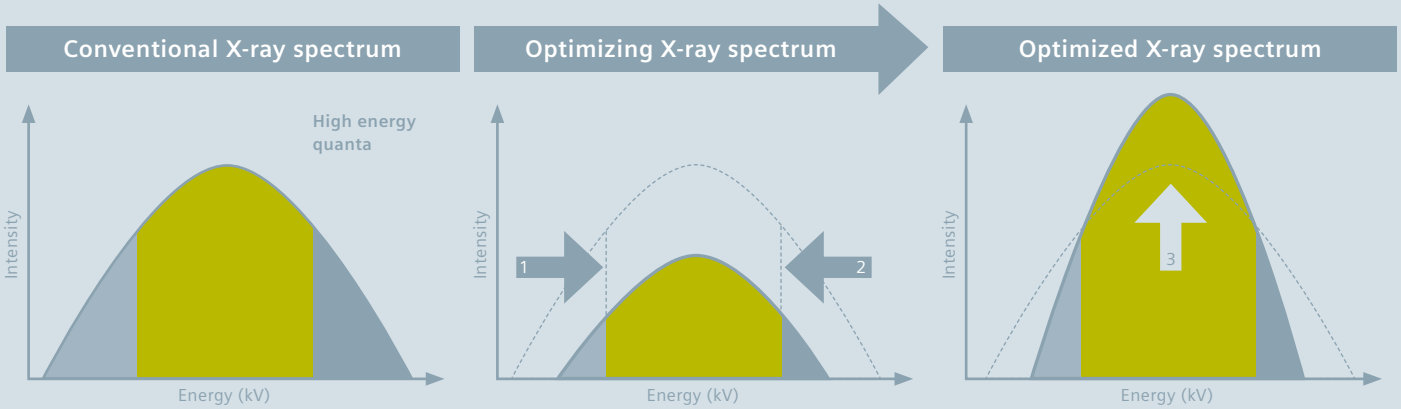
The GIGALIX X-ray tube in the Artis Q product line scores a double win: enhanced image quality at a significantly lower dose for both patients and staff.



- Flat emitter technology for high contrast resolution even at steep angulations
- Small square focal spots for excellent spatial resolution to see more details
- CLEARpulse for sharp images and low dose

CLEARpulse – sharp images and low dose

How to optimize X-rays 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*

Up to 43% shorter pulses for better images and optimized dose*

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

- 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

New large HDR detector

High dynamic range and dose efficiency

In addition to X-ray generation, X-ray detection is crucial for high image quality. The new large detector comprises a 16-bit read-out generating more than 65,000 gray scale values leading to enhanced soft-tissue contrast in 3D imaging, especially at image borders (e.g. close to bones like the skull).

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 supports a stable image quality even in long-lasting procedures.

syngo DynaCT with large HDR detector – Increased soft-tissue resolution

syngo **DynaCT (14 bit read-out)**

syngo **DynaCT with large HDR detector (16 bit read-out)**

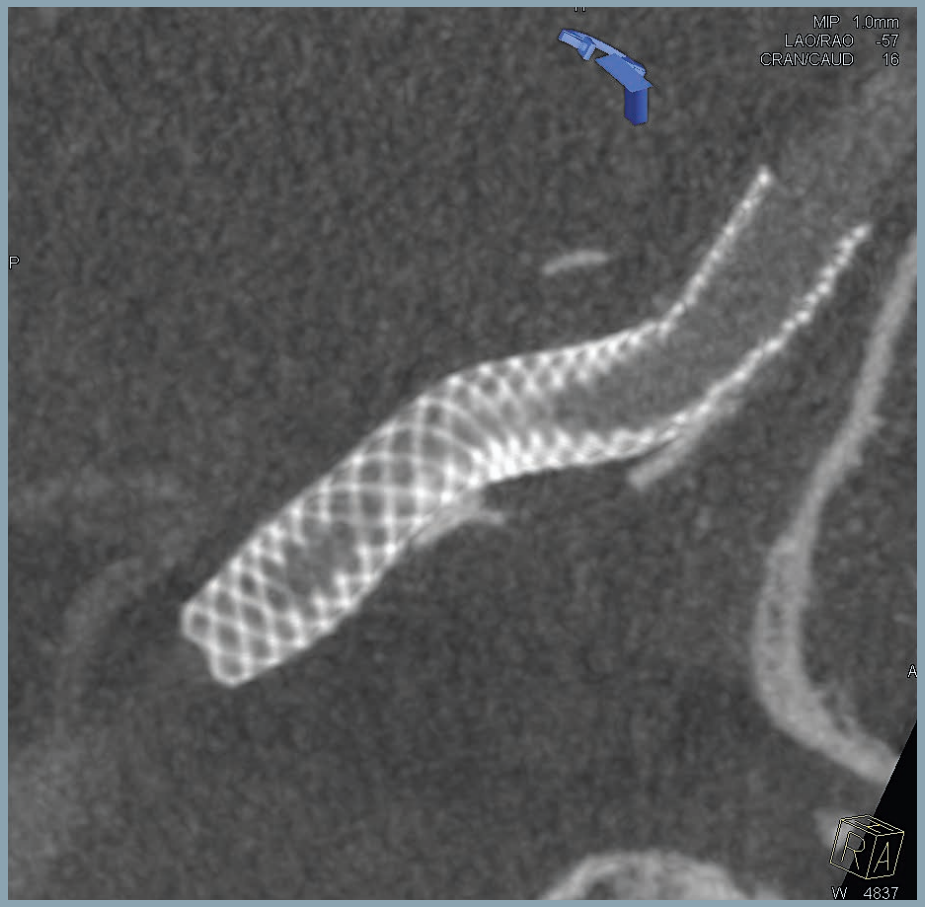
Enhanced soft-tissue resolution, especially close to the skull (phantom images using CATPHAN CTP 515 phantom)

