

Data sheet

SOMATOM go.Top

128-slice configuration
syngo CT VB20



International version.
Not for distribution or use in the U.S.

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SOMATOM go.Top

Made to match



myExam Companion

Intelligence that works with you.



CARE 2D Camera

2× 2D cameras monitor patient well-being even inside the gantry.



CARE Breathe¹

To ease compliance with breath-hold commands.



CARE Moodlight¹

To enhance intuitive system operation and create a calming atmosphere.



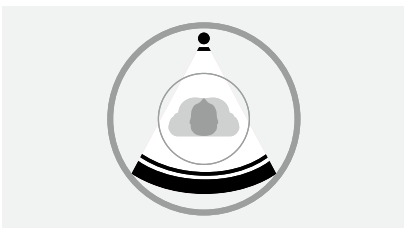
FAST 3D Camera gantry-mounted¹

To achieve standardized, automated patient positioning without the need of ceiling support.



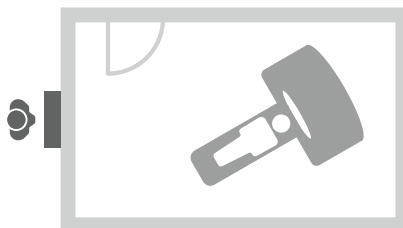
Easy integrated charging

The tablet is held via a magnetic interface. This makes it easy to attach and remove the tablet from the gantry.



Imaging Chain

From generation to detection perfectly attuned.



Small foot print of 4 m²

Reduce installation and operational costs with a lean footprint.



Circular Economy

The SOMATOM go. platform is constructed primarily from metals. This ensures a high degree of recyclability.

¹ Optional

A clinical allrounder that gives you full flexibility in your clinical tasks

Smart

- Control scans remotely with Mobile Workflow
- Reduce workflow steps and increase patient well-being with myExam Compass and myExam Care

Flexible





- Excellent low-dose performance thanks to imaging chain
- High throughput management thanks to Athlon X-ray tube
- Excellent iodine contrast with High Power 70

Productive

- Scanner footprint¹ of just 4 m²
- FAST 3D Camera gantry-mounted without additional ceiling infrastructure
- Electrical consumption of just ≤ 115 kWh (maximum power consumption)



Clinical highlights

-  Cardiovascular imaging
-  Neuro & trauma imaging
-  Spectral imaging
-  Oncology

Slices	64 (128 with IVR)
Max. mA	625 mA (825mA ²) 1560 mA ³ (2060 mA ^{2,3})
Rotation time	0.33 s ⁴ , 0.5 s, 1.0 s
kV	70, 80, 90, 100, 110, 120, 130, 140 kV

z-Coverage	64 × 0.6 mm
Tube	7.0 MHU
Power	75 kW
Table load	Up to 307 kg
Bore size	70 cm

¹ Surface covered by gantry and moving table top.

² With the High Power 70 option.

³ Max. tube current equivalent with SAFIRE.

⁴ Optional

The products/features (mentioned herein) are not commercially available in all countries. Their future availability cannot be guaranteed.

System hardware

Gantry

Aperture
70 cm / 27.6"
Depth
84 cm / 33"
Distance scan plane to gantry cover
<ul style="list-style-type: none"> • 25 cm / 9.84" • The short distance from the gantry front to the scan plane allows for easy operator access.
Distance focal spot to isocenter
53.5 cm / 21.1"
Distance focal spot to detector
97.6 cm / 38.4"
Scan field
<ul style="list-style-type: none"> • 50 cm / 19.7" • 70 cm / 27.5" with HD FOV¹
System tilt
Virtual tilt with CARE i-tilt 360°
Physical tilt up to $\pm 30^\circ$ ^{2,3}
Rotation time
0.33 ² s, 0.5 s, 1.0 s
Three laser light markers
Coronal, sagittal, transversal laser light showing the isocenter position of the scan plane

Imaging chain

The CT imaging chain is the heart of how CT images are generated. The individual components work together to give high image quality at fast scan speed while keeping dose low.

Generator

Max. power

- 75 kW
- Equivalent to 187 kW with SAFIRE
- Equivalent to 93 kW with 78 cm gantry aperture

Athlon X-ray tube

Liquid metal bearing X-ray tube

Tube current range

- 13–625 mA
- 13–825² mA
- Max. tube current equivalent to 1560/2060² mA utilizing SAFIRE

Tube voltage

- 70–140 kV in 10 kV steps
- Sn100, Sn110, Sn120, Sn130, Sn140

Tube anode heat storage capacity

- 7.0 MHU; equivalent to 17.5 MHU with SAFIRE
- With iterative reconstruction technology the same clinical results can be achieved with less dose at maintained image quality. Therefore when using less dose the heat storage fills up more slowly.

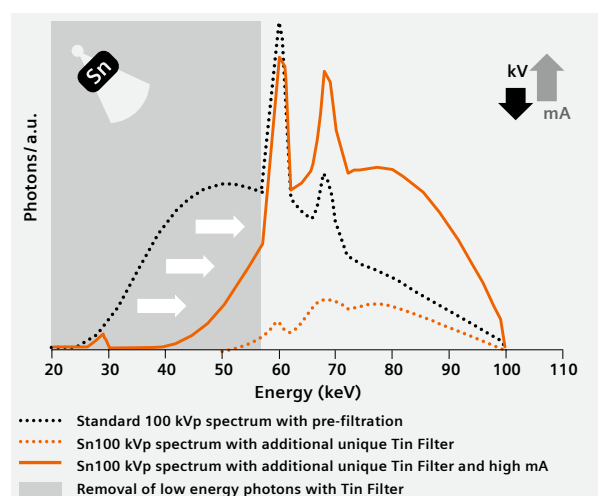
Tube cooling rate

Up to 1700 kHU/min

Focal spot size according to IEC 60336

- $0.8 \times 0.8 / 7^\circ$
- $1.0 \times 1.2 / 7^\circ$

Tin Filter



¹ The image quality for the area outside the 50 cm scan field of view does not meet the image quality of the area inside the 50 cm scan field of view. Image artefacts may appear, depending on the patient setup and anatomy scanned. HD FOV cannot be used for scan FOV smaller than 50 cm.

² Optional

³ Depending on configured patient table

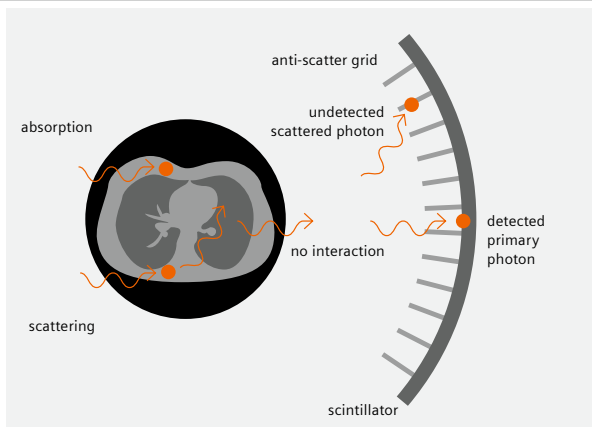
System hardware

Inherited from high-end dual-source scanners, Tin Filter technology cuts out lower energies to reduce dose and optimizes contrast between soft tissue and air.

This has direct benefits for imaging areas such as the lungs, colon, and sinuses. In addition, clinical experience shows that Tin Filter technology reduces beam-hardening artifacts and improves image quality in bony structures, which means it is also extremely useful in orthopedic examinations. As a result, you get CT imaging at exceptionally low-dose levels, comparable to conventional X-ray.¹

Tin Filter technology protects you and your patients with ultra-low-doses during intervention. Factory protocols for low-dose lung cancer screening, colon and sinus employing the Tin Filter. Only Siemens Healthineers CT scanners enable lung imaging powered by Tin Filter technology.

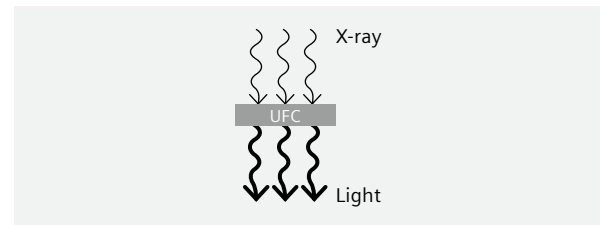
3D anti-scatter grid



The 3D anti-scatter grid on the SOMATOM go. platform consists of thin grid walls placed between both columns and rows of the detector, all focused towards the focal spot for optimized scatter removal efficiency. The scatter signal and, consequently, the SPR decreases with the 3D anti-scatter grid by a factor of 2–3 compared to standard anti-scatter collimation with grid walls placed only between the columns. A lower SPR leads to improved CNR at a lower radiation dose.

