



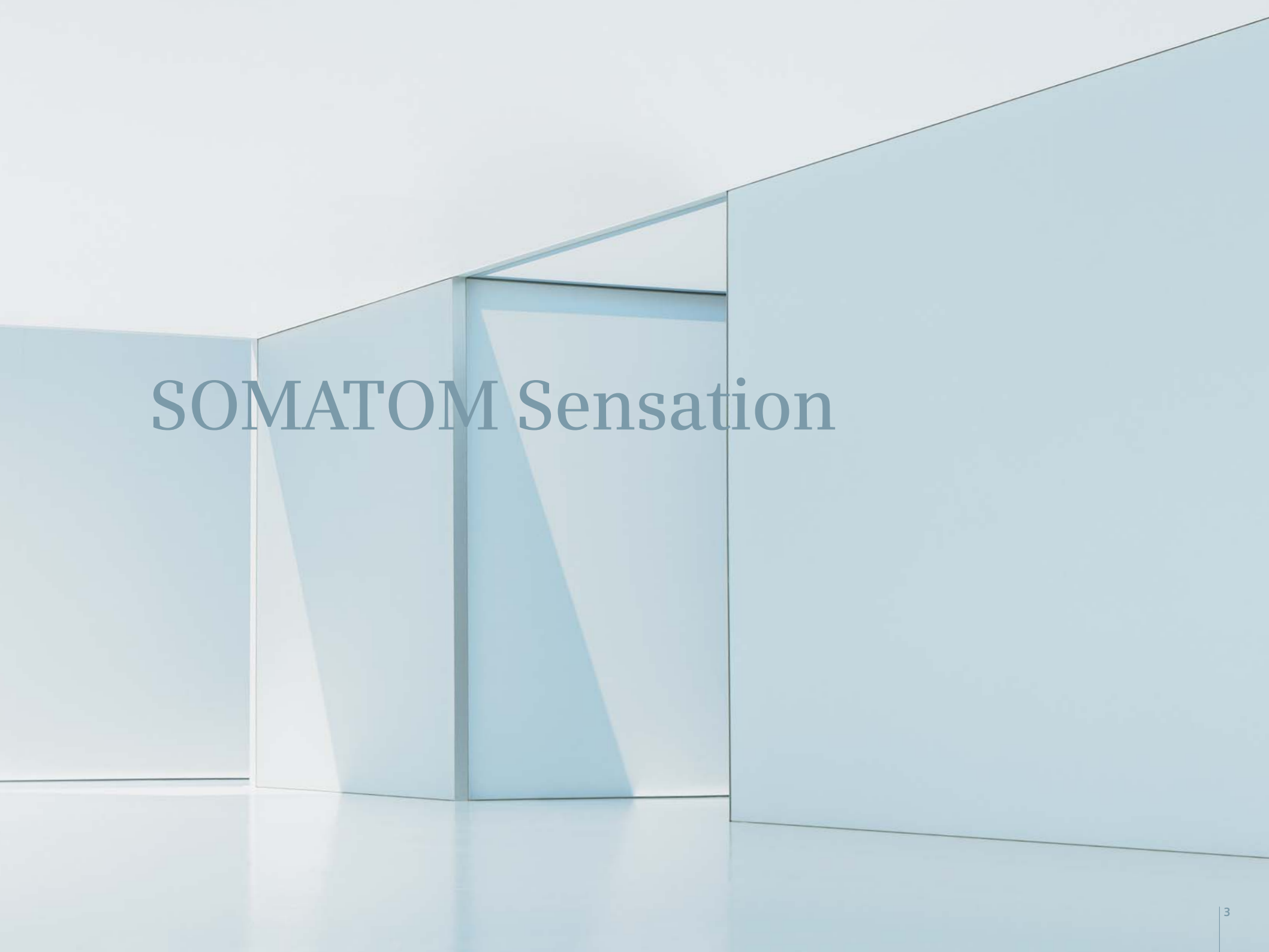
Trusted Performance Without Compromise

SOMATOM Sensation

Answers for life.

SIEMENS





SOMATOM Sensation

Siemens CT Vision



Siemens CT Vision

The justification for the existence of the entire medical industry is, of course, better healthcare for all patients. But the realities of clinical routine often make this simple-to-understand goal quite difficult to realize: stay within budgets, reduce hospital stays, speed up time to diagnosis, and deal with personnel issues while maintaining high clinical standards and volume/throughput. At the same time, patients demand better and faster results.

Your benefits

In order to meet our share of responsibility in addressing these challenges, Siemens, from the earliest stages of research, product development and design, relies

upon the advice and recommendations of external medical experts to determine our focus – and this focus has been on the needs and demands of our end users. In this way, our products have been able to make a welcome difference for you.

Leading innovation

In addition, Siemens has always been a visionary company believing that even the farthest technical horizons were temporary and could be surpassed with consistent dedication to improved health care. This visionary approach, backed up by the largest R&D budgets in the medical imaging industry, has made Siemens the undisputed innovation leader in CT over the last 30 years. Siemens' position as the innovation leader is clear through the

entire CT spectrum from the premium segment to entry level CT. As the first CT vendor to successfully bring 64 slice CT to the market, Siemens' experience in this market segment is unmatched.

Leading patient care

With Siemens' commitment to research and development it is no surprise that SOMATOM CT systems represent the largest installed base of high end CT systems; again proving that Siemens CT systems are the preferred technology not only for the clinical routine, but also for cutting edge research purposes. Over 80% of academic papers published on 64-slice technology up to the introduction of the next CT generation are researched and developed on Siemens CT systems*.

*Data on file.



Trusted Performance Without Compromise

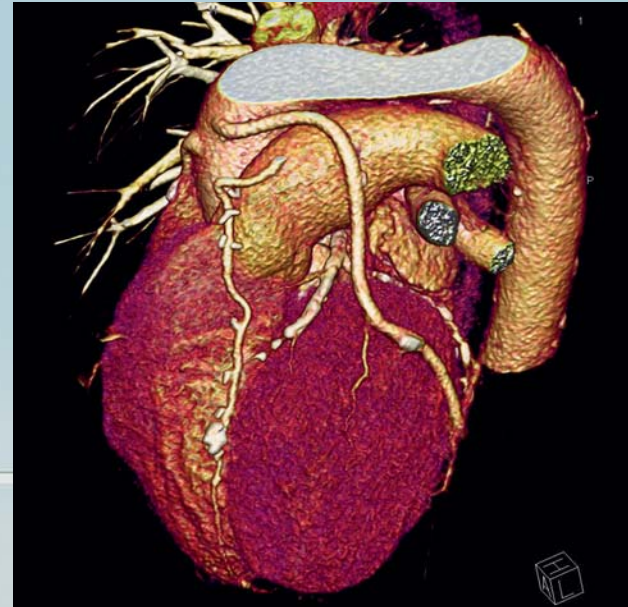
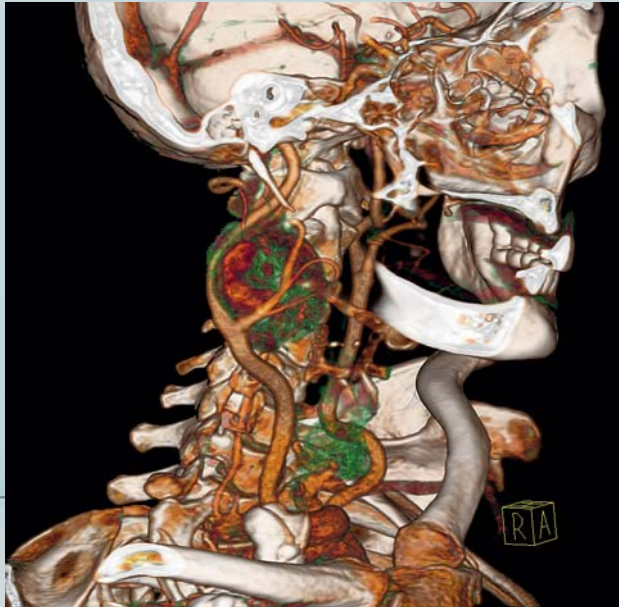
When you take delivery of your SOMATOM Sensation, you will be joining a family of thousands of satisfied, enthusiastic medical professionals who perform millions of patient exams per year. High definition image quality, efficient workflow and up-time are the key ingredients that add up to improved healthcare for your patients and an improved bottom line for your organization.

Your advantages with the SOMATOM Sensation are many: consistent, high image quality for diagnostic precision,

streamlined workflow for shortest time to diagnosis, intelligent applications that are easy to use for greater confidence in less time, and finally, keeping you, your staff and your SOMATOM Sensation up-to-date today and into the future.