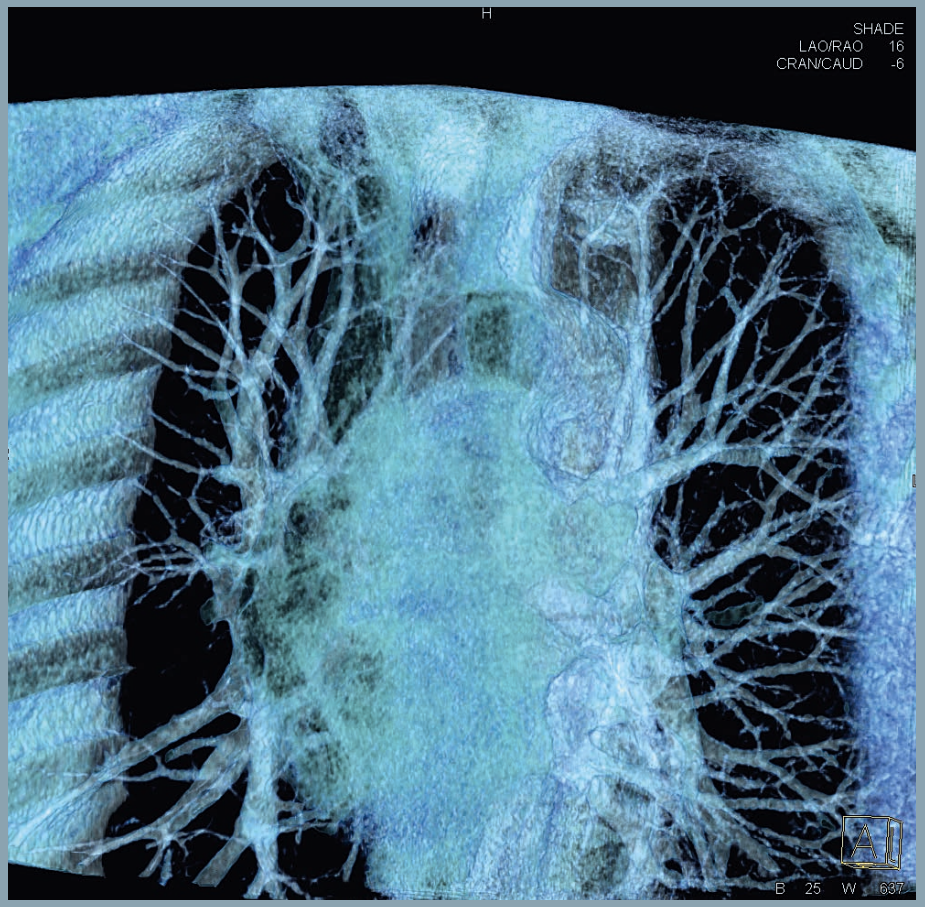

Artis Q

Visionary in ... precision

Precise guidance is needed to help improve clinical outcomes during interventions. Artis Q offers applications for cardiology, interventional radiology and image-guided surgery.