Data Measurement System: Stellar detector

UFC (Ultra Fast Ceramics)



The Stellar detector boosting an integrated circuit detector technology, where photodiode and electronics are integrated on one single integrated circuit.

This design allows superior imaging compared to conventional detector circuit designs, supporting:

- Superior objective and subjective image quality in head CTs
- Reduced image noise and streak artifacts, especially in low-dose or low-kV imaging or in high attenuation areas such as the shoulder and pelvis regions
- Improved image quality and low-contrast detectability in abdominal CT of overweight or obese patients
- Lower image noise and improved image quality in coronary CTA and coronary stent imaging
- Speed and efficiency based on Siemens Healthineers' proprietary scintillator material with ultra-short decay, extremely low afterglow and high absorption for optimized image quality and high dose efficiency

Max. number of slices/rotation

- 64 (acquired slices)
- 128 (with IVR)
- Max. 384 (reconstructed slices with 0.1 mm increment)

Number of detector rows

64

Number of detector channels per row (in-plane)

840

¹ Source: White paper – Shaping the beam. Versatile filtration for unique diagnostic potential within Siemens Healthineers CT, 2019

System hardware

Number of detector elements

53,760

Number of projections 1 s/360°

1,536

Sequence acquisition modes

64 × 0.6 mm, Sn64 × 0.6 mm, Sn3 × 5 mm,
1 × 10 mm, 1 × 5 mm, 3 × 5 mm, 3 × 3 mm,
Sn3 × 3 mm

Spiral acquisition modes

64 × 0.6 mm, Sn64 × 0.6 mm, AuSn64 × 0.6 mm

Adaptive Signal Boost

The Adaptive Signal Boost amplifies low signal areas of the CT data when high attenuation is present – such as when imaging obese patients or patients with metal implants or pediatric imaging at low kV.

CT Patient tables



Max. table load

- 227 kg / 500 lbs^{1,2}
- 307 kg / 677 lbs^{3,4}

Max. table feed speed

200 mm/s

Vertical table travel range

- 50–88.5 cm / 19.6–34.8" (table center)¹
- 52.2–81.2 cm / 20.5–31.9" (table center)²
- 51.5–90 cm / 20.3–35.4" (table center)⁴

Vertical travel speed

28.3 mm/s

¹ For CT patient table (227 kg)

² For RT patient table (227 kg)

³ Optional

Scannable range

- 160 cm / 63" with patient table extension^{1,2,3}
- 200 cm / 78.7" with patient table extension^{3,4}
- 0.25 mm precision of longitudinal movement of the table

Table width

Table width for all the tables compatible with SOMATOM go.Top have the width of at least 400 mm.

Patient table foot switch³

Foot Switch located on the bottom edge of the patient table allowing table positioning

X-ray foot switch³

Foot switch for triggering scans from the examination room

Table Side Rails short³

Bilateral pleurical short table side rails for convenient mounting of accessories.

Table Side Rails long³

Bilateral pleurical long table side rails for convenient mounting of accessories, in particular to mount dedicated interventional hardware

Workflow devices

Tablet for mobile workflow

The operator can reduce walking time and potentially accelerate patient preparation and positioning with the Scan&GO tablet application. At the same time, they can stay close to the patient for most of the examination time. Post the scan, the operator can preview images thanks to wireless image transfer to tablet. They can also finalize the exam and trigger preconfigured reconstruction tasks.

Remote control

A wireless remote control⁵ and a fixed controller come with the system for more flexible operation. With a wireless remote control, you can unload a patient while moving from the control room to the examination room.

⁴ For CT and RT patient table (307 kg)

⁵ Optional. Availability depends on country-specific regulatory approval and release.

System hardware

Docking station¹

The mobile workflow supports up to 3 tablets that can be charged in addition via a docking station. It can be flexibly mounted where it fits most to your workflow e.g., wall-mounted or at the desk. It is an additional charging spot for the tablets and the wireless remote control.

Integrated injector arm²

Whereas a traditional injector cart is often in the way, the gantry-mounted injector arm makes for a neat and organized working environment and still lets you flexibly arrange the injector.

Workplace design

Thanks to gantry-integrated computers, SOMATOM go.Top gives you complete flexibility over where you position the workstation. Minimize the necessary workplace elements to a monitor, keyboard, mouse and the control box. The optional workplace myExam Satellite brings additional workflow flexibility without interrupting the scanning program.

Image Reconstruction (IRS)

Real-time display

- Real-time image display (512 × 512) during spiral acquisition on the workplace
- Wireless transfer of images for preview on the tablet. Transfer starts immediately after the end of scanning

Slice thickness

- 0.6–10 mm
- Wide range of freely selectable slice thickness for prospective and/or retrospective reconstruction

Recon field³

5–50 cm / 1.9–19.7"

5–70 cm / 1.9–27.5" with HD FOV⁴

Maximum reconstruction rate

- 75 fps for FBP, 55 fps for IR with go.Standard Computers
- 85 fps for FBP, 65 fps for IR with go.Power Computers¹ and with go.Ultra Computers¹

Recon matrix

- 512 × 512
- 768 × 768^{1,5}
- 1024 × 1024^{1,5}

HU scale

–8,192 to +57,343

Advanced algorithms

- Iterative Beam Hardening Correction (iBHC) for reduction of beam hardening artifacts, e.g., in head images
- Any kV CaScoring enables you to choose any kV setting for your calcium scoring scan. Previously the setting was limited to 120 kV only. A specific reconstruction kernel (Sa36) is applied and allows to perform Agatston equivalent low-dose scores, even at lower kV settings.
- Large selection of reconstruction kernels to adapt to specific clinical needs
- Wide range of freely selectable slice thickness for prospective and/or retrospective reconstruction

Acquisition Workplace (AWP)

Computer integrated into the gantry

Hardware integrated into the gantry to:

- Enable Flexible Room Design (see Installation part)
- Minimize the elements of the new workplace design to a monitor, keyboard, mouse and the control box

High performance computer CPU

- Intel Xeon W-1250E⁶
- Intel Xeon W-1290E^{1,6,7}

RAM

- 32 GB DDR4 RAM
- 128 GB DDR4 RAM^{1,7}

¹ Optional

² Optional. Availability depends on country-specific regulatory approval and release.

³ 5–41.5 cm FOV with up to 1.5 pitch; above 41.5 cm FOV with up to 0.8 pitch

⁴ The image quality for the area outside the 50 cm scan field of view does not meet the image quality of the area inside the 50 cm scan field of view. Image artefacts may appear, depending on the patient setup and anatomy scanned. HD FOV cannot be used for scan FOV smaller than 50 cm.

⁵ Requires at least go.Power Computers

⁶ Or equivalent

⁷ Requires go.Ultra Computers

System hardware

Graphics card

- Intel UHD Graphics 630¹
- Nvidia T1000^{1,2,3}

Hard disk

- 960 GB SSD
- 3.84 TB SSD^{2,3}

Image and patient data storage

- 466 GB, up to 877,000 images⁴
- 3.06 TB, up to 5,747,000 images^{2,3,4}

Additional storage

External USB 3.0 disks for quick and easy raw data storage are supported

Screen monitors

Standard monitor

- 24" / 60 cm flat screen
- 1,920 × 1,080 resolution
- 1024 × 1024 pixels max. image matrix

Additional monitor²

Yes

Dual monitor²

Yes

myExam Satellite^{2,3}

Additional workplace sharing database and applications with the main Acquisition Workplace for a more flexible workflow:

- While the AWP is being used for protocol preparation or scanning, myExam Satellite can be simultaneously used for filming, results creation or image interpretation.
- Results and postprocessing are simultaneously available at the AWP and myExam Satellite.³
- Same applications available as at the AWP for different clinical cases, including Dual Energy² and Neuro Perfusion²
- Remote Recon, enabling the possibility to perform RAW data reconstruction directly at the myExam Satellite.



Courtesy of University Hospital Erlangen, Germany

¹ Or equivalent

² Optional

³ Requires go.Ultra Computers

⁴ Images include original data and inline results

Workflow solutions

myExam Companion

Shared across Siemens Healthineers CT scanners, myExam Companion is an innovative approach to scanner operation and patient-centricity, designed to make work easier for users, personalize procedures for patients, and help deliver consistent and comprehensive results for radiologists.

