Artis one
Designed around you

siemens-healthineers.us/artis-one
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.

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 What’s customary today can be outdated tomorrow.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 recanalizations to minimize amputations in patients with CLI.

Trends in Cardiology

- **Demographic changes**: Older population which means an increasing number of patients call for better, faster and more effective care. Furthermore, new and more complex procedures and devices result in ever-changing workflows and advanced treatment methods.
- **Procedure mix**: The procedure mix in the cath lab is getting broader: 2/3 of all cath labs are used for non-cardiac procedures, and the treatment of resistant hyper-tension is one of the biggest challenges.
- **CAD procedures**: More than 18 million* CAD procedures are performed worldwide per year with an increase of over 5%.

* Source: DRG Data Extract 2016 / 2017 – world figures calculated in staged approach
Different in any ways.
New approach to interventional imaging
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What’s different?

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2. Panoramic display
3. Artis one collimator MEGALIX Cat Plus 2-focus tube
4. Artis one user interface
5. Artis one table
6. System stand
A new approach to interventional imaging

- State-of-the-art technology
- Next-generation imaging tools
- Embrace the 3rd dimension
- Unparalleled coverage

- Always knows where to go
- Intelligent controls keep your attention focused
- Large and crisp images with configurable layouts

Artis one.
Designed around you.

- Small footprint, large returns
- Easy to understand, easy to deploy
- one for all your everyday challenges
How to ensure that you see the full picture?

**Uncompromised Imaging**

- MEGALIX Cat Plus X-ray tube with flat emitter technology and new as30 flat detector
- Unparalleled 2.10 m longitudinal coverage, 1.90 m lateral
- Static and real-time stent enhancement with CLEARstent and CLEARstent Live
- CARE+CLEAR included
- Optional 3D imaging
Great contrast resolution

MEGALIX Cat Plus angiography X-ray tube with flat emitter technology

The MEGALIX Cat Plus X-ray tube is already used by many satisfied customers. As the first angiography tube in the world, it introduced the unique flat emitter technology that allows a tube current of 250 mA during fluoroscopy while keeping the voltage low. This ensures great contrast resolution even in steep angulations required during cardiac procedures.

To reach these steep angulations, which is important during cardiac procedures, Artis one comes with a redesigned conically-shaped collimator. Naturally, the collimator features StraightView to always see upright images of objects that are not aligned with the table and independent of the C-arm position.

Comfortable coverage

as30 flat detector for a broad range of examinations

Artis one comes with the new as30 mid-sized format flat detector, based on amorphous silicon. Its active detector matrix of 29 cm x 26 cm allows enough coverage for peripheral examinations while not limiting C-arm angulations during cardiac procedures. The detector resolution of 1560 x 1420 pixels enables native 1.5K imaging and display for depiction of finest vessel or stent structures.
Optimal image quality at the lowest reasonable dose

CARE+CLEAR is our comprehensive portfolio of image quality and dose saving tools—standard with Artis.

Image quality is key to successful procedures. On the other hand, there is increasing awareness and demand for dose reductions to protect both, patients and staff. These two areas seem to be conflicting. With CARE+CLEAR however, Artis one like any other Siemens Healthineers angiography system, features a comprehensive portfolio of image quality improvement and dose-saving tools. For optimal image quality at the lowest reasonable dose.

CARE+CLEAR supports you in making confident decisions in diagnosis and treatment and increases the safety of both your patients and staff. A Siemens exclusive: CARE+CLEAR is standard with every Artis angiography system and unmatched since 1994.

CARE
Siemens has always been a pioneer in reducing radiation dose for patients and staff. The philosophy behind our Combined Applications to Reduce Exposure (CARE) is simple: They are designed to help you deliver better care at the lowest reasonable dose.

CLEAR
Whether your patients are tall or short, heavy or light-weight—you want to have optimal image quality. Our CLEAR image processing automatically enhances image quality and thus helps increase certainty during interventions.

Almost 20 years of Siemens innovations to reduce, monitor, and report dose in angiography
All standard projections in one sweep

Dual-axis rotational angiography with HeartSweep

Imagine being done with a diagnostic coronary examination after only 5 seconds and using a single contrast injection only. In one run, HeartSweep covers all standard coronary diagnostic projections, allowing you to quickly assess the coronary vessels afterwards. After identification of a coronary lesion, the HeartSweep scene can be stopped at the ideal view and using the Automap feature, the C-arm can automatically be moved into the corresponding projection.

HeartSweep acquires all cardiac diagnostic standard projections in a single movement

HeartSweep images of the left coronary artery showing significant stenosis in the LAD.

University Hospital Erlangen, Germany
Clear device imaging

**Static stent enhancement with CLEARstent**

CLEARstent allows to precisely assess the fit of an implanted stent and to document it. It can also be used to get an overview of previously implanted stents, e.g. in case of fracture or in-stent restenosis.