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Trusted performance without compromise

In the CT world, the name SOMATOM Sensation is analogous to quality. From a development and engineering perspective the SOMATOM Sensation is a system that has been engineered to perfectly address the needs of the CT users and patients. The precise build-quality for which the SOMATOM Sensation is known, and fact that Siemens have been in the 64-slice market longer than any other CT vendor, offers you the confidence that the investment you make in the SOMATOM

Sensation system is secure. The leading engineering quality of the system is easily seen in the fact that it remains the fastest rotating 64-slice system available on the market* – a key factor in the superb cardiac image quality obtainable with the SOMATOM Sensation.

Speed, resolution, coverage or low dose?

With traditional CT, the trade-off between speed, resolution, coverage, and low dose is a constant factor in selection of scan parameters. If high speed is required then

resolution is lost and visa-versa. With the introduction of the STRATON® X-ray tube and z-Sharp™ Technology in the SOMATOM Sensation this trade-off has been removed. From a clinical perspective this simply means that the highest speed of scanning can be used for long CTA examinations with the knowledge that if a close examination of a small renal artery is required, the highest image quality of 0.33 mm isotropic resolution is still available. This point alone sets the SOMATOM Sensation apart from traditional CT systems, however, the SOMATOM Sensation also offers much, much more.

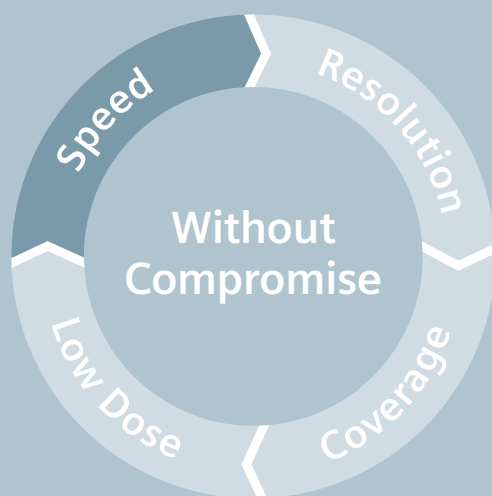
*Based on available information at the time of this publication.



SOMATOM Sensation



Speed



Taking our role as innovation leader seriously, we aim to revolutionize CT in every aspect. Our goal is to give you the latest and most advanced technology enabling you to significantly improve patient care across all disease areas. For example, in cardiac imaging, where the ability to freeze motion is mission critical, the SOMATOM Sensation provides you with the industry's fastest 64-slice rotation time*, making non-invasive cardiac diagnosis routinely available.

Introduction

Speed

STRATON X-ray tube

Our unparalleled 0 MHU STRATON X-ray tube is a paradigm shift in CT imaging. It offers you the combination of maximum speed and exceptional image quality. The tube's direct anode cooling eliminates the need to store increasing amounts of heat within the tube housing. This fact permits a new, compact design, and the segment's fastest CT gantry rotation time of 0.33 seconds for all applications. With the fast cooling time you will not experience cooling delays, even after long range scans or scanning obese patients.

Maximize temporal resolution

The segment leading rotation time available with the SOMATOM Sensation is enabled by the STRATON tube technology.

A rotation time of 0.33 seconds enables a 165 ms single-segment temporal resolution for motion-artefact-free imaging of the heart.

See small, fast-moving structures

The speed of the SOMATOM Sensation together with highest spatial resolution, has the capability to visualize finest anatomical details in crisp, clear images. Even the smallest coronary vessels and plaques appear distinct, and stents are highly delineated for outstanding precision in your diagnosis.



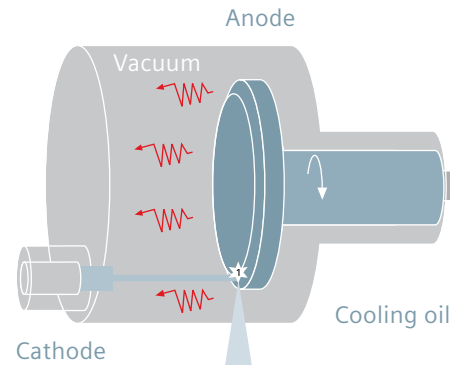
How it works

Compact tube design

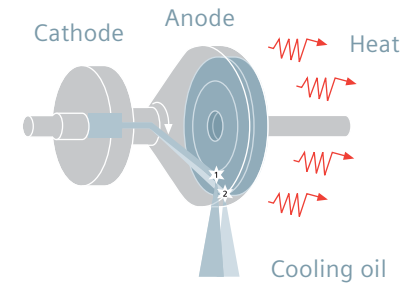
Speed is important in modern CT imaging and the SOMATOM Sensation offers the fastest rotation time in the 40- and 64-slice market*. This offers you the maximum confidence in examination such as cardiac imaging, when freezing the motion of a fast moving object is central to an accurate diagnosis. This 64-slice segment-leading rotation speed is made possible due to the revolutionary, compact design of the STRATON X-ray tube. The speed advantage of the SOMATOM Sensation underpins the great success of this system in the field of cardiac CT angiography.

Eliminate tube cooling delays

Your workflow is also enhanced through the unique cooling capabilities of the STRATON tube which has moved away from the traditional methods of increasing the heat storage abilities of CT tubes with larger and larger anode constructions. With no mechanical, moving parts



Conventional tube technology

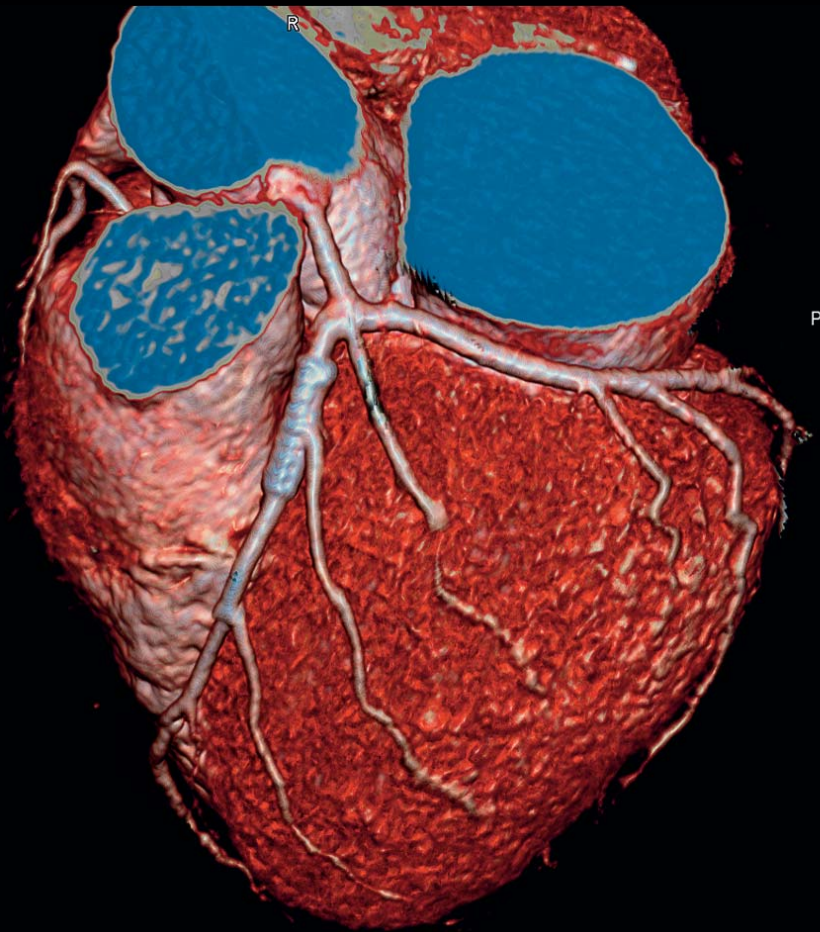


STRATON X-ray tube

enclosed within the metal envelope of the STRATON tube, the cooling oil is able to stay in direct contact with the back of the anode. This completely new concept of CT tube cooling virtually eliminates tube cooling delays and allows access to high power when required in challenging examinations. For your CT workflow this means scanning without delay.

*Based on available information at the time of this publication.