Applications for advanced interventional imaging





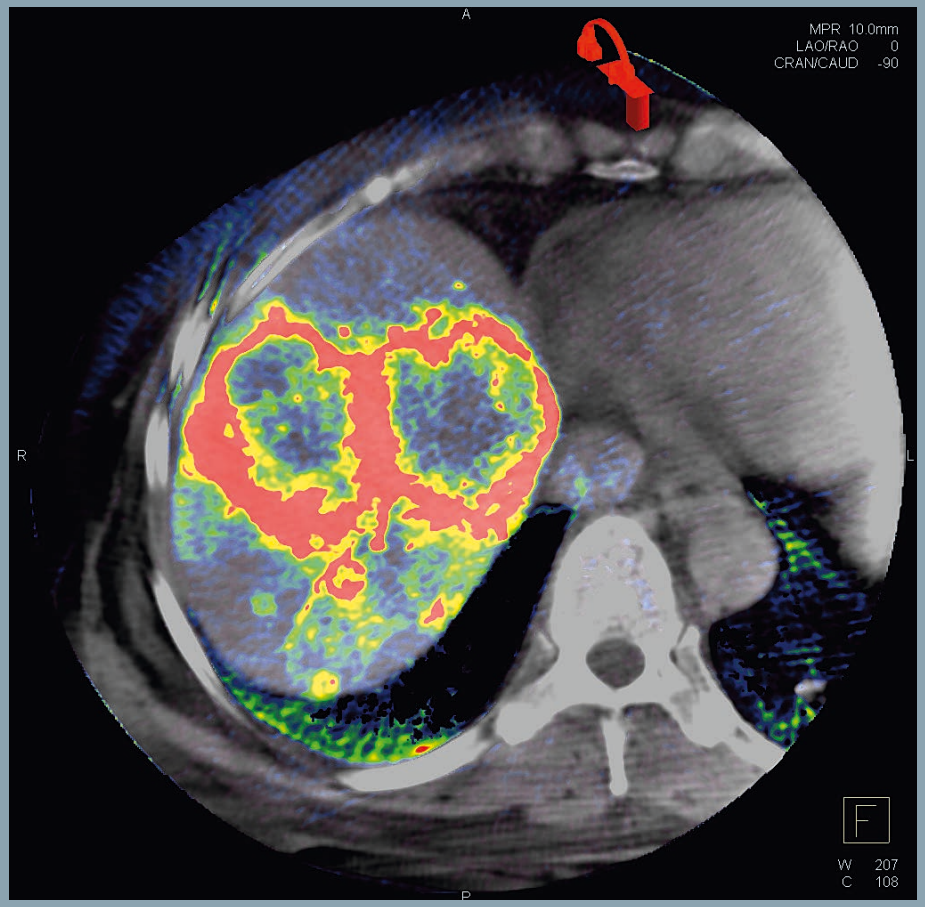
syngo DynaCT Micro –
Boosting the level of detail

- 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

syngo Dyna3D HighSpeed* –
Freeze the motion for better treatment

- The fastest 3D protocol on the market – in less than 3 seconds
- Fewer motion artifacts, less contrast media
- Better visualization of moving organs

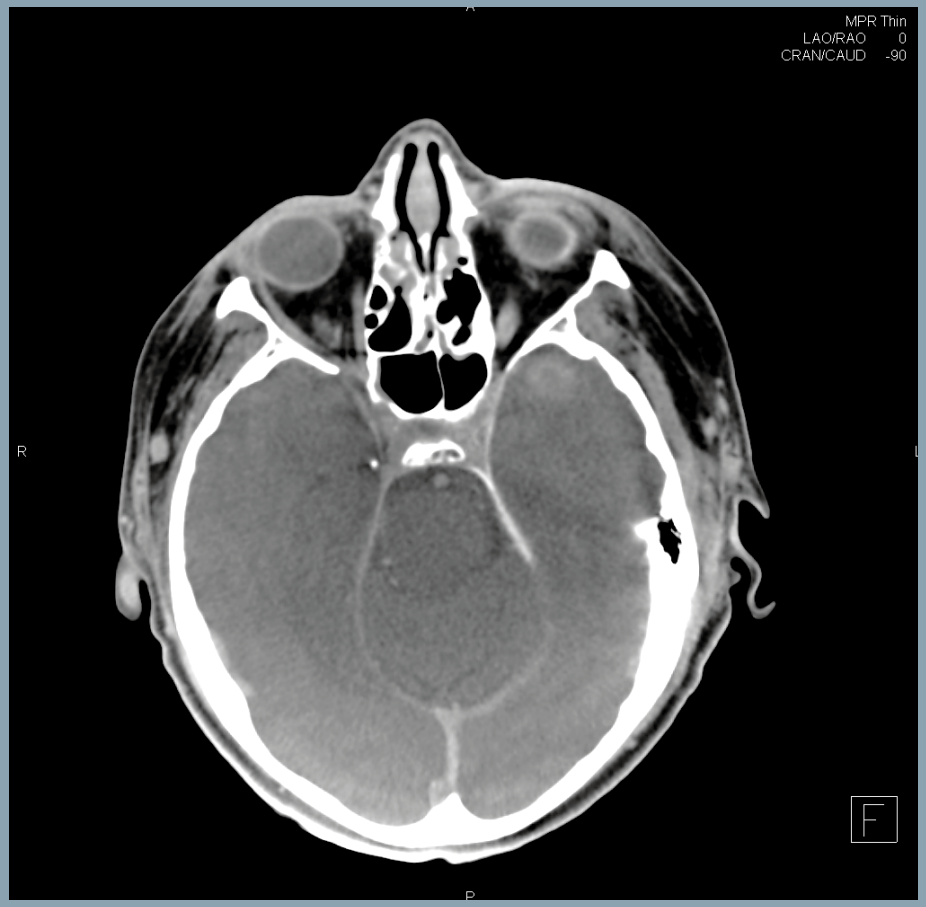
*For Artis zeego only



syngo DynaPBV Body –

Evaluate perfusion for personalized therapy

- Provides physiological information about lesions directly in the angio-suite
- Supports endpoint determination during embolization
- Potential to identify non-responders directly after interventional therapy