Depending on the presence of contrast agent, you can get a high-quality enhanced image of the stent or a CLEARstent Dynamic view alternating between stent and contrast-filled vessel. CLEARstent uses dedicated acquisitions or previously acquired scenes. The results are saved in DICOM format for review using any DICOM viewer, e.g. on the physician’s office PC for use during patient conversations.

**Real-time stent enhancement with CLEARstent Live**

With CLEARstent Live, stent enhancement takes place in real-time, eliminating cardiac motion in the image during an ongoing acquisition. This allows you to verify the stent position relative to cardiac anatomy or to stents deployed previously. The CLEARstent Live enhanced images are displayed side by side with the acquisition, and the operator can still move the device facilitating bifurcational stentings or long lesion treatments.

Besides providing you with more positioning accuracy, CLEARstent Live can help speed up procedures and lower the amount of contrast agent needed. There is no additional workstation needed for CLEARstent Live and the results are saved according to the DICOM standard for external review.
3D imaging: overview in three dimensions

Embrace the third dimension

Artis one features two different five second protocols for acquisition of high contrast 3D images. The dose-saving protocol acquires 133 images suitable for larger high contrast vessel structures. The second was optimized for quality and acquires 248 images and can bring advantages for imaging of finer vessels.

Artis one is also capable of opening and displaying 3D images from other modalities, e.g. syngo® DynaCT, multislice Computed Tomography or MRI.

An automated LA segmentation allows one-click segmentation of the left atrium for EP procedures and, together with the integrated interface, automated transfer to a 3D mapping system*.

* CARTO3 interface is currently works-in-progress
How to make sure to utilize your investment to the max?

**Intuitive Interaction**

- Ideal system positions enabling optimal patient access for every procedure
- Display-driven user interface through on-screen menu and heads-up display for intuitive system operation and undistracted operator attention
- Large, crisp images with configurable layouts in a single- or dual-display configuration
Optimal patient access

Motorized system positioning for optimal patient access

Intuitive interaction also means you interact with the system only when you want to, not because you have to. Artis one positioning around the patient is fully motorized and requires only a button press. This ensures optimal patient access during all procedures.

For cardiac positions, the system can be positioned at the head – as most frequently used – or on the left side if access to the patient’s head is needed, e.g. for anesthesia or intubation.

For vascular procedures of the lower extremities, a left-side system position with a rotated table allows maximum patient coverage without table movement. And for pacemaker implantations, the system can simply be moved to the patient’s right side to allow access from the left.
Large and crisp images

**Artis one Panoramic Display with selectable layouts**

Artis one features a 30" display with user-selectable layouts displaying up to three internal (Live, Reference, 3D) and four external image sources. Compared to a 19"4:3 screen, images are shown up to 90% larger, which would correspond to a 26"4:3 screen. This level of magnification allows to see also fine details.

The display is also home to the heads-up display, allowing you to keep constant track of the most important system parameters, like C-arm position or image settings. And the revolutionary on-screen menu in combination with the re-designed tableside control allows intuitive interaction with the system—without the need to look down. This way, the user’s attention stays where it’s needed.

The single 30" display configuration is recommended for systems used mainly for vascular applications. The duadisplay configuration is recommended for cardiac applications and features an optional second screen (standard 21") that is able to connect, for example, to the hemodynamic monitoring system.
Ceiling-like movements, floor-mounted

Unparalleled patient coverage

Artis one can cover 2.10 m (6 ft 10 in) along and 1.90 m (6 ft 3 in) across the table – patient coverage rivaling that of a ceiling-mounted system. With motorized stand movements, this allows peripheral run-offs without the need of moving the patient.

The unparalleled patient coverage also allows acquiring images of objects next to the table, e.g. an outstretched arm during a dialysis shunt revision often increasing patient comfort.

Ceiling-like coverage of 2.10 m along and 1.90 m across the table on a floor-mounted system

Motorized gantry stepping for peripheral bolus chase without moving the table or patient

Bilateral angiogram of renal arteries

Courtesy of University Hospital Erlangen, Erlangen, Germany
How to become more effective?

Positive Impact

• One system for all everyday challenges thanks to dedicated 2D and 3D tools
• Small footprint of 25 sqm, large returns thanks to energy savings
• Cover a broader procedure mix from cardiac through general vascular to peripheral procedures
One for all everyday challenges

Business case Germany
Generate returns with only 40 PCIs a month
Artis one allows you to break even with only 2 PCIs per working day.
Calculation based on German reimbursement schemes and operating costs of Artis one including Sensis recording system and service contract (data on file).