Clinical Images



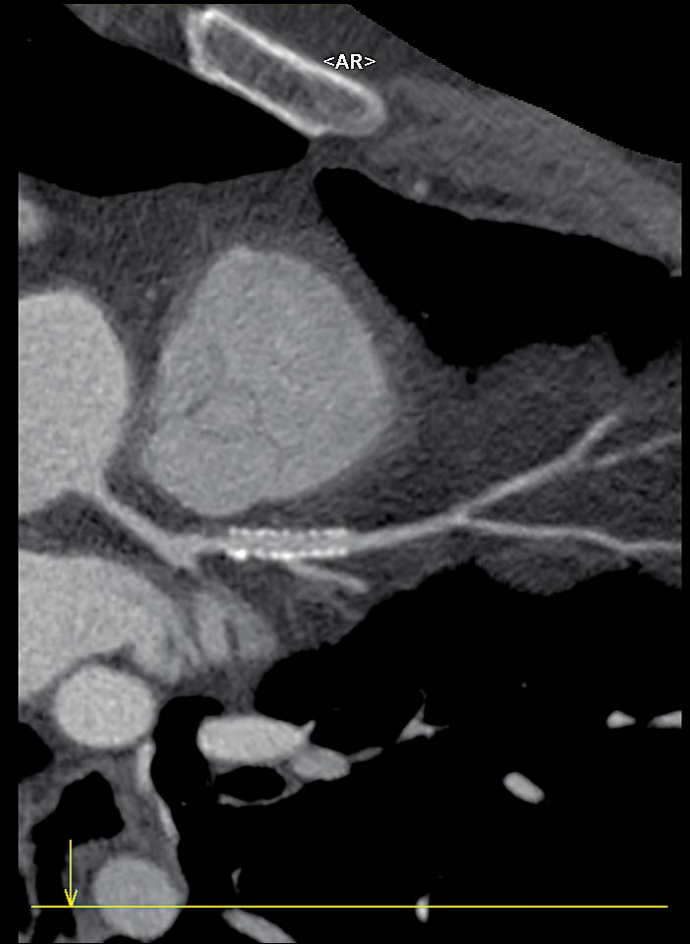
Coronary CT Angio: 0.33 mm isotropic resolution for clear visualization of in-stent lumen with z-Sharp Technology and 0.33 s rotation speed



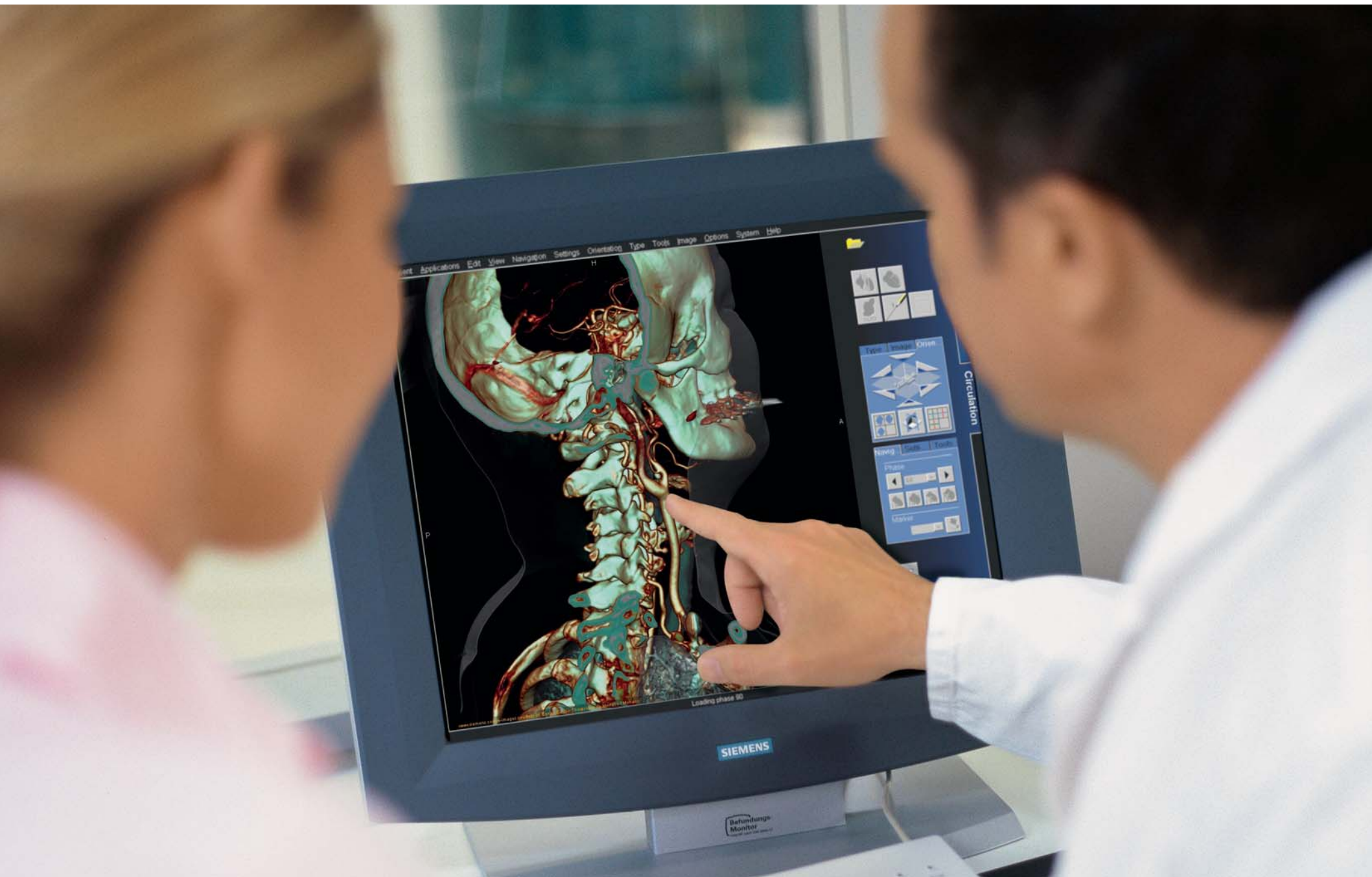
Triple Rule Out: Showing bilateral pulmonary embolism



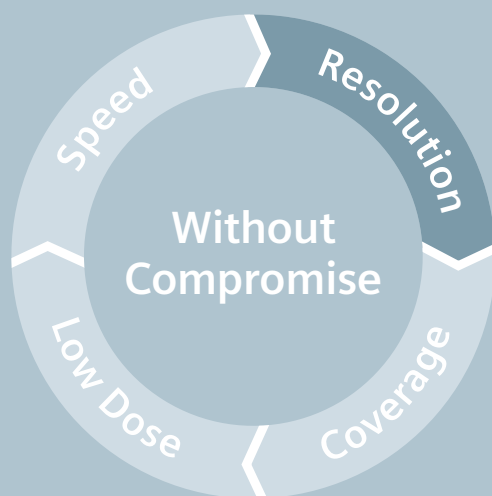
Triple Rule Out: Visualization of coronary arteries, rule out myocardial infarction



Superb image detail of the in-stent lumen with 0.33 second rotation time



Resolution



A significant improvement in visualization of the finest details is what physicians expect from the latest CT technology. Our award winning SOMATOM Sensation, in all its configurations, offers the industry's highest routine isotropic resolution* of 0.33 mm at any scan speed, and within any part of the scan field of view. Highest definition of complex inner-ear bones or tiny joints can be achieved with the z-UHR resolution of 0.24 mm, the ultimate in today's multi-slice spatial resolution.

*Based on available information at the time of this publication.

Resolution

Smarter technology

Instead of decreasing the size of the detector elements to improve spatial resolution, z-Sharp Technology utilizes two overlapping X-ray beams, resulting in significantly increased resolution without a corresponding increase in dose. This provides you with the industry's highest isotropic resolution of 0.33 mm routinely available at any scan and rotation speed, and at any position within the scan field.