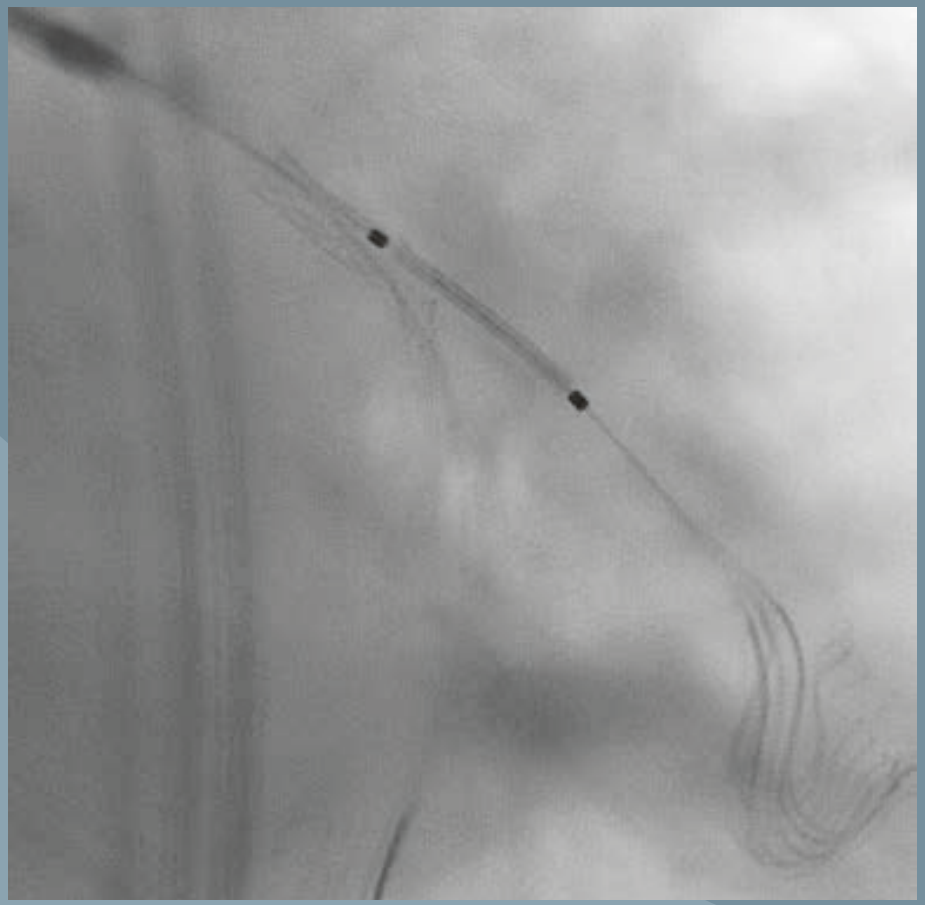


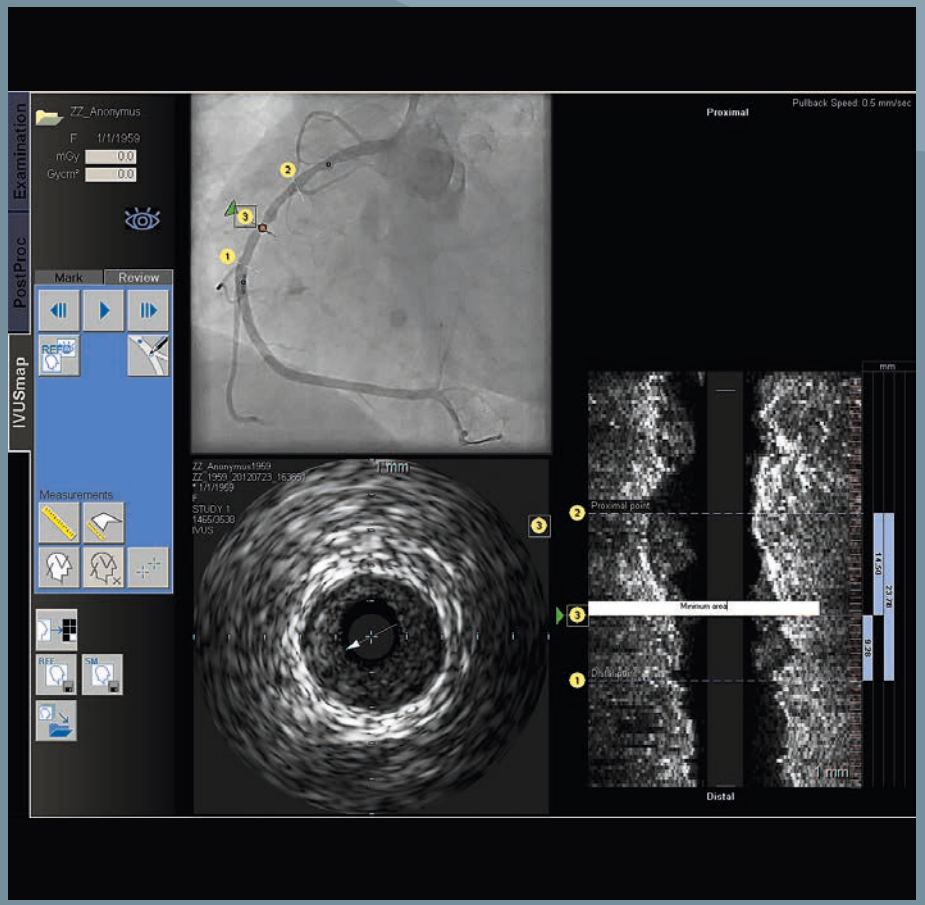
syngo DynaCT with new large HDR detector –