Business case India
Break even with 47 procedures a month
Artis one allows you to break even with only 13 interventional cardiology and 34 diagnostic angiography examinations a month.
Calculation based on Indian reimbursement schemes and operating costs of Artis one including service contract (data on file).
Small footprint, large returns

Only 25 square meters required

Artis one enables ceiling-like flexibility on a floor-mounted system. This means there is no need for a reinforced ceiling, and the unit can fit into rooms of only 25 m² instead of the 45 m² commonly required for a ceiling stand.

Siemens-built industry-proven components are expected to have lower failure rates resulting in significant servicing advantages. Besides, during routine examinations, Artis one uses over 20 percent less energy than Artis zee floor.

And because hardware options that drive complexity have been reduced, the system can be installed more quickly than the Artis zee floor. During system replacements, this means the room can be used to generate revenue faster than before.
## Cover a broader procedure mix

Artis one offers dedicated tools in 2D and 3D to support cardiac, general vascular, and peripheral procedures. For example, it covers the whole coronary workflow, from diagnosis and realtime image guidance to assessment of procedural outcome using CLEARstent, CLEARstent Live, and HeartSweep. This facilitates procedures and can lead to time and contrast savings.

3D imaging and visualization help during cardiac and vascular procedures. 1.5K imaging and ceiling-like patient coverage are great features for general vascular and peripheral procedures. And optimal system positions enable optimal patient access and even leave enough space for larger, multi-disciplinary teams.

### Overview of procedure options • Artis one

<table>
<thead>
<tr>
<th>Cardiovascular Care</th>
<th>General Vascular</th>
<th>Peripheral</th>
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<tbody>
<tr>
<td>CLEARstent*</td>
<td>✓</td>
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<td>CLEARstent Live*</td>
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<td>HeartSweep*</td>
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* Option
Sensis Vibe

Cath labs are busy places where many things are happening at once. Even if a procedure is routine, all moves need to be synchronized, and the entire team has to be on the same wavelength. Documenting the procedure must blend into this flow. Sensis Vibe® is the vital core where all events, decisions, measurements, and data from your procedures are captured. It reduces administrative effort and standardizes documentation and reporting across interventional entities. Sensis Vibe intuitively blends into the rhythm of the interventional floor and tunes up your workflow efficiency.

Ultrasound – ACUSON Freestyle

The ACUSON Freestyle™ ultrasound system sets the pace for modern healthcare. Its advanced technologies, including the industry’s first wireless ultrasound transducers, are designed to streamline operation and sterile field management. Value-based innovations for improving visualization and cable-free scanning are built to deliver new levels of ease and efficiency at your point of care.

Deliver the quality and safety your patients deserve with value-based technologies designed to reduce complications and improve infection control.

Advanced system support

Via our secure data link Siemens Remote Service (SRS), Sensis Vibe can be connected to the service experts in our Customer Care Center. Via SRS, the performance and condition of your equipment can be monitored and interactive services available—including fast error identification, remote repair and software updates, preventive maintenance, and collaboration services.
**STARSyste**m

**STARBoard – Armboard for radial access**
Crafted in carbon fibre for superior strength, radiolucency and durability, the STARBoard is extremely light weight and compact. The unique, one-piece, design makes it easy for nursing staff to handle and takes up minimal storage space.

**STARTable**
STARTable not only provides clinicians with an adjustable work surface, the vertical shield reduces X-ray scatter at neck height by an additional 80%.
## Technical details

### Installation
- Floor-mounted system for uncompromised imaging

### C-arm
- Highly flexible and quick positioning
- Single joystick for patient-angle oriented C-arm and detector movements
- Integrated computerized collision protection
- C-arm depth 92.5 cm (36.4”)
- Stand rotation motorized programmable positioning

### Detector
- Amorphous silicon flat detector with 39 cm diagonal entrance plane
- Imaging size 29 cm x 26 cm
- Image display matrix 1560 x 1420 pixels

### X-ray tube
- MEGALIX Cat Plus tube with flat emitter technology
- Max. exposure voltage (IEC 60613) 125 kV
- Focal spot (0.4, 0.8)

### Operating modes
- Digital pulsed fluoroscopy, with 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
- High-speed acquisition at 10/15/30 f/s for DR and DSA

### Technologies
- CARE+CLEAR for dose reduction and image quality
- CLEARstent and CLEARstent Live
- HeartSweep – During one single sweep, all necessary angulations required for coronary diagnostics

### Display Set-up
- Single 30” Display
- Single 30” Display + additional 21” Display for Hemodynamics
- Panoramic Display: two 30” Displays
- Displays up to 9 additional external image sources

### Integrated 3D imaging
- Two high contrast acquisition modes

### Intelligent controls
- Artis one features a new, unique heads-up display combined with tactile system operation
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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