It guides users of varying experience levels through examinations such as stroke, spectral studies, or coronary CTA. myExam Companion asks users the right question at the right time, such as “Is the patient able to hold their breath?”, “Does the patient have stents?”, or “Are automatic reconstructions of the coronaries needed?” The answers are combined with digital patient data from the FAST 3D Camera, the topogram, ECG, or the radiology information system (RIS) – and then linked to predefined scan parameters. Users of different experience levels can thus individualize and optimize scans for patients and procedures, while keeping radiation and contrast media dose low and patients at ease.

myExam Compass

myExam Compass offers knowledge-based guidance at the hands of the technologist supporting individual patient characterization, based on patient input (size, age, sex, ECG) and interactive questions, adaptable by users, in their own clinical language (e.g., “does the patient have a metal implant?”, “can the patient hold the breath longer than 5 sec?”).

myExam Cockpit

The central engine of myExam Compass is driven by this cockpit: the central user interface for fast and intuitive protocol configuration. In this expert mode, users benefit from high flexibility in modifying predefined protocols and the option to integrate their knowledge into standardized protocols, and through myExam Compass, make them available for every user across your institution. Clinical decision trees now also available for children.

myExam Care

myExam CARE is combining smart features that support you to keep radiation dose low (e.g., CARE Dose 4D) and your patients at ease (e.g., CARE Breathe) and helps you to put patients well-being in the center.

Focus on user-patient interaction

CARE 2D Camera (full-range)

2 × 2D Cameras are directly integrated in front and rear gantry funnel that offers live images allowing a closer look to the patient during the whole examination, even when the patient is inside the gantry.

CARE Moodlight¹

Smart light integrated in gantry ring for improved workflow efficiency by additional periphery communication.

Abilities such as system boot, countdown to scan and scan in progress. Furthermore adapt the color environment for the patient with the mood lighting at the gantry ring.

CARE Breathe¹

Easy-to-follow visual instructions and an intuitive graphical breathhold countdown displayed on the front and rear part of the tunnel to help patients comply with breathhold times.

¹ Optional

Workflow solutions

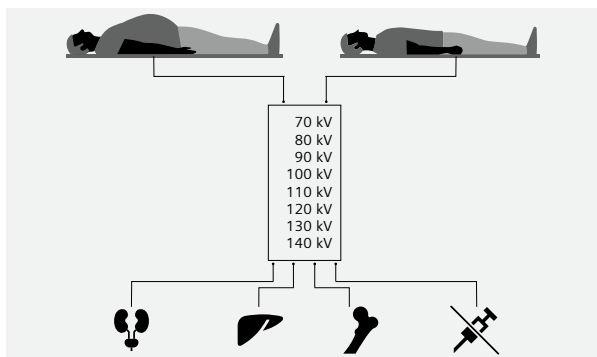
Focus on radiation dose

CARE kV

CARE kV automatically tailors tube voltage according to patient size and clinical task.

Simplify processes by automatically aligning mAs with the kV setting.

With the selection of optimal kV level between 70 and 140 kV, CARE kV minimizes dose. It further simplifies the process by automatically aligning the tube current with the selected kV.



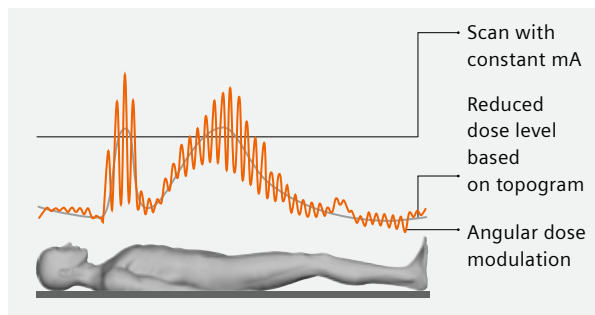
CARE Child

CARE Child offers scan parameters to be adapted to even small patient sizes. Dedicated pediatric protocols automatically set a low tube voltage – in most cases 70 kV – while CARE Dose4D optimizes dose distribution and offers special modulation curves.

CARE Dose 4D

Fully automated dose modulation solution. The algorithm automatically modulates tube current for optimum image quality.

This results in reduced dose levels, depending on patient size and anatomy, i.e., there is automatic patient- and organ-specific tube current adaption.



CARE Topo

Real-time topogram

Manual interruption possible once desired anatomy has been imaged

CARE Profile

Provide visualization of dose profile of the scan ranges. CARE Profile enables checking of Automatic Exposure Control (AEC) prior to scanning.

CARE Filter

Specially designed X-ray exposure filters installed at the tube and the collimator for protocol individual optimization of patient dose and image quality

Permanent filtration of X-ray tube assembly

Equivalent to 5.5 mm Al @ 140 kV

Tube collimator

- Equivalent to 0.5 mm Al in the isocenter
- 1 mm Al with cardio wedge

CARE Bolus

Scan mode for contrast bolus triggered data acquisition

The procedure is based on repetitive low-dose monitoring scans at one slice level and analysis of the time density curve in an ROI (Region of Interest).

CARE Bolus CT allows the planning and the execution of contrast workflows within the Scan&GO user interface.

Workflow solutions

X-CARE

Provides organ dose reduction for radiation-sensitive peripheral organs e.g., eye lenses, while maintaining image quality

Keeps the average $CTDI_{vol}$ constant, i.e., with and without X-CARE

myExam Companion individualizes the utilization of X-CARE by considering the gender and breath-hold capability of the patient.

Integrated patient intercom

Automatic Patient Instruction (API)

- Freely recordable
- 7 API text pairs for respective languages available
- Presets in > 50 languages available

GO technologies

Scan&GO¹



With the Scan&GO workflow, the operator can stay mobile and prepare the entire protocol next to the patient. They have the choice to leave the room only when triggering the radiation and spend the rest of the time with their patient.

Check&GO

Check&GO is an intelligent algorithm, based on big data, that monitors and flags problems for immediate action or correction. Check&GO Coverage and Contrast Media allows you to correct issues on the go, avoid subsequent errors as well as stop the archival of sub-optimal images.

Quality-control images are sent wireless to the tablet, so you can review them directly.

Check&GO detects the center and the radius of the arteries, based on different landmarks depending on the scanned body region the arterial enhancement is measured at relevant locations.



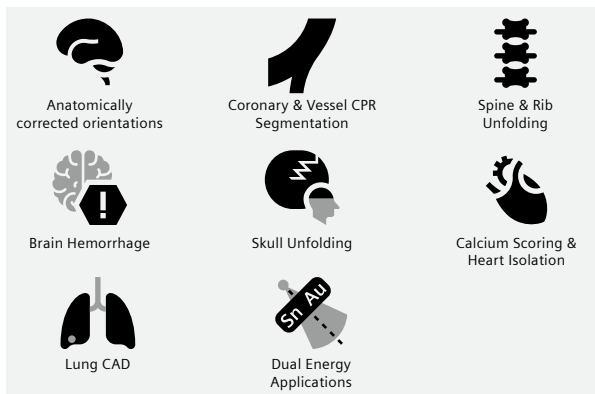
Check&GO Metal Detection helps prevent mistakes and rescans by alerting the user when metallic objects such as keys, belts, chains, earrings are not removed and are present in the scan area after the topogram is done.

Check&GO including metal detection is available both on the AWP and on the Scan&GO tablet application.

¹ Availability depends on country-specific approval and release of the wireless devices.

Workflow solutions

Recon&GO



Recon&GO enables the creation of Inline results, a set of fully automated postprocessing applications¹ as an alternative to the regular syngo.via algorithms.

This reduces postprocessing to zero-clicks.

Standard Recon&GO applications

Inline Anatomical Ranges (Parallel/Radial)

Automatic generation of radial and parallel ranges in any anatomical orientation and thickness. This automation saves time by avoiding manual workflow steps. Just configure your required results once and Recon&GO will always create them like a conventional reconstruction.

Inline Table and Bone Removal Radial Ranges

Zero-click bone-free VRT reconstruction that facilitates a precise vascular assessment by visualizing blood vessels without interfering anatomical structures

Inline Vessel Ranges¹

Zero-click vessel centerline extraction and anatomical labeling of the main vessels (aorta, run-offs and carotids) with display of Curved Planar Reconstruction to simplify reporting of findings and stenosis assessment

Inline Spine Ranges

Zero-click reconstruction of anatomically aligned spine reconstructions. The software detects and labels vertebrae within a predetermined scan area, and calculates their position for anatomically correct image reconstructions.

Inline Radial and Parallel Rib Ranges

- Zero-click reconstruction of specific radial and parallel rib visualizations that adapts the rib cage anatomy displaying all ribs spread out in one plane
- Automated rib labeling and numbering

Multi-recon

Automatic generation of multiple series in different orientations (coronal/sagittal/axial) or image impressions (soft tissue/air/bone/...)