Increasing soft-tissue resolution

- 4 times the gray-value information
- Enhanced soft-tissue resolution
- Homogeneous image quality

Applications for advanced interventional imaging





CLEARStent Live –

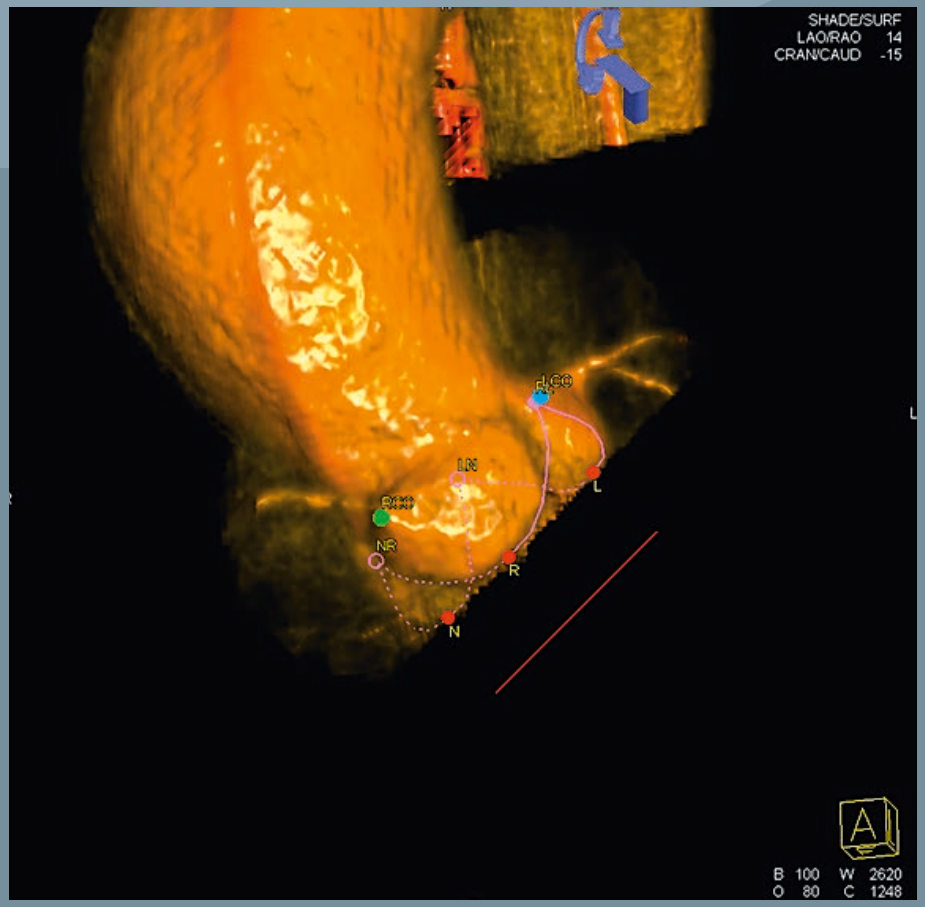
Real-time stent enhancement software

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

IVUSmap –

Integrated co-registration of IVUS images with angiography

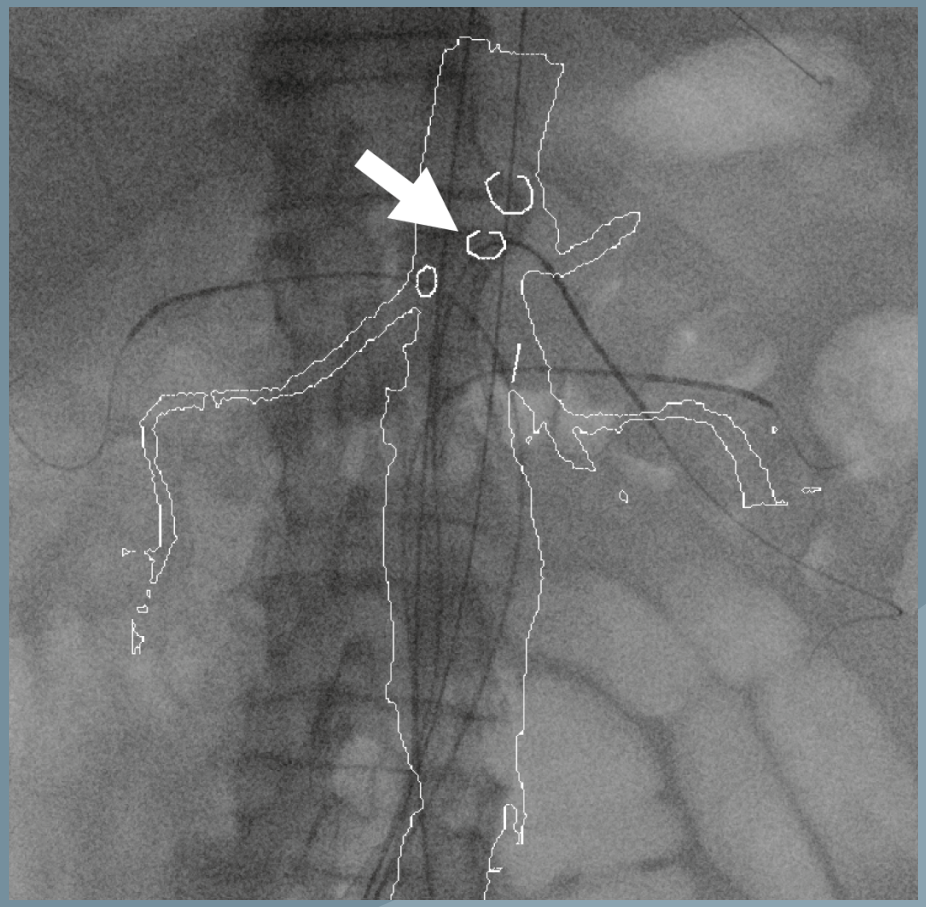
- Combined information of angiography and IVUS imaging
- Bookmarks guide stent positioning and deployment
- Automated workflow integrated into procedure