Removal of Spiral Artefacts

Additionally, z-Sharp Technology accomplishes previously unknown sharpness and clarity with complete elimination of visible spiral artefacts, giving you higher clinical confidence especially in neuro imaging. The smallest anatomical details – such as the entire

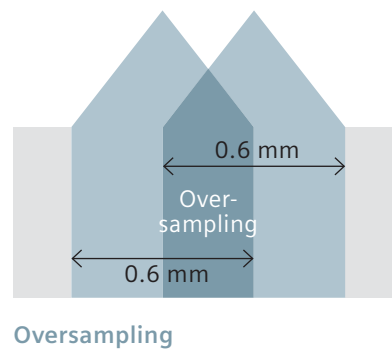
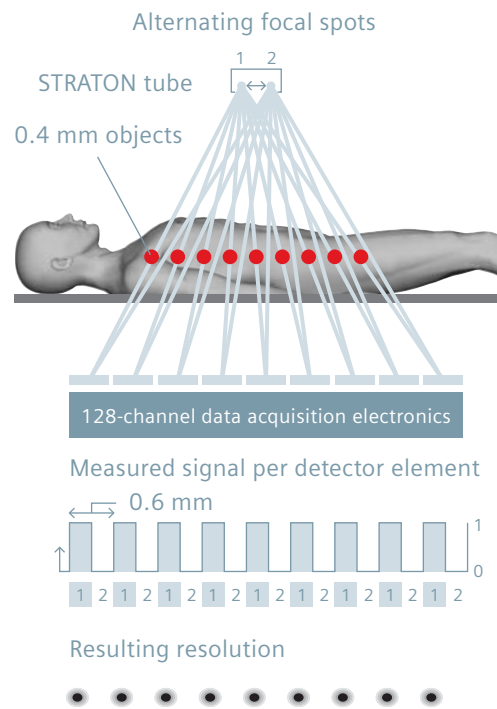
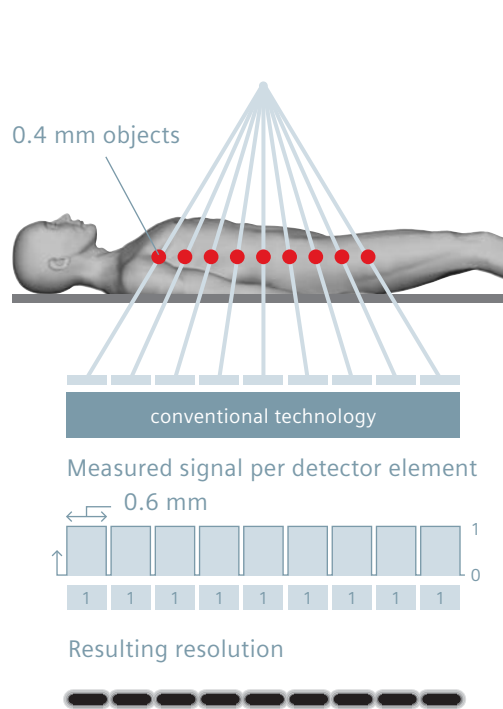
coronary artery tree or the finest vascular structures – are now shown with highly defined detail without compromise.

Highest resolution

The STRATON tube and z-Sharp technologies are the enabling technologies that allow the speed increases available with the SOMATOM Sensation. This same technology also enables a great step forward in resolution. The resolution with the SOMATOM Sensation reaches a level previously known only in the world of flat-panel and micro CT. The z-UHR scan techniques allow resolution down to an amazing 0.24 mm through the use of an effective 0.3 mm detector element.

z-Sharp Technology

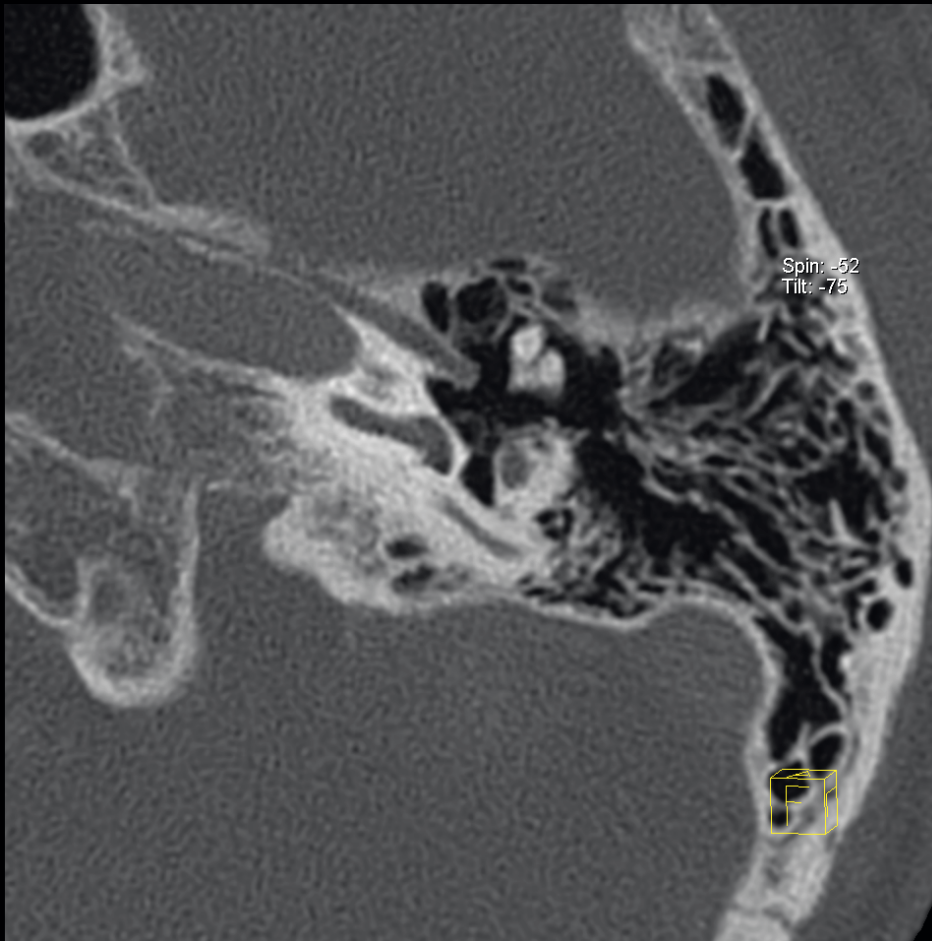
z-Sharp Technology works with a flying focal spot in the z direction to continually obtain two separate samples of the anatomy during normal CT scanning. As with the segment leading rotation speed of the SOMATOM Sensation, this process is enabled by the STRATON tube. Magnetic fields generated from outside the rotating tube allow the electron beam to be accurately focussed onto the anode. The precisely controlled variations in these magnetic fields allow for the controlled movement of this electron beam between distinct focal points on the anode. This unprecedented control results in a very small CT tube focal spot, and the double sampling of all anatomical areas to reach the resolution for which the SOMATOM Sensation is known.



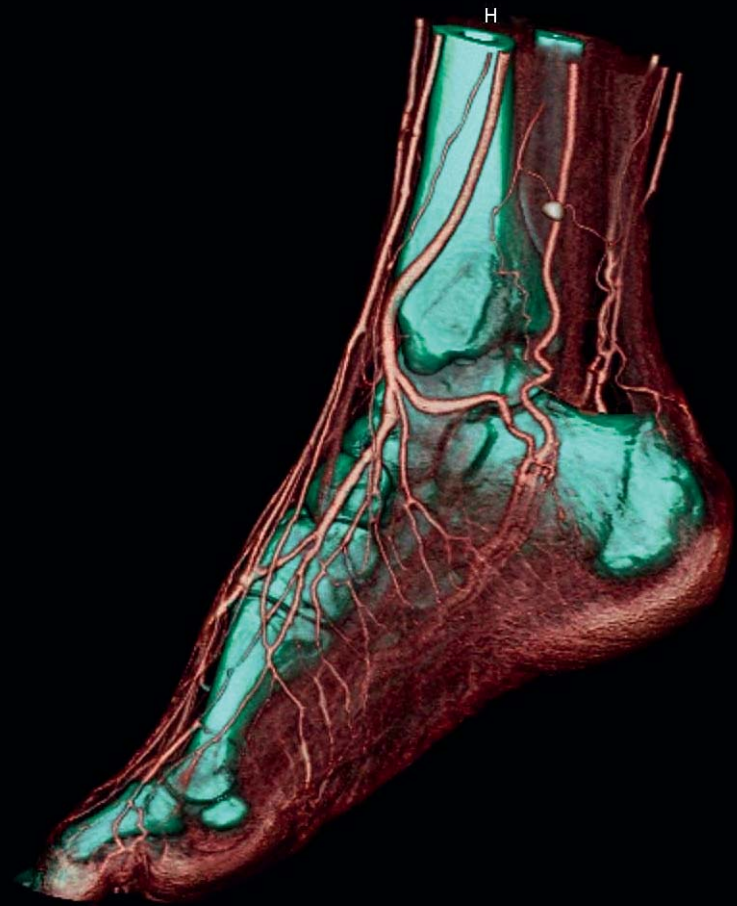
Taking resolution to a whole new level

With our proprietary z-UHR Technology, we push the boundaries of spatial resolution even further. For ultra-high resolution bone imaging, such as in examinations of the wrist or the inner ear, z-UHR provides unparalleled 0.24 mm isotropic resolution – until now seen only with research flat-panel and micro-CT technology.