CT View&GO



This viewing application available at the AWP provides you with intuitive and customizable cross-specialty tools for 3D visualization, filming and printing, as well as several post processing applications.

- Customizable user interface, through a Favorite Toolbox
- Automatic distribution and filming of images and results
- Window width and center freely selectable
- Single window
- Multiple window settings for multi-image display
- Organ-specific window settings, e.g., for soft tissue and bones
- Image zoom and pan

¹ Post-processing applications are individual medical devices. Registrations are country specific and availability depends on country approval.

Workflow solutions

Evaluation Tools @ CT View&GO

Parallel evaluation of more than 10 Regions of Interest

- Circle
- Irregular
- Polygonal

Statistical evaluation

- Area / volume
- Standard deviation
- Mean value
- Min. / max. values

Profile cuts

- Horizontal
- Vertical
- Oblique

Further evaluation tools

- Distance measurement
- Angle measurement
- Online measurement of a 5 × 5 pixel size ROI
- Freely selectable positioning of coordinate system
- Crosshair
- Image annotation and labeling

Filming and Printing @ CT View&GO

Filming

- Digital film documentation, connection to a suitable digital camera
- Connection via DICOM Basic print
- Automatic filming
- Interactive virtual film sheet
- Customizable film formats with up to 64 images
- Filming parallel to other activities
- Independent scanning and documentation
- Freely selectable positioning of images onto film sheet
- Configurable image text

Printing

Documentation on postscript printer supported

3D Visualization @ CT View&GO

Real-time MPR

- Real-time multiplanar reformatting of secondary views
- Variable slice thickness (MPR thick, MPR thin) and distance with configurable default values
- Viewing perspectives
 - Sagittal
 - Coronal
 - Oblique
 - Double oblique
 - Freehand (curvilinear)

MIP and minIP

- MIP: Maximum Intensity Projection
- MinIP: Minimum Intensity Projection
- Thin MIP function for projection within a small slab to focus on particular vascular structure

syngo VRT (Volume Rendering Technique)

Advanced 3D application package for the optimal display and differentiation of different organs through independent control of color, opacity, and shading

Standard applications with CT View&GO¹

Vessel Extension

- Set of tools and layouts for guided creation of CPR (Curved Planar Reconstructions) for enhanced vascular assessment
- Comprehensive length and diameter measurements

Endoscopic View

Virtual Endoscopy software enabling visualization of airways and intestines

Diameter/WHO area

Longitudinal lesion measurements and WHO for enhanced clinical decisions in oncology

Lung Lesion Segmentation

The Lung Lesion Segmentation tool in CT View&GO performs an automated segmentation of solid and subsolid lesions in lungs, providing the volume and diameter according to the LungRADS guidelines.

¹ Some of the applications are individual medical devices. Registrations are country specific and availability depends on country approval.

Workflow solutions

ROI HU Threshold

Evaluation and display of tissue densities within a certain HU range

Dual Energy ROI

Basic evaluation of the behavior of different tissues at different energies as an indication of their composition

Spine Ranges

- Guided reconstructions of anatomically aligned spine Curved Planar Reconstructions (CPR)
- Automatic detection and labeling of vertebrae

Average

Allows fusion of two DICOM images on a pixel-by-pixel basis for orthopedic measurements

This machine learning algorithm is trained with several hundreds of patient datasets in order to overcome even the most challenging anatomies (e.g., bypass). Landmark detection technology recognizes known “human anatomy anchors” on the topogram and the scan range automatically snaps to the correct region.

It prevents the range from being set too short or too long, so no parts of the organ are cut off or over-radiated.

In addition to the Acquisition Workplace (AWP), FAST Planning is also integrated in the Scan&GO tablet user interface.

FAST Contact²

FAST Contact is an easy way to contact our service experts directly from the scanner console for technical and clinical application support. teamplay Fleet – our fleet management tool – also tracks and archives service tickets generated with FAST Contact.

FAST ROI

Automatic ROI identification for the aorta and the pulmonary trunk for optimal enhancement timing

Standard FAST technologies

FAST Planning



Courtesy of Benson Radiology, Modbury, Australia

FAST Planning is an AI machine learning powered set of algorithms¹ that allow fast, organ-based setting of scan and reconstruction ranges. This enables consistent and reproducible acquisitions in Single and Dual Energy scans. By automating the workflow, users increase efficiency due to reduced manual steps and effort in scan preparation.

¹ Data on file.

² teamplay Fleet and FAST Contact are subject to country-specific availability.

Workflow solutions

FAST 3D Camera¹



The AI-powered FAST 3D Camera enables an automated workflow to safeguard precision and consistency in patient positioning – enabling high efficiency, increased image quality, and an optimized isocenter for an optimal dose, regardless of individual skills.

The algorithms of the FAST 3D Camera support accurate and reproducible positioning based on 3D image and infrared measurements, which even recognize body contours, for example, when people are wearing thicker clothes. The following specialized applications are included:

- FAST Isocentering, at the push of a button, provides the correct isocenter position, enabling the right dose modulation and consistent images.
- FAST Range supports scanning the correct body region with no cut-off – by aligning the automatically identified anatomical position with the protocol.
- FAST Direction helps safeguard the right scan direction, which is crucial when moving the table with infused patients.
- FAST Topo enables faster scan speeds in topograms, which prevents breathhold artifacts. It also has the potential to decrease the topogram dose.
- Collision indication: Before moving the table into the gantry, a potential collision is indicated.
- Grid overlay: Visual feedback on tablets whether patient is positioned straight or rotated by overlaying a grid on the camera image.

The smart communication between the tablet and the FAST 3D Camera helps reduce mistakes even with non-cooperative patients between planning and scanning the topogram, thanks to reactive algorithms that will adapt the topogram planning even if patients move.

Available both, as ceiling-mounted and as gantry-mounted for additional flexibility.

¹ Optional

Standard additional dose saving technologies

10 kV Steps

Adapt your kV selection more precisely to reduce radiation dose at maintained image quality for a broad range of patient sizes.

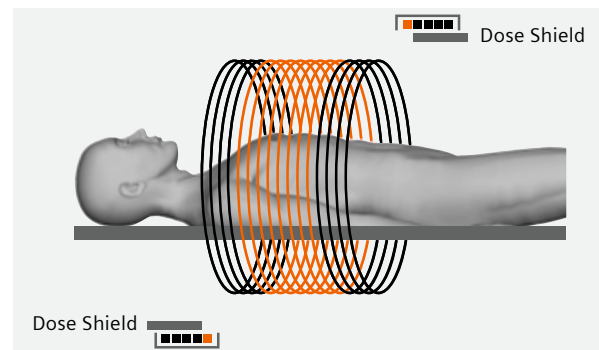
Benefit from patient-specific and user-independent selection of the optimal kV setting with CARE kV in 10 kV steps.

More patient-specific dose management thanks to finer kV selection in 10 kV steps for individual dose management

Flex Dose Profile

For long scan ranges, Flex Dose Profile works in combination with CARE Dose4D and FAST Planning to allow a more optimal modulation of the dose. In longer scans, some organs require more dose than the rest of the scan, i.e., there are different target dose levels needed for different anatomical regions, e.g., in regular thoracoabdominal examinations or in chest pain or TAVI procedures. FAST Planning automatically detects individual patient landmarks and anatomies, while Flex Dose Profile adjusts the tube currents for more personalized and accurate dose handling.

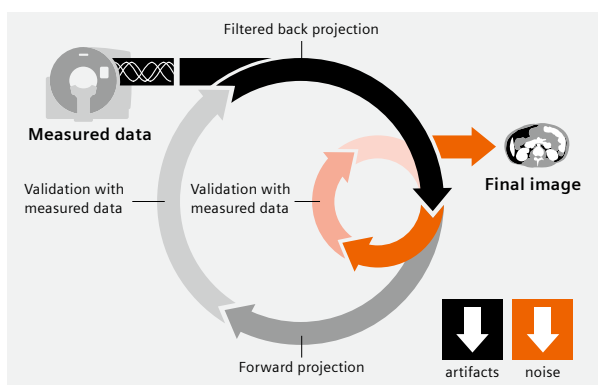
Adaptive Dose Shield



- Optimize safety in spiral CT imaging with technology that helps protect patients against unnecessary radiation during scans
- Helps protect patients from pre-/postspiral radiation that is not clinically relevant
- Most effective in short scan ranges; particularly in cardiac and pediatric scans
- Applicable to all standard spiral scan modes

Workflow solutions

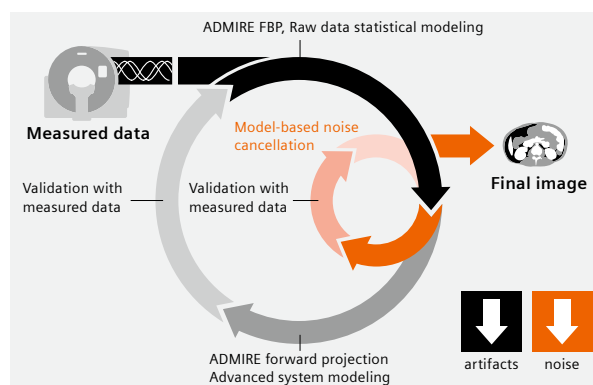
SAFIRE (Sinogram Affirmed Iterative Reconstruction)¹



Equipped with SAFIRE, a model-based iterative reconstruction, SOMATOM go. scanners achieve up to 60% dose reduction while maintaining image quality and detail visualization combined with fast image reconstruction¹. By this, equivalent results can be achieved at less dose, filling up the heat storage of the system more slowly and therefore, additionally, increasing the heat storage capacity.