syngo Aortic ValveGuide –

A new level of valve positioning convenience

- 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



EVAR-3D Guidance –

New comfort for precise graft deployment

- Segmentation of aortic aneurism and marking of anatomical landmarks like renal arteries
- 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

When vision becomes reality …

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


SIEMENS
Artis Q

Artis Q

Floor-mounted system

The Artis Q floor-mounted system offers high positioning flexibility on a very small footprint.

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.

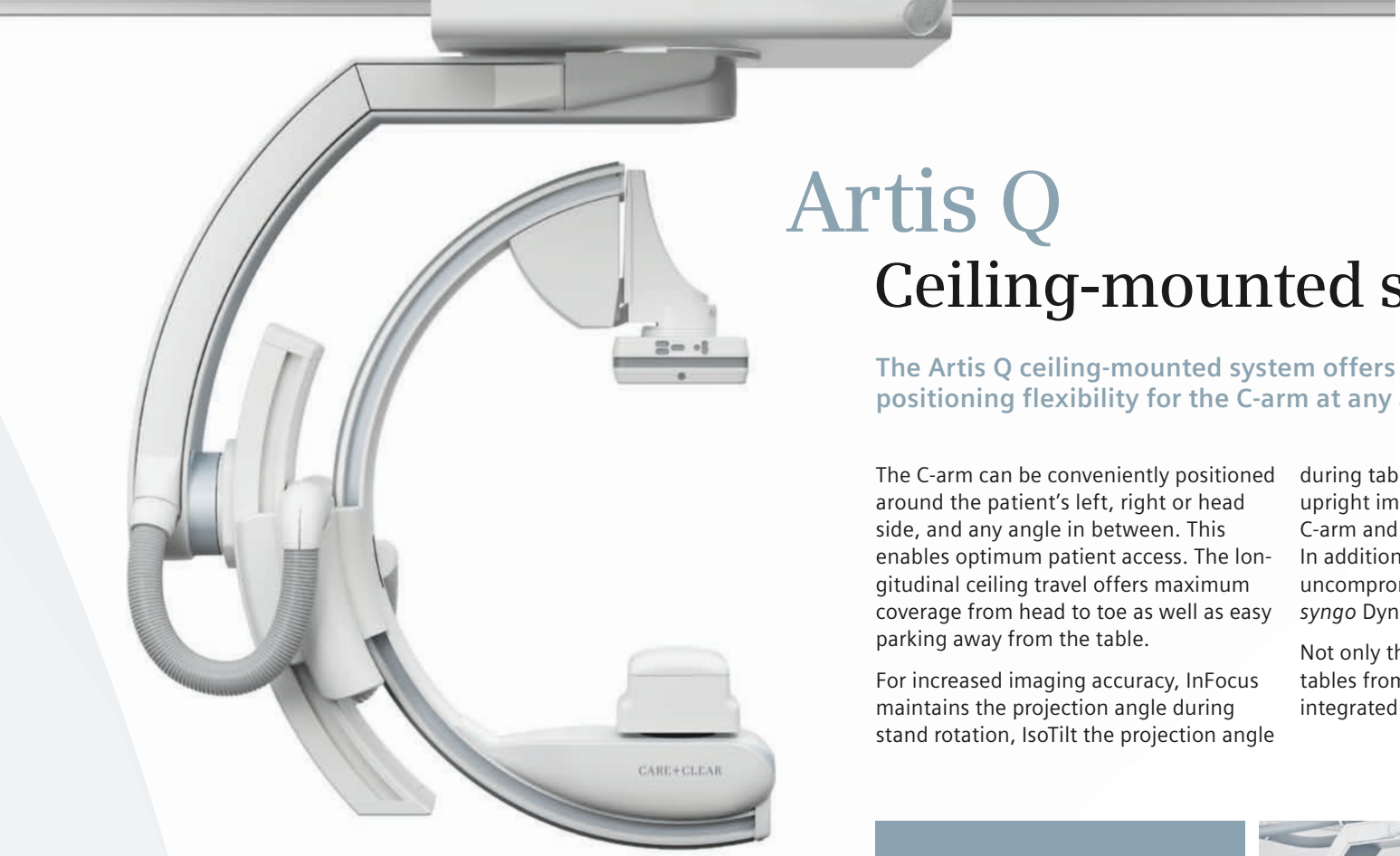
Flexible positioning of the C-arm relative to the table is possible, e.g. allowing access to the patient's left side for pacemaker implantations.