Clinical Images



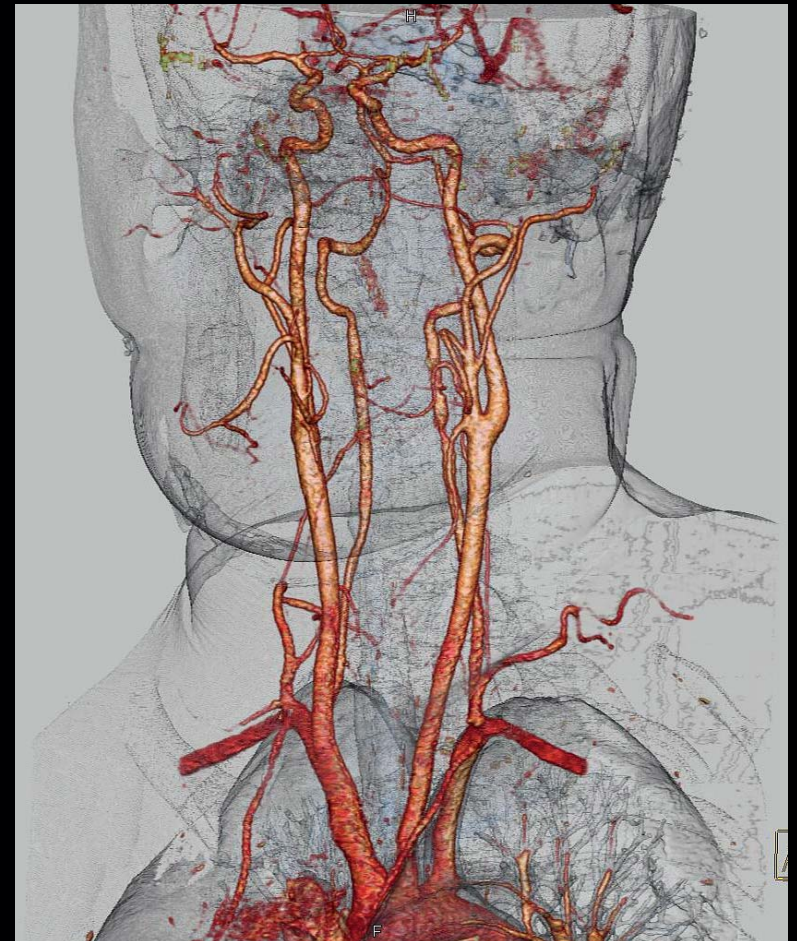
0.24 mm resolution with z-UHR for superb visualization of the inner ear



Clear visualization of the smallest vessels of the foot



Visualization of smallest nodules
with 0.33 mm isotropic resolution

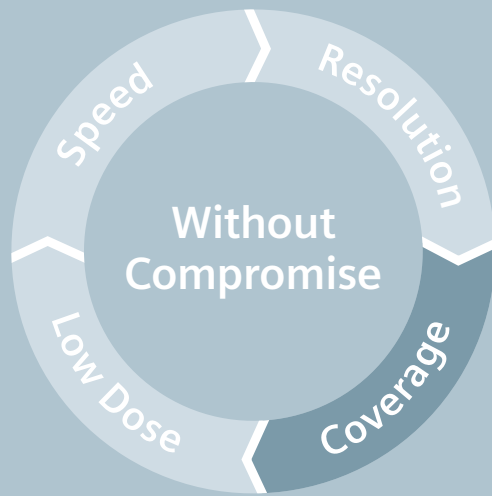


Clear visualization of the small vessels of the
head and neck without venous contamination





Coverage



With the increasing number of slices per rotation in modern CT there is an expectation that the speed of imaging continues to increase. However, conventional 64-slice CT still requires the users to make a decision between speed and optimum resolution. The SOMATOM Sensation does not. The enabling innovations that remove this traditional trade off in CT are the STRATON X-ray tube and z-Sharp Technology.

Introduction

Coverage

How it works

The usual trade off – resolution or speed

With conventional CT systems, a simple trade off exists between scan speed and slice broadening. Therefore, with all non-Siemens systems in this class of CT, careful selection of the CT pitch needs to be taken into account when setting up the acquisition to ensure adequate image quality is achieved. With z-Sharp Technology, which is made available through the Straton tube development, this trade off has been overcome.

The result with the SOMATOM Sensation, therefore, is that high speed imaging can be undertaken without associated

slice broadening. With the SOMATOM Sensation you can scan at 87 mm per second while still maintaining the highest isotropic resolution of 0.33 mm.

Coverage without compromising resolution

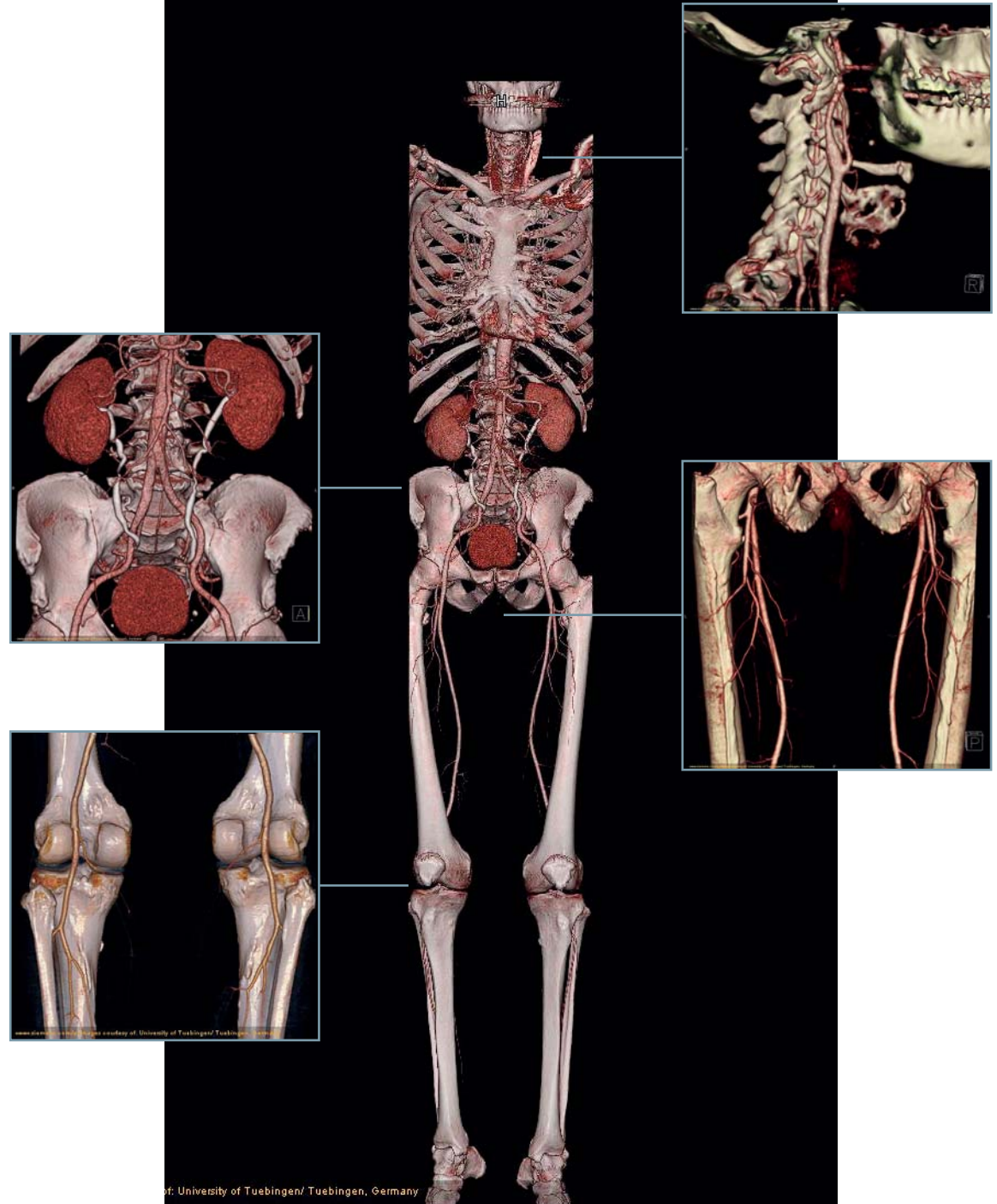
In clinical practice, clinicians are frequently required to look deeper into CT images for a confident diagnosis. A simple example of this is in leg run-off angiography. With the STRATON X-ray tube and z-Sharp Technology, fast coverage allows the contrast bolus to be followed easily through the body while still maintaining the ability to zoom in to small anatomical areas such as the renal arteries, or the trifurcation of the lower leg arteries.