The comprehensive iterative reconstruction method SAFIRE brings real model-based raw data based iterative reconstruction to the SOMATOM go. Dose reduction with CT has been limited by the currently used filtered back projection (FBP) reconstruction algorithm. When using this conventional reconstruction of acquired raw data into image data, a trade-off between spatial resolution and image noise has to be considered. Higher spatial resolution increases the ability to see small details; however, it is directly correlated with increased image noise in standard filtered back projection reconstructions as they are used in CT scanners today.

ADMIRE (Advanced Modeled Iterative Reconstruction)^{2,3}



With ADMIRE – Siemens Healthineers' Advanced Modeled Iterative Reconstruction – clinical images additionally benefit from higher resolution at organ borders and improved edge delineation. As demonstrated using SOMATOM Force CT data, ADMIRE may simultaneously enable³

- 80% to 85% dose reduction at the same image quality, and
- 73% to 77% image noise reduction at the reduced dose, and
- up to 42% improved high-contrast spatial resolution at reduced dose and reduced image noise compared to images reconstructed with WFBP⁴.

Alternatively, ADMIRE may enable³

- up to 150% improved low-contrast detectability (factor 2.5) at the same dose, or
- up to 90% image noise reduction at a constant dose, or
- up to 87% improved high-contrast spatial resolution at 85% reduced dose and constant image noise, or
- up to 38% improved high-contrast resolution at 90% reduced image noise and constant dose.

¹ In clinical practice, the use of SAFIRE may reduce CT patient dose depending on the clinical task, patient size, anatomical location, and clinical practice.

A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task. As determined from SOMATOM Definition Flash data, SAFIRE enables up to 60% dose reduction. Data on file.

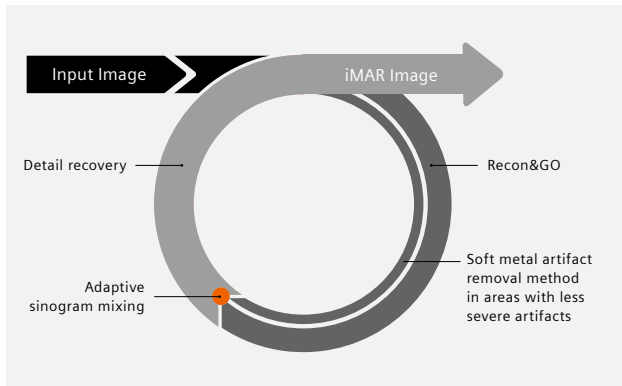
² Optional

³ Image quality as defined by low-contrast detectability using a model observer method for evaluation. As demonstrated using SOMATOM Force data, equivalent low-contrast detectability can be achieved with 80% to 85% less dose using ADMIRE at the highest strength level for thin (0.6 mm) reconstruction slices in measured and simulated body and head phantoms for low-contrast objects with different contrasts. In clinical practice, the use of ADMIRE may reduce CT patient dose depending on the clinical task, patient size, anatomical location, and clinical practice. A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task. See ADMIRE data sheet for further information.

⁴ Weighted Filtered Back Projection

Workflow solutions

Metal artifact reduction technology: iMAR¹



iMAR (iterative Metal Artifact Reduction) reduces metal artifacts for better image quality with no increase in dose.

The high-end algorithm can handle a wide variety of metal implants. By reducing metal artifacts, it improves visualization of soft tissue. It even allows you to address more challenging cases, such as those involving dental fillings, coils, implants, and pace-makers. Since metal can often be an issue in trauma cases, our iMAR algorithm is a key advantage for this clinical field too.

Diagnostic value can be further strengthened with the combination of iMAR with iterative reconstruction to further reduce dose. A strong imaging combination which is smoothly integrated into your daily orthopedic workflow.

iMAR is designed to yield images with a reduced level of metal artifacts compared to conventional reconstruction if the underlying CT data is distorted by metal being present in the scanned object. The exact amount of metal artifact reduction and the corresponding improvement in image quality achievable depends on a number of factors, including composition and size of the metal part within the object, the patient size, anatomical location and clinical practice. iMAR reconstructions should be performed and evaluated in combination with standard reconstructions. iMAR can be combined with TwinSpiral and TwinBeam Dual Energy acquisition.

iMAR supporting bone kernels ≤ 56

syngo examination

Exam Designer

Easy and intuitive way to change and manage scan protocols

Topogram

Length

- 128–1,680 mm / 5–66" with table extension¹
- 128–2,080 mm^{1,2} / 5–82" with table extension^{1,2}

Scan speed

200 mm/s

Scan times

- 1.36–9.2 s
- 1.36–11.2 s¹

Views

a.p., p.a., lateral

Real-time topogram

Manual interruption possible once desired anatomy has been imaged

Topogram scan using Tin Filter for further dose reductions

Sequence Acquisition

Reconstructed slice widths

0.6, 0.8, 1.0, 1.5, 2, 3, 4, 5, 6, 7, 8, 10 mm

Partial scan times (240°)

0.22¹, 0.33, 0.67

Scan times (full scan)

0.33¹, 0.5, 1.0 s

Acquisition with or without table feed

Dynamic Serio Scan available for dynamic evaluation up to the whole detector width without the table feed.

Automatic clustering of scans

¹ Optional

² For CT patient table (307 kg)

Workflow solutions

Multislice Spiral Acquisition

Reconstructed slice widths

0.6, 0.8, 1, 1.5, 2, 3, 4, 5, 6, 7, 8, 10 mm

Temporal resolution

- 165 ms¹
- down to 83 ms¹ (bisegment)

Scan times full scan (360°)

0.33¹, 0.5, 1.0 s

Reconstruction increment

Min. 0.1 mm

Pitch factor

- 0.15 – 1.5
- Down to 0.03
(optional with Respiratory Motion Management)

Spiral scan time

Max. 300 s

Scan length

- Max. 160 cm / 63" with patient table extension^{1,2,3}
- Max. 200 cm / 78.7" with patient table extension^{1,4}

WorkStream4D

With Workstream4D, thin slice data reconstruction is not required prior to the production of reformatted images.

This enhancement saves time when compared to alternative MPR techniques 4D workflow with direct generation of axial, sagittal, coronal, or double-oblique images from standard scanning protocols.

Elimination of manual reconstruction steps and reduction of data volume, since virtually all diagnostic information is captured in 3D slices

Patient Registration

Direct input of patient information on the acquisition workplace or the Scan&GO tablet immediately prior to scan

Pre-registration of patients at any time prior to scan

Special emergency patient registration (allows examination without entering patient data before scanning)

Transfer of patient information from HIS/RIS via DICOM Get Worklist

IVR (Interleaved Volume Reconstruction)

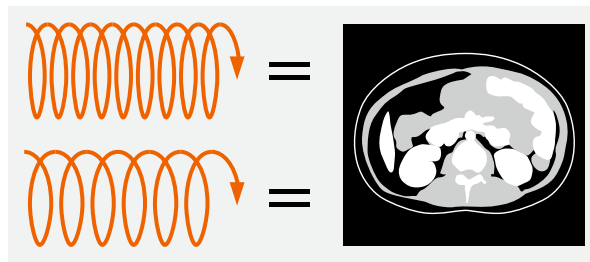
IVR enables utilization of the measured data as effectively as possible. By using IVR, the system extracts the maximum amount of diagnostic information from measured data, thereby improving spatial sampling in z-direction, independent of pitch.

HD FOV⁵

Designed to enable visualization of the human body parts and skin line located outside of the 50 cm standard scan field of view up to the bore size, based on the algorithmic complement of missing detector data outside of the 50 cm scan FOV.