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

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

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

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



Artis Q

Ceiling-mounted system

The Artis Q ceiling-mounted system offers high positioning flexibility for the C-arm at any angle.

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. 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

The Artis Q biplane system offers high positioning flexibility and excellent patient access for biplane imaging.

The Artis Q biplane system combines high performance and positioning flexibility. 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 zeego

Artis zeego offers unparalleled positioning flexibility with a variable isocenter.

The unique multiple-axis design of Artis zeego enables unparalleled positioning flexibility and makes it the optimal system for hybrid operating rooms and all procedures where coverage and advanced 3D imaging are key.

3D rotational imaging can be performed from five different system positions: at the patient's left, right, and head, and with the table rotated to the left or right. Artis zeego offers unique 3D imaging protocols such as *syngo* DynaCT 360 and *syngo* Dyna3D HighSpeed.

Thanks to its unique variable isocenter, the working height of the Artis zeego system can be adjusted to a comfortable level according to user height.

Flexible parking positions provide operators with ample work space around the table when imaging is not required.

Artis zeego meets the highest hygienic standards in the OR, allowing laminar air flow and maintaining sterility requirements.

- Variable Isocenter for comfortable working height
- Enables 3D rotational imaging from five different system positions
- Meets the highest hygienic standards in the OR

The broadest portfolio of surgical tables on the market

With the Artis OR table and integrated surgical tables from Maquet and Trumpf, Siemens gives you the broadest choice of table systems for your hybrid and operating rooms.

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 OR table

- Available with the entire Artis family
- Suitable for 3D imaging
- Free floating
- Tilt and cradle functionality ±15°
- Overhang 224 cm (102.36")
- Maximum weight 200 kg (440.9 lbs)

Trumpf TruSystem 7500

Maquet Magnus

Trumpf TruSystem7500 and Maquet Magnus

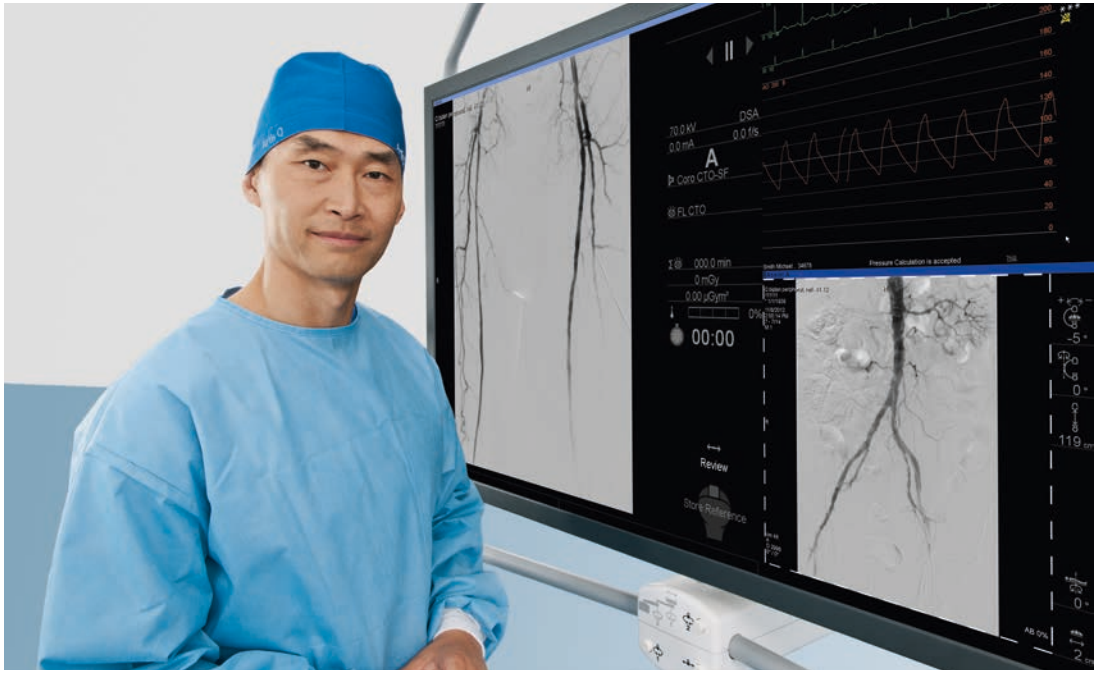
These surgery tables come with one-piece carbon or with segmented, radiolucent tabletops. These breakable tabletops are highly flexible and the segments are partially motorized. Shuttling allows convenient use of whichever tabletop best matches the requirements of a procedure. Therefore, the integrated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