Overcoming the need to slow the system down for high resolution

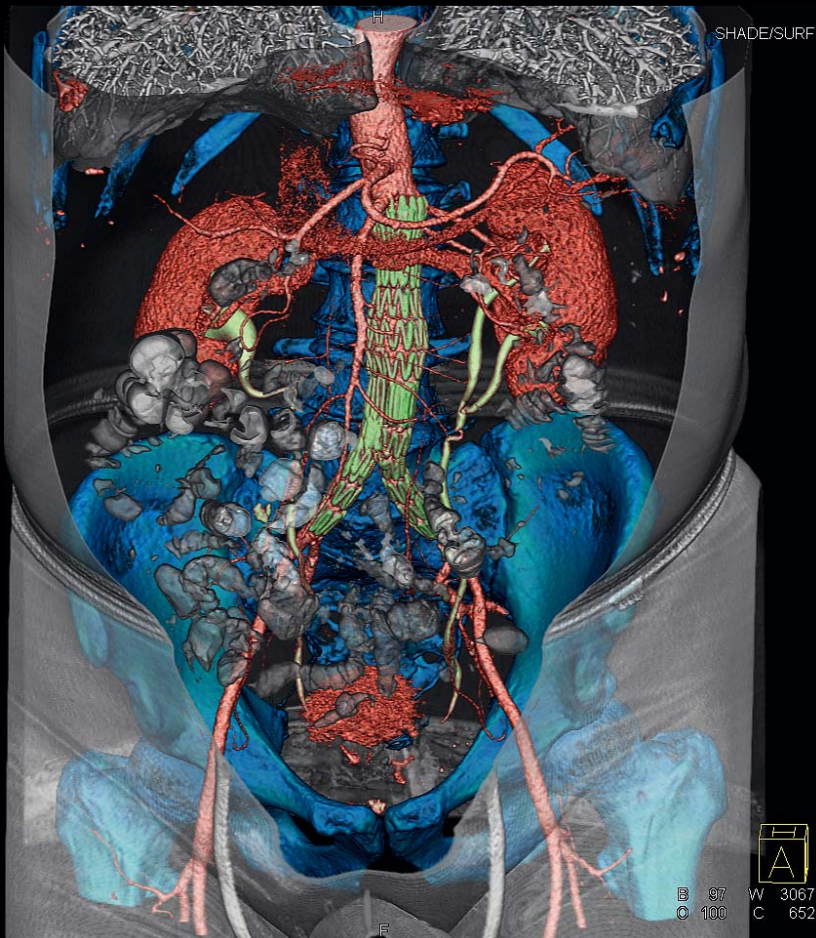
For conventional CT a pitch of around 0.5 is used to obtain highest quality images. In practice, this means that each part of the anatomy needs to be imaged twice in order to maximise resolution. With z-Sharp Technology, this 'over-sampling' is achieved, not through reducing the speed of the table movement, but through the precise deflection of the focal spot resulting in an overlap of half the detector. What Siemens achieve with z-Sharp is a pitch within a pitch.

Scan at full speed without compromise

From a coverage perspective, the SOMATOM Sensation can continue to scan at full speed without the compromise of substantial slice broadening. In clinical practice what is required is not resolution or scan speed, but both simultaneously; and in this measure the SOMATOM Sensation leads the way, enabling an entire body scan in only 20 seconds with the industry's highest, routine isotropic resolution of 0.33 mm.



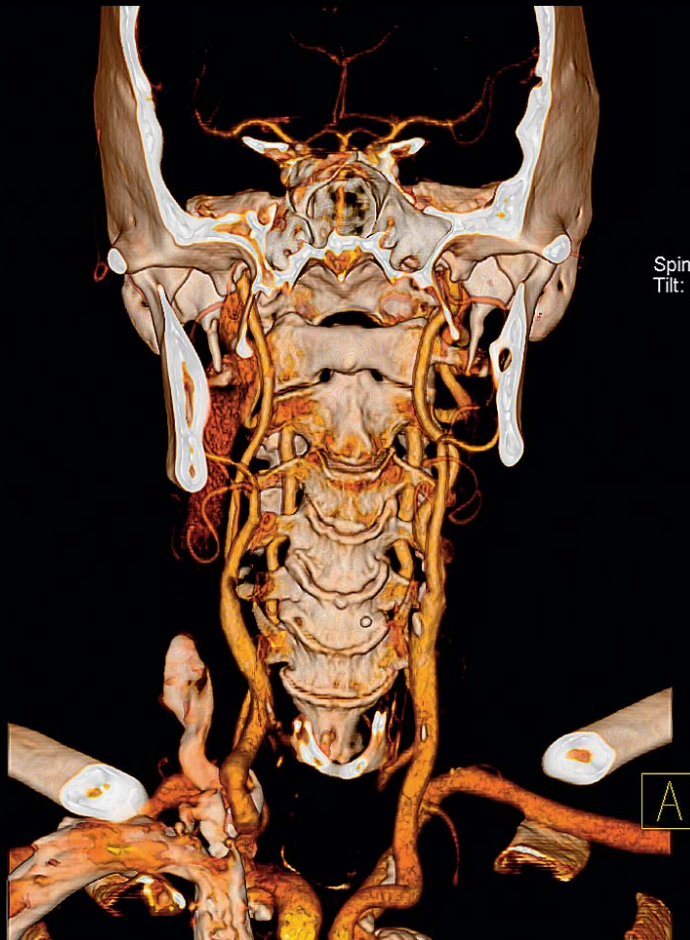
Clinical Images



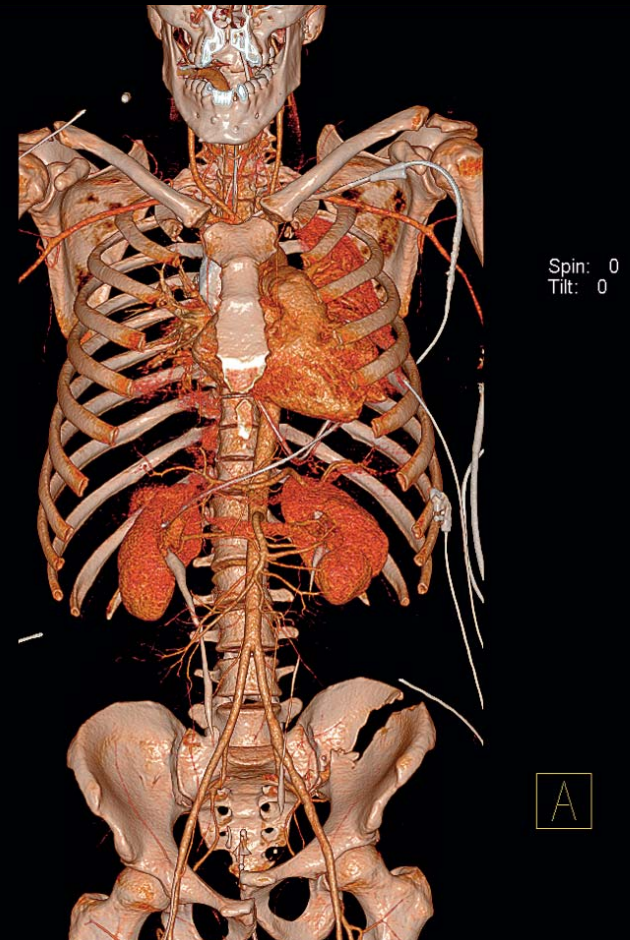
Abdominal scan for stent control with the industry's highest isotropic resolution of 0.33 mm



Speed and resolution at the same time for precise imaging of the arteries of the lower leg



Fast coverage speed for pure arterial imaging without reduced resolution for slice broadening



Whole body CTA: Polytrauma with pelvic fractures and hemothorax



Low Dose



CARE Philosophy – Combined Applications for Reduced Exposure

The combination of excellence in speed, resolution, and coverage gives you the highest level of image quality possible, but these would have less significance if Siemens did not also keep the dose to a minimum. The desire for as little radiation exposure as possible lies at the heart of our CARE research and development philosophy. With SOMATOM Sensation, saving dose starts right at the point where image data is acquired – at our Ultra Fast Ceramic (UFC) Detectors, a prime example of our focus on patient safety.

Introduction

Low Dose

Dose reduction up to 68%*

Another impressive example of our focus on CARE is our exclusive CARE Dose4D™ application, delivering an unequalled combination of maximum image quality at minimum dose. Because every patient is unique in terms of size, weight, and anatomy, CARE Dose4D adapts dose to each individual patient in real time, reducing dose up to 68%*.