SureView: Siemens Healthineers' Patented Solution for Multislice CT Reconstruction

Pitch independent image quality



SureView ensures that image quality is kept constant for all scan speeds, independent of the selected volume pitch.

There is higher pitch accuracy with settings available in steps of 0.1, simplifying processes by handling complex parameter settings.

¹ Optional

² For CT patient table (227 kg)

³ For RT patient table

⁴ For CT patient table (307 kg)

⁵ The image quality for the area outside the 50 cm scan field of view does not meet the image quality of the area inside the 50 cm scan field of view. Image artefacts may appear, depending on the patient setup and anatomy scanned. HD FOV cannot be used for scan FOV smaller than 50 cm.

Workflow solutions

syngo System Security

Modern way of guarding against malware, viruses and malicious attacks, comprising a bundle of solutions:

- Provides functionality for user management and flexible access control for patient data
- Improves IT security
- Avoids system breakdowns due to malware installations which results in higher system uptimes and reliability
- Reduces risk of unwanted software installations
- Supports local IT personnel
- Improves system performance and robustness
- Improves security for the use of external storage devices

Shui – the Siemens Healthineers Design System

Shui is the new framework for all digital user interfaces in the Siemens Healthineers product and service portfolio, creating a coherent brand perception and user experience while making it easy to learn how to use, operate, and switch between multiple modalities.

DICOM SR Dose Reports

DICOM structured file allows for the extraction of dose values (CTDI_{vol}, DLP) to create transparency and document dose values.

DoseLogs

Whenever the set reference dose levels are exceeded automatically a report is created on the system. The report can for example be used for audit purposes.

Dose Notification

The software checks the dose values per chronicle entry. May help to protect from over-radiation and warn the operator in case set dose thresholds are exceeded.

Dose Alerts

The software checks the accumulated dose per z-position. May help to protect from over-radiation and warn the operator in case set dose thresholds are exceeded.

syngo archiving & networking

Screen Recorder

Integrated solution for imaging and visualization of 4D information, allowing the generation and editing of video files for improved diagnoses, recording, and teaching. A wide range of multimedia formats are supported, e.g., AVI, Flash (SWF), GIF, QuickTime (MOV), streaming video.

Image Transfer/Networking

- Interface for transfer of medical images and information using the DICOM standard. Facilitates communication with devices from different manufacturer.
- DICOM Storage (Send/Receive)
- DICOM Query/Retrieve
- DICOM Basic print
- DICOM Get Worklist (HIS/RIS)
- DICOM SR viewer
- DICOM Storage Commitment
- DICOM Viewer on CD/DVD
- DICOM MPPS

Auto Field of View Adaption

When positioning the scan range, the width of the range is automatically adapted to cover the whole body of the patient.

CINE Display

Display of image sequences

Automatic or interactive with mouse control
Max. image rate: 30 frames/s

Optional clinical applications¹

Neuro Imaging

Flex 4D Spiral – Neuro²

- Continuously repeated bi-directional table movement during spiral acquisition enables an extended range for 4D information
- Facilitates volume perfusion studies in head applications for a perfusion range of up to 8.5 cm covering the entire supratentorial brain
- These dynamic procedures are handled at the AWP with the same visual logic as any other procedures, so users of any level of experience can perform them right away

ASPECTS

Supports assessment of early ischemic changes on non-contrast CT head scans through a fully automatic and reproducible quantitative grading system for detection of visible ischemic changes in patients with suspected ischemic stroke. Users will be notified with image quality notification in case the head is not in iso-center, and orientation correction will be applied automatically through optimal head rotation. In addition, old infarcts will be automatically detected and visualized. Available as a CT View&GO plugin option and Recon&GO Inline Results.

Neuro Perfusion

Recon&GO – Neuro Perfusion

Neuro Perfusion supports the assessment of brain tissue perfusion through a contrast CT head scans with a full automatically and reproducible quantitative grading system for tissue differentiation, i.e., whether Penumbra or core infarct. Recon&GO provides inline neuro perfusion calculation and automatic transfer to PACS.

syngo.CT Neuro Perfusion

syngo.CT Neuro Perfusion offers a fully automated or guided workflow to evaluate areas of brain perfusion. The guided workflow is a five step process to view the perfusion parameters including core infarct and penumbra.

syngo.CT Neuro Perfusion provides the following quantitative 3D images based on the deconvolution model and the maximum slope model:

- Cerebral Blood Flow (CBF) image
- Cerebral Blood Volume (CBV) image
- Mean Transit Time (MTT)

- Time to Peak image (TTP, image of bolus peak time)
- Time to Start image (TTS, image of bolus arrival time)
- Time to Drain (TTD)
- TMax (Transit time to the center of the Impulse Response Function)
- Flow Extraction Product (Permeability)

Stroke Layout

The Stroke Layout plugin will automatically load stroke results in a dedicated layout to facilitate the readability of the results. This layout will show the relevant patient results, based on the type of stroke. The results can be read from CT View&GO at the scanner and/or MM Reading (*syngo.via*).

Neuro DSA

The Neuro DSA application within CT View&GO provides a bone-free view of the cerebral vasculature based on the subtraction of an additional non-enhanced CT (NECT) scan that is 3D registered to the acquired CTA data set. The improved visualization of vascular structures in the skull base area will help to delineate aneurysms and other vascular diseases. A negated image provides an angio-like view.

Dynamic Angio

Dynamic Angio within CT View&GO visualizes blood flow on Time-Resolved data. Movies, images and Time Attenuation Curves (TAC) are created to visualize blood flowing from the arterial to the venous phases. This supports the inspection of diseases affecting the vessel system as vascular malformations, control of stent graft extravasation, or in the evaluation of tumor vascularization.

LVO Detection

Automatic detection of suspected large vessel occlusion in the brain by analyzing the contrast enhanced CT scan, which can assist in ischemic stroke triaging. In addition, through syngo.CT Vessel Hyperdensity, occlusion will be localized on the non-contrast CT head reconstruction with occlusion length and size estimation. The result is ready-to-read on Stroke Layout within CT View&Go, and can be transferred to PACS in combination with LVO detection notification result.

¹ Some of the applications are individual medical devices. Registrations are country-specific and availability depends on country approval.

² Requires 307 kg patient table and 0.33 sec rotation time

Optional clinical applications

Vessel Hyperdensities

Automatic quantification and visualization of intravascular hyperdensities in native non-contrast head CT images. This can support with localizing vessel occlusions. Available as Recon&GO Inline Results.

Cardiovascular Imaging

Physiological Measurement Module

Three-channel ECG cable connection. The ECG signal is automatically checked for impedance and monitored on the tablet.

ECG-triggered scan modes

- Adaptive retrospective (Cardio Spiral) ECG-triggered scanning to obtain CT images of the heart in defined phases of the cardiac cycle at a minimum rotation time of 0.33 s.
- Native temporal resolution of down to 165 ms
- Temporal resolution down to 83 ms (with Bi-Segment)
- Adaptive ECG-synchronized dose modulation (pulsing) allowing additional dose savings

Cardio BestPhase

is a dedicated software which automatically calculates and detects the optimal phase for motionless coronary visualization. The phase is defined as either end-systole, end-diastole or both timepoints and is automatically reconstructed.

ZeeFree

is a detector-width-independent cardiac reconstruction feature which allows the reconstruction of ECG-gated spiral or ECG-triggered sequence data with alignment of stacks originating from separate cardiac cycles or patient breathing. This is realized by reconstruction of separate stack of images for each contributing cardiac cycle, followed by a non-rigid registration step based on the available overlapping image data between neighboring cardiac cycles. The feature is a scanner integrated reconstruction option, which can be manually enabled or disabled by the user. ZeeFree works independent from the physical detector width of the acquired data.

Any kV CaScoring

Calcium scoring can be performed either at any kV or with Tin Filter enabling Agatston equivalent low-dose coronary calcium scoring.

Recon&GO – Inline CaScoring

makes the Calcium Score available as zero-click reconstruction. With the known functionality of Recon&GO, Inline CaScoring calculates automatically the total Agatston Score as well as the Coronary Age (based on trial data) and archives them directly in the PACS.

syngo.CT CaScoring

The AI-powered results of Recon&GO Inline CaScoring can be opened in syngo.CT CaScoring directly at the AWP and further processed if needed.

Cardio Ranges

with zero-click CPR creation, Inline Heart Isolation and Inline Coronary Tree with Recon&GO. CT View&GO allows intuitive and straightforward reading of challenging cases.