Artis Large Display

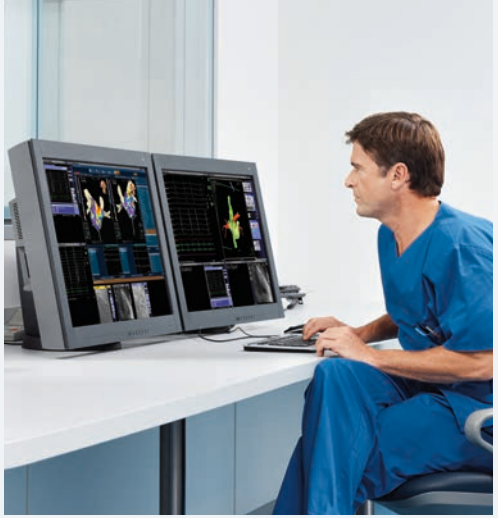
It’s time to see the whole picture on one monitor.

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 back-up 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.



- Scaleable from 9 to 24 inputs
- Tableside control
- Special ECG signal optimization algorithm



- Control up to 9 systems from one workplace and clean up your control room
- Configure the Cockpit to your needs with one or two keyboards and monitors

Artis Cockpit

It's time to clean up the control room.

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.

CARE & CLEAR

Artis Q includes the CARE and CLEAR packages to complement the imaging chain for optimized post-processing and dose reduction. The CARE package helps reduce radiation for the operator and patient. The CLEAR package offers a comprehensive range of applications to enhance image quality. CARE and CLEAR are standard with all Artis Q systems.

We think beyond technical hardware improvements. Introduced in 1994, our ever growing CARE portfolio (Combined Applications to Reduce Radiation Exposure) continues to reduce radiation dose for patients and clinical staff while maintaining high image quality for diagnostic confidence.

Dose saving

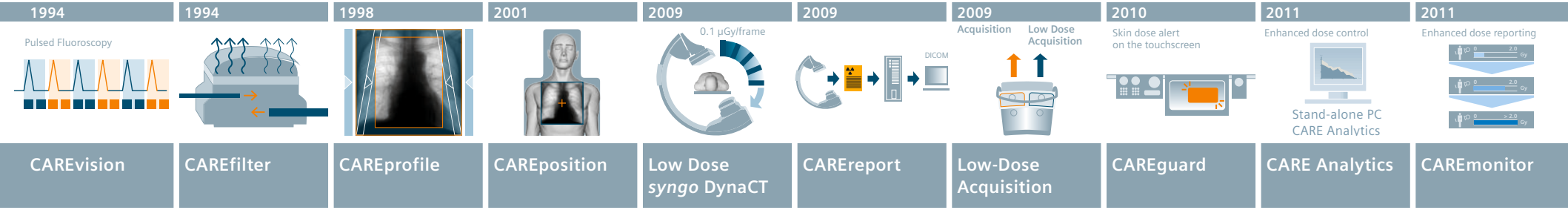
- **CAREvision** provides variable fluoroscopy frame rates, pulse frequencies can be adapted to clinical needs
- **CAREfilter** is a specially designed copper prefiltration system that automatically adjusts the filter to the patient's anatomy
- **CAREprofile** allows radiation-free collimator and semitransparent filter adjustment using the last image hold (LIH) position as reference
- **CAREposition** enables radiation-free object positioning, i.e. allows the table or C-arm position to pan without using fluoroscopy
- **Low-Dose Acquisition,** a dedicated acquisition protocol, helps to achieve dose reductions
- **Low-Dose *syngo* DynaCT** provides 3D images at the lowest possible dose levels

Dose monitoring

- **CAREguard** allows three threshold values to be defined for the accumulated skin dose and signals when a skin dose level is exceeded
- **CAREwatch** displays the dose area product and dose rate at the interventional reference point on the live display in the examination and control rooms
- **CAREmonitor** shows in real-time the accumulated peak skin dose according to the current projection in the form of a fill indicator on the live monitor

Dose reporting

- **CAREreport** is a DICOM-structured radiation report containing all patient demographic, procedure, and dose information
- **CARE Analytics** is a stand-alone tool for installation on any PC in the hospital network, allowing evaluation of DICOM dose structured reports



CLEAR offers a comprehensive range of applications with real-time processing to enhance image quality – without increasing the dose.

- **CLEARpulse** shortens the pulse length and optimizes the X-ray spectrum, which leads to overall image quality improvements
- **CLEARcontro**l enhances the image creation process with a unique histogram analysis and optimizes image brightness and contrast
- **CLEARview** enhances overall image quality, especially when using low-dose imaging protocols with dose-adaptive noise reduction
- **CLEARmotion** helps detect small structures and efficiently compensates for motion artifacts
- **CLEARchoice** enables preferred image quality selection during application

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

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