Reducing cardiac dose

Especially in cardiac imaging, it is our passion to reliably provide you with superior image quality, even during

unstable conditions, while maintaining lowest possible dose. A sequential – or Step and Shoot – technique offers substantial dose reductions in cardiac imaging for low, regular heart rates. For spiral cardiac acquisitions we have designed Adaptive ECG Pulsing™, a unique, innovative, heart-beat controlled dose modulation that reduces dose by up to 50% in cardiac imaging.

Reduced dose for intervention

What's more, you also benefit from our CARE solutions for interventional cases. With HandCARE™, for instance, the X-ray tube current is automatically switched

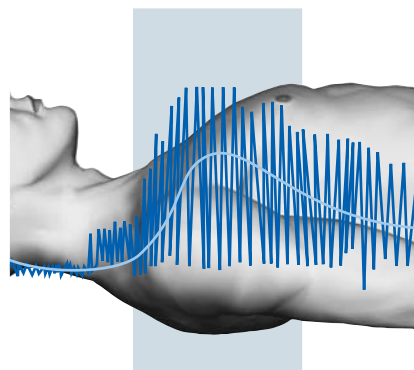
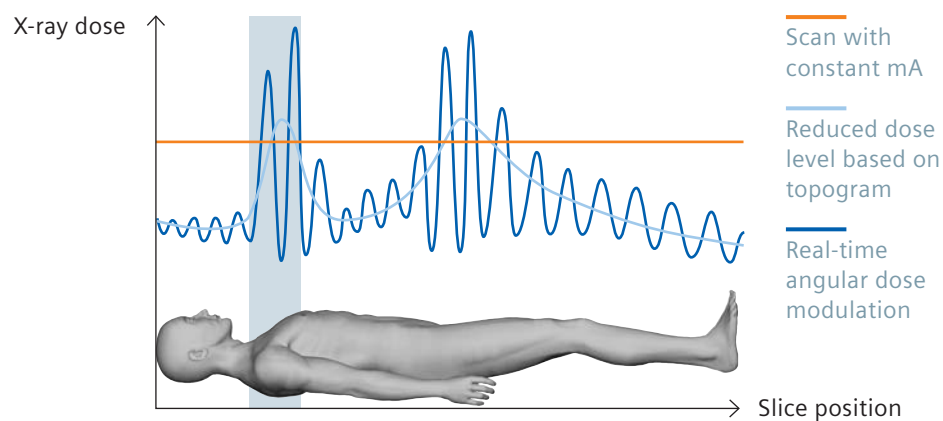
off within each rotation to avoid direct X-ray exposure to your hands during CT-guided interventions. By offering intelligent radiation management, the SOMATOM Sensation realizes a substantial reduction in dose for you and your patients.

* Results may vary. Data on file.

How it works

CARE Dose4D

The techniques for dose modulation differ substantially between CT vendors. Siemens proprietary dose modulation software, CARE Dose4D, is a truly real-time dose modulation technique that can reduce dose by up to 68%*. Unlike other dose modulation attempts, CARE Dose4D performs real-time, online dose modulation which is initially predicted based on a single localizer scan. This dose prediction is assessed and corrected during each rotation for a truly real-time adjustment which ensures the desired image quality is achieved at minimal dose.



CARE Dose4D provides up to 68%* dose reduction compared to fixed mA examinations

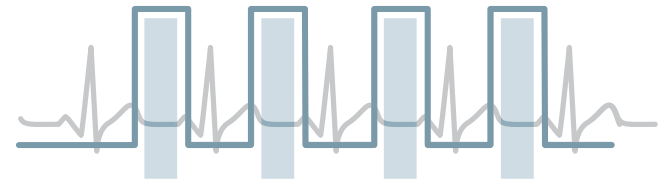
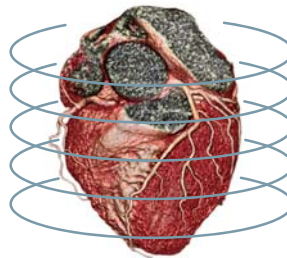
* Results may vary. Data on file.

How it works

Low Dose

Adaptive ECG-Pulsing™

Adaptive ECG-Pulsing, our innovative heartbeat-controlled dose modulation, applies the exact dose necessary to collect data projections of 180 degrees during the diastolic or systolic phase while reducing dose to a minimum in areas of the heart cycle where reconstructions are not desired. With the fast 64-slice rotation time of 0.33 seconds, the period of high exposure during each heartbeat can be cut down even further with the SOMATOM Sensation, as compared to traditional single source CT scanners. Instead of using multisegment reconstruction at higher heart rates, the high temporal resolution of the SOMATOM Sensation allows you to acquire cardiac images from a single heartbeat meaning pitch values can remain higher for further dose reduction.

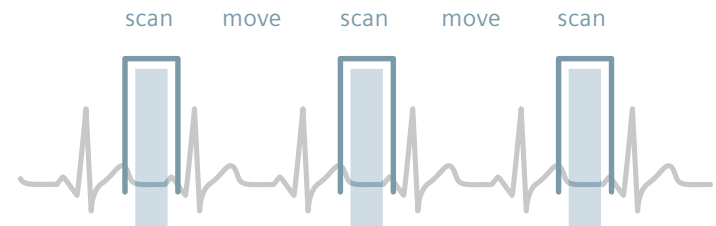
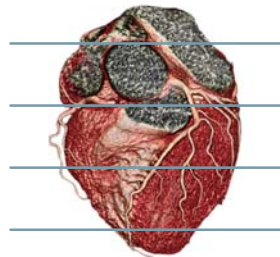


Adaptive ECG-Pulsing with SOMATOM Sensation

How it works

Low dose sequential scans in clinical routine

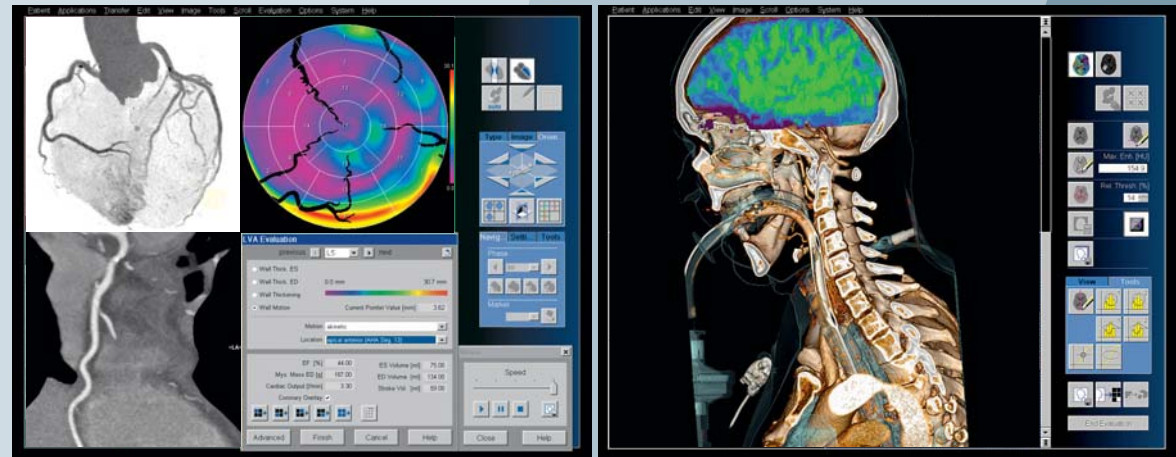
In addition to the Adaptive ECG-Pulsing, the SOMATOM Sensation offers sequential cardiac acquisition mode – also known as ‘step-and-shoot’ – to greatly reduce the dose of cardiac procedures. This ‘step-and-shoot’ technique allows exposure to be targeted only during the desired phase of the heart motion which substantially reduces dose in patients with low, regular heart rates. The additional dose reducing benefit with the Sensation 64 is that these scan areas are not overlapped, making this a truly low dose technique for cardiac acquisition.



Low dose sequential cardiac acquisition

3D Reading. Wherever you are.

syngo WebSpace and CT Clinical Engines



Client Server Access

For multiple users at the same time

The SOMATOM Sensation delivers unprecedented diagnostic information. With *syngo* WebSpace you can instantaneously utilize it from any workplace in the department or at home. It is fully integrated into your workflow and can be used by multiple users at the same time. 3D Reading. Wherever you are.