Cardiac Preview Series

A semi-automatic feature that reconstructs images with different time phases at 2, 5, 10, 20% or 50 ms intervals on a specific cross-sectional slice from a multi-phase cardiac acquisition

syngo.CT Coronary Analysis

Provides a set of automatic pre-processing steps and display functions for evaluation and quantification of CT angiography images of the coronary arteries. With these features, the case is ready for review when first opened, thus saving many manual workflow steps.

Trauma imaging

Brain Hemorrhage

Detecting and flagging up suspected intracranial hemorrhage including Subarachnoid hemorrhage (SAH). Available as a CT View&GO plugin option and Recon&GO Inline Results.

Brain Hyperdensity

Automatic identification and localization of suspected brain hyperdensities with the corresponding volume and HU measurements. Available as a CT View&GO plugin option and Recon&GO Inline Results.

Optional clinical applications

Trauma Layouts

Predefined layouts are automatically loaded and filled with corresponding data for head, neck, thorax and abdomen and pelvis. Data from Skull Unfolding and Brain Hemorrhage are automatically displayed within the layouts. Available as Recon&GO Inline Results.

Skull Unfolding

Automatic curved MIP images of skull and brain surface to support detection of skull fractures and thin surface hematoma. Available as Recon&GO Inline Results.

Midline Shift

Automatic brain MidLine Shift (MLS) measurement through landmarks automatic identification. This is an important prognostic factor especially after head trauma. Available as a CT View&GO plugin option and Recon&GO Inline Results.

4D Imaging

Flex 4D Spiral – Body^{1,2}

- Continuously repeated bi-directional table movement during spiral acquisition enables an extended range for 4D information.
- Facilitates volume perfusion studies in body applications for a perfusion range of up to 18.5 cm
- Facilitates dynamic studies up to a scan range of 40 cm
- These dynamic procedures are handled on the AWP with the same visual logic as any other procedure, so users of any level of experience can perform them right away

Spectral imaging with Dual Energy

By allowing you to characterize, highlight, and quantify different materials this produces rich diagnostic information that a conventional single source scan cannot deliver. It does this without dose penalty in comparison to a standard 120 kV scan, and even allows you to further minimize radiation with any of our existing dose-reduction technologies.

Dual Energy procedures are handled at the AWP or at the Scan&GO tablet with the same visual logic and automation as any other procedures, so users of any level of experience can perform them right away.

Specially useful for users less experienced with the DE technique, this holistic approach, powered by the myExam Compass, suggests which DE settings are more appropriate for every patient based on the procedure and patient characteristics, finding the optimal combination of acquisition and reconstruction parameters for excellent image quality, standardized results and always the right dose.

TwinSpiral Dual Energy Acquisition³

The TwinSpiral scan mode offers the possibility to acquire two consecutive spiral data sets at different energies used for non-contrast scans and the two different kV levels with independent mAs modulation deliver a combination of both morphological and functional information within one examination.

The robustness of the spectral separation is a key factor for the quality of the final images. The spectral properties of the Tin Filter lead to better spectral separation and therefore, amongst other benefits, potentially results in better tissue characterization. The TwinSpiral workflow feels like a single scan. The patient experiences virtually zero inter-scan delay between the scans.

TwinSpiral Spectral Viewing

Allows comprehensive assessment of non-contrast Dual Energy acquisitions. No matter if you would like to do your postprocessing directly at the AWP or rather have it sent automatically to PACS by Recon&GO – it offers a solution for all clinical workflows.

¹ Requires 307 kg patient table and 0.33 sec rotation time

² Recommended applications for evaluation in syngo.via: syngo.CT Body Perfusion and syngo.CT Dynamic Angio

³ Included in the standard configuration

Optional clinical applications

Inline DE results for Mixed and Monoenergetic Plus¹

Standardize results by automatically generating Mixed and Monoenergetic Plus Inline results in any required orientation, thickness or keV level e.g., for metal artifact reduction. Available as Recon&GO Inline Results.

Interactive Spectral Imaging for Mixed and Monoenergetic Plus¹

- Start your postprocessing directly at the scanner within CT View&GO by the click of one button.
- Interact with Dual Energy information and select the energy level at which implants, clamps or screws have small impact on image quality. Available for CT View&GO.

syngo.CT Dual Energy – Advanced applications for AWP

syngo.CT Dual Energy:

- Preparing and viewing of Dual Energy data
- Monoenergetic

syngo.CT DE Monoenergetic Plus¹:

Compare lesions and tissues by displaying multiple ROIs and associated attenuation curves.

Dual Energy Gout

Conventional methods of diagnosing gout, e.g., the aspiration of the joint are limited to feasibility especially in acute cases where the joint is inflamed and painful. In these cases an aspiration may not be performable. Amongst this gout can be difficult to diagnose, as there are various forms of arthritis that have similar symptoms.

Dual Energy Gout is overcoming these limitations allowing you visualize deposits of uric-acid crystals in peripheral extremities or periarticular soft tissue (e.g., tendons and ligaments) non-invasively – even in areas that cannot be reached with a conventional aspiration using:

- Zero-click PACS ready Recon&GO – DE Gout
- Advanced syngo.CT DE Gout application directly at the AWP

Dual Energy Calculi Characterization

Identify and characterize different kinds of kidney stones with Dual Energy Calculi Characterization. Visualize and characterize kidney stones using:

- Zero-click PACS ready Recon&GO – DE Calculi Characterization
- Advanced syngo.CT DE Calculi Characterization application directly at the AWP

Dual Energy Brain Hemorrhage^{2,3}

Dual Energy Brain Hemorrhage helps to distinguish between contrast agent and hemorrhage lesions show significant iodine uptake, while hemorrhages do not enhance and are only visible in the virtual non-contrast image.

- Zero-click PACS ready Recon&GO – DE Brain Hemorrhage
- Advanced syngo.CT DE Brain Hemorrhage application directly at the AWP

Dual Energy Bone Marrow²

Bone marrow can be affected by various pathologies, such as bone bruises after trauma and diffuse tumor infiltrations. Dual Energy Bone Marrow allows for the segmentation and color-coded visualization of bone marrow based on a material decomposition into bone marrow and calcium and by that helps to visualize e.g., edema.

- Zero-click PACS ready Recon&GO – DE Bone Marrow
- Advanced syngo.CT DE Bone Marrow application directly at the AWP

Dual Energy Rho/Z

One factor for the attenuation of X-rays is the electron density and the effective atomic number. Obtain the chemical characterization of different materials by:

- Zero-click PACS ready Recon&GO – DE Rho/Z
- Advanced syngo.CT DE Rho/Z application directly at the AWP

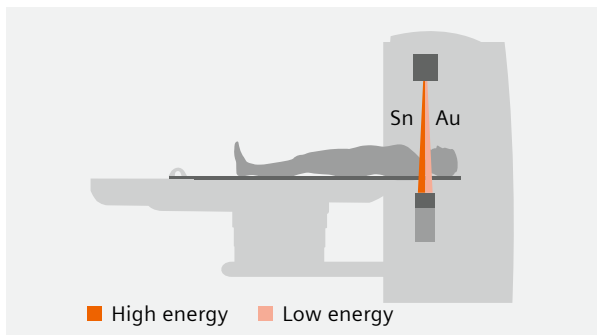
¹ In combination with TwinSpiral not for visualization of iodine, only for metal artifact reduction

² Only in combination with TwinSpiral Dual Energy and TwinSpiral Spectral Viewing

³ Only for visualization of static iodine enhancement after interventional procedures (not for CTA)

Optional clinical applications

TwinBeam Dual Energy Acquisition



TwinBeam Dual Energy is an innovative, high-end approach that allows simultaneous acquisition of high and low kV spectra in a single spiral scan mode – with no dose penalty.

All dose reduction technologies such as CARE kV, CARE Dose4D and iterative reconstruction apply. Additionally, further dose may be saved with the elimination of non-contrast scans.

To create two X-ray spectra (high and low) simultaneously from one tube, the powerful Athlon tube assembly generates a prefiltered X-ray beam before it reaches the patient. Spectral separation is achieved with the integrated gold and tin filter.

Image acquisition is possible for all rotation times. High and low energy image series are reconstructed separately. Composed reconstruction delivers a single energy image dataset using the full information by directly combining the low and high energy data from the detector. With the full number of projections available for both spectra, there is no compromise on image quality.

TwinBeam Spectral Viewing¹

TwinBeam Spectral Viewing extends your Dual Energy assessment to contrast media enhanced acquisitions.