CT Cardiac Engine

From scan to diagnosis in less than 10 minutes

The SOMATOM Sensation with the CT Cardiac Engine leads to unmatched speed and accuracy in diagnostic Cardiology within the 40 and 64 slice market segments. Make use of the automatic data reconstruction and detection of the cardiac phase with the least motion. Perform a QCA and LVA – fast and reliable. And finally summarize all relevant findings in one single report.

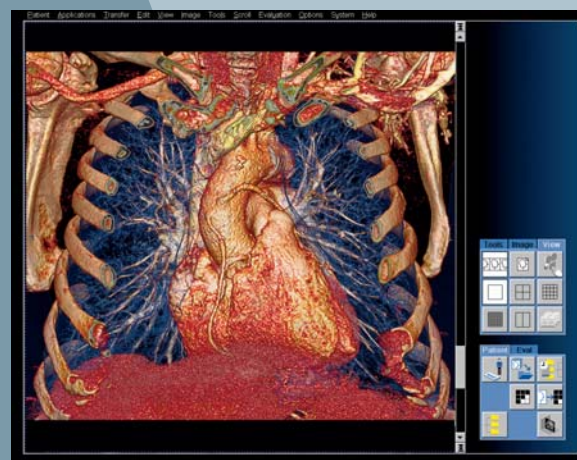
CT Neuro Engine

See the whole disease

Our unique portfolio of *syngo* automated software tools for Neuro CT imaging, will help you deliver excellent diagnostic outcomes for these patients. *syngo* Neuro DSA CT offers fast, automated bone subtraction in Neuro CTA studies for comprehensive evaluation of complex vascular structures. Fast brain perfusion for stroke patients, and differentiation of brain tumors further enhances your neurological capabilities. Your diagnosis will be fast and confident, turning data into a diagnostic outcome within minutes.



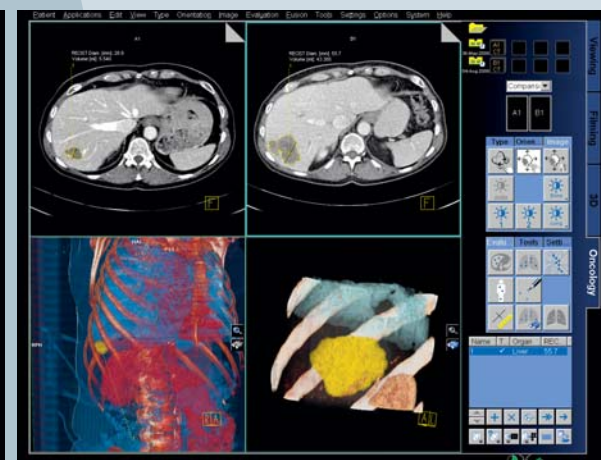
syngo WebSpace



CT Acute Care Engine

Instant results, when every second counts

In acute care, the requirements for CT imaging are very challenging and diverse – from acute chest pain patients, to complex poly-trauma, to stroke assessment. With these patients every second counts. By combining state-of-the-art functions for cardiac, vascular, and neuro CT imaging, and adding innovative workflow features and high-resolution acquisition, the CT Acute Care Engine provides the complete clinical portfolio for imaging emergency patients from head to toe.



CT Oncology Engine

Speed and accuracy in Oncology CT

The CT Oncology Engine provides all of the clinical functionality that is needed to detect, evaluate, and follow-ups tumors. The clinically proven CAD software automatically detects suspicious lesions. Volume-based 3D measurement, RECIST, or WHO based calculations provide an accurate evaluation of the lesions. Later, they can automatically be matched and monitored in follow-up exams. The Oncology Engine also includes the one-click volume segmentation of tumors which promises ultimate accuracy in tumor evaluation.

Customer Care. Life.

Dedicated to Your Success

Remain one step ahead and tap the full potential of your Siemens CT system with our customer care program, Life. As a worldwide innovation leader in medical imaging, Siemens has gained a deep understanding and knowledge in Computed Tomography. You can profit from excellent CT systems and innovative, flexible and comprehensive service solutions that enable you to concentrate on what is most important for you: patient care. The customer care program, Life, is the unique solution from Siemens that helps you to maximize the return on investment throughout the entire life cycle of your system.

Upgrades and migration

Stay competitive with up-to-date systems

Due to increasing healthcare demands you have to stay on the cutting edge to be competitive. We will help you to keep your solutions up-to-date and to keep pace with the latest technological advancements through the syngo Evolve program. syngo Evolve offers certainty in budget planning, feature enhancements for your CT, access to new applications, and lower cost upgrades for your CT system.

Services and support

Feel confident with our proactive service solutions

High system availability, diagnostic confidence and optimized workflow are crucial for the success of your CT service. To meet your performance expectations, we systematically focus on being proactive. Based on real-time system monitoring we detect system errors and alert you before problems occur. The Siemens Guardian Program™ helps to make unplanned downtime a thing of the past.

Education and training

Broaden your knowledge and expertise

Know-how is the key to success. With our extensive portfolio of education and training programs you can deepen your knowledge and clinical expertise. We show you how to maximize the benefits that can be achieved with our advanced technology. This will help you to optimize your workflows so you can offer an even higher quality of care for your patients.

Information and communication

Be informed – get connected

To ensure you are always up-to-date on what is happening in the CT world, we offer you a variety of information services including easily accessible information portals, monthly newsletters, our customer magazine SOMATOM Sessions, and the SOMATOM World Summit, our scientific user conference.



Configuration Overview

SOMATOM Sensation

	SOMATOM Sensation 64-slice configuration	SOMATOM Sensation 40-slice configuration
Technical specification		
z-Sharp Technology	●	●
Industry's highest routine isotropic resolution at any scan speed and any position within the scan field	0.33 mm	0.33 mm
Ultra high isotropic resolution	0.24 mm [○]	–
Fastest rotation time	0.33 s*	0.37 s
Highest sub-millimeter coverage	87 mm/s	48 mm/s
Data acquisition (slices/rotation)	64	40
0 MHU X-ray tube	STRATON with 5 MHU/min cooling rate	STRATON with 5 MHU/min cooling rate
Generator peak power	80 kW	70 kW
Workflow solutions		
syngo WebSpace	○	○
syngo Expert-i	○	○
2 nd CT Workplace with Shared Database	○	○
CT Clinical Engines		
syngo CT.3D	○	○
CT Cardiac Engine	○	○
CT Acute Care Engine	○	○
CT Neuro Engine	○	○
CT Oncology Engine	○	○
Wide application portfolio	○	○
CARE solutions		
CARE Contrast	○	○
CARE Dose4D	○	○
Services and programs		
e-Tune	○	○
Evolve	○	○
Guardian	○	○
Utilization Management	○	○

SOMATOM Sensation Open 24/40-slice configuration

○

0.33 mm**

—

0.5 s (optional)

48 mm/s**

24/40**

STRATON with 5 MHU/min cooling rate
50 kW

○

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- Standard feature
- Optional feature
- Not available for this configuration

* Optional with z-UHR

** Optional with z-Sharp Technology

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The information in this document contains general technical descriptions of specifications and options as well as standard and optional features which do not always have to be present in individual cases.

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Local Contact Information

In the USA:

Siemens Medical Solutions USA, Inc.
51 Valley Stream Parkway
Malvern, PA 19355-1406
Phone: +1 610 448 4500
Fax: +1 610 448 2554

In China:

Siemens Ltd., China
No. 7, Wangjing Zhonghuan Nanlo
Chaoyang District
Beijing 100 102
Phone: +86 10 6476 8888
Fax: +86 10 6476 4706

In Japan:

Siemens-Asahi
Medical Technologies Ltd.
Head Office
Takanawa Park Tower
20, Higashi-gotanda 3-chome
Shinagawa-ku
Tokyo 141-8644
Phone: +81 35423 8489
Fax: +81 35423 8740

In Asia:

Siemens Pte Ltd.
The Siemens Center
60 MacPherson Road
Singapore 348615
Phone: +65 6490 6000
Fax: +65 6490 6001

In Germany:

Siemens AG
Healthcare Sector
Computed Tomography
Siemensstr. 1
91301 Forchheim
Germany
Phone: +49 9191 18 0
Fax: +49 9191 18 9998

Global Siemens Headquarters

Siemens AG
Wittelsbacherplatz 2
80333 Muenchen
Germany

Global Siemens Healthcare Headquarters

Siemens AG
Healthcare Sector
Henkestr. 127
91052 Erlangen
Germany
Phone: +49 9131 84-0
www.siemens.com/healthcare

www.siemens.com/healthcare

Legal Manufacturer

Siemens AG
Wittelsbacherplatz 2
DE-80333 Muenchen
Germany