Dual Energy results for Virtual Unenhanced (incl. iodine map)/Liver VNC/Fat map

Standardize results by automatically generating non-contrast images optimized for the respective organ tissue, iodine maps and fat maps and use Monoenergetic Plus also for further contrast enhancement. Available as Recon&GO or as CT View&GO Interactive Spectral Imaging.

Dual Energy Direct Angio²

Use Dual Energy to provide a bone free view of the vessel system on CT angiography (CTA) datasets by suppressing bone structures, e.g., at the base of the skull where CTA's can be difficult to interpret. Furthermore, it enables the visualization and evaluation of vessel stenosis or occlusion.

- Zero-click PACS ready Recon&GO – DE Direct Angio
- Advanced syngo.CT DE Direct Angio application directly at the AWP

Dual Energy Lung Analysis²

Broaden your Dual Energy assessment and use the help of dedicated applications to detect pulmonary embolism and its related lung perfusion defects with:

- Zero-click PACS ready Recon&GO – DE Lung Analysis
- Advanced syngo.CT DE Lung Analysis application directly at the AWP

Dual Energy Hard Plaque

Preprocessing and visualization of hard plaques.

- Zero-click PACS ready Recon&GO – Inline DE Hard Plaque
- Advanced syngo.CT DE Hard Plaque application directly available at the AWP

Dual Energy Lung Lobe Quantification

Zero-click PACS ready Recon&GO – lung lobe quantification based lung lobe segmentation for datasets containing spectral information.

¹ Requires TwinBeam Dual Energy

² Only in combination with TwinBeam Dual Energy and TwinBeam Spectral Imaging

Optional clinical applications

Lung Screening

Lung CAD

Lung CAD (Computer Aided Detection) is a fully automated, computer assisted second reader tool, designed to assist radiologists in the detection of pulmonary nodules during review of CT examinations of the chest. It is designed to assist in the detection of solid pulmonary nodules. Available as a CT View&GO plugin option and Recon&GO Inline Results.

CT-guided interventions

myNeedle Companion¹ is a modular solution for CT-guided interventions. By utilizing the standard system tablet² the user has almost full control of the software and the system during interventional procedure from the examination room. In addition the intervention user interface myNeedle Guide is displayed on a 24" or 32" in-room monitor either mounted at the ceiling or on a cart. On the SOMATOM go.Top myNeedle Companion features:

myNeedle Guide 2D^{1,3}

For basic in-plane CT-guided interventions. Dedicated tools support the planning of a needle path by providing distance and angle measurements from the target to the needle entry point. It includes i-Sequence scan mode referred to as FAST i-Sequence as it allows for quick scan repetitions. The FAST i-Sequence is available with a volume coverage of either 3 × 3 mm or 3 × 5 mm.

myNeedle Guide 3D^{1,3,4}

For all kind of percutaneous procedures, from simple in-plane interventions, to complex, double-angled procedures. myNeedle Guide 3D supports planning of multiple needle paths by measuring distances and angles from the target to the needle entry point on one or several axial CT slices and as well on Multi Planar Reconstructions. To leverage the optimized image for planning the needle path 3D images from other modalities or prior CT scans can be fused with the actual CT scan.

It includes:

- i-Sequence scan mode referred to as FAST i-Sequence as it allows for quick scan repetitions, e.g., for dynamic monitoring of the needle either with a volume coverage of 3 × 3 mm or 3 × 5 mm for inplane procedures or covering the full detector width which allows for 3D planning and guidance
- i-Spiral mode for flexible volume coverage to adjust it to clinical scenarios and for a dose conscious approach standard dose reduction algorithm such as CARE Dose4D and CARE kV can be applied
- myNeedle Detection: an AI-based algorithm⁵ to detect the needle. The software scrolls automatically to the axial image with the needle tip and aligns the MPR views to the needle. In addition the distance to the planned target point and the angular deviation is calculated

i-Fluoro^{1,6,7}

Allows for real-time CT fluoroscopic image guidance. i-Fluoro lets you scan continuously, and view images in real time at up to 10 frames/s. The acquired images have an image matrix of 512 × 512.

HandCARE^{1,8}

For i-Fluoro and i-Sequence scans HandCARE can be applied enabling real-time dose modulation to avoid direct X-ray exposure to the physician's hands. HandCARE switches off the X-ray exposure for a 100° angle between three user selectable positions (10:00, 12:00 and 2:00 o'clock).

X-ray foot switch

Foot switch for triggering scans from the examination room

¹ Availability depends on country-specific approval and release.

² Only in combination with TwinBeam Dual Energy and TwinBeam Spectral Imaging

³ Requires a second control-room monitor and an in-room monitor solution
⁴ Requires go.Power Computers

⁵ Detects the needle tip with a deviation < 5 mm and < 5° in 90% of all needles

⁶ Only available together with myNeedle Guide 2D and myNeedle Guide 3D

⁷ X-Ray foot switch and in-room monitor required

⁸ Included in myNeedle Guide 2D, myNeedle Guide 3D & i-Fluoro

Optional clinical applications

i-Joystick

Supports the table movement in z-direction (in and out of the gantry) directly from the table side. The i-Joystick is connected with the power supply via cable and can be flexibly mounted along both sides of the table.

Tablet dock for patient table

Is fully adjustable for an ergonomic independent in-room operation during minimal invasive procedures. Optionally the table dock can be plugged in for an uninterrupted power supply for long interventions.

Radiation therapy preparation

Radiation Therapy Basic¹

Radiation Therapy Basic is a dedicated virtual simulation tool, Sim&GO, designed for RT available under the CT View&GO platform.

General features

- Concurrent display of up to a total of 2 image series (1 single or 1 fused series)
- Data pre-fetching from DICOM nodes and imaging devices, simple import from CDs and DVDs, patient data reconciliation
- Image preview function
- Drag&Drop image loading
- Automatic data transfer to TPS configuration
- DICOM, HL7 and IHE-RO standard compliance
- Create annotations and measurements and share them

Patient Marking

- Single or multiple reference points or isocenters
- Absolute and relative patient marking
- Automatic marking of structure centroids
- Direct Laser Steering for compatible lasers²
- DICOM and text file data exchange with lasers
- Virtual Laser View for display of laser lines on 3D patient model (VRT)
- Patient marking on any supported image type
- One-click breast isocenter placement with automated contouring, both on Tablet and Acquisition Workplace

Contouring Features

- Parallel contouring: contouring performed on any image is reflected on all other images
- Semi-automatic freehand contouring 2D, 3D
- Smart 2D/3D Nudge
- Contour on any arbitrary plane including oblique planes
- Organ algebra (union, intersection, exclusion)
- Symmetric and asymmetric structure growth or contraction
- Multiple structure set support (1 per image series)
- Molecular imaging data such as PET, thresholdbased and skin, gray value-based segmentation
- Visualization of previously drawn structures on the current image series

Beam Placement

- Beam Placement including DRR, Source to Distance and beam templates
- Automated beam shaping based on RT structure

DirectDensity^{1,3}

DirectDensity images enable kV-independent dose calculation on the treatment planning system. Personalize your scan and benefit from a patient-specific kV selection with improved soft-tissue contrast while keeping a standardized workflow without the need for additional calibration curves. DirectDensity can deliver: Electron Density, Mass Density or Stopping Power Ratio (SPR).

RT table and overlay¹

- 227 kg patient table RT with 227 kg multi-index RTP overlay
- Multi-indexing with Varian and Elekta indexing
- Light weight overlay
- TG-66 compliant
- 307 kg patient table RT with 307 kg multi-index RTP overlay
- Multi-indexing with Varian and Elekta indexing
- Light weight overlay
- TG-66 compliant

¹ Optional

² Available for following LAP lasers: DORADO 1, 3, 4, DORADOnova 1, 3, 5

³ DirectDensity reconstruction is designed for use in Radiation Therapy Planning (RTP) only. It is not intended to be used for diagnostic imaging.

Optional clinical applications

Respiratory Motion Management^{1,2}

- Various acquisition modes and protocols accommodate for a wide range of respiratory patterns and workflows.
- Extended scan time capabilities up to 300 seconds³
- Supports retrospective modes including phase and amplitude reconstructions
- Supports the automatic creation of temporal MiniIP (tMinIP), temporal MaxIP (tMaxIP) and the easy generation via reconstruction of an Average CT, to evaluate respiratory motion
- Ability to automatically detect synchronization points
- User-selectable number and placement of reconstruction bins up to 1% recon
- Quantitative 4D assessment of 3D tumor trajectory and amplitude and semi-automatic calculation of the midventilation phase for RT available under CT View&GO platform.

FAST 4D^{1,4}

FAST 4D streamlines your 4D CT workflow by automatically setting the optimal scan parameters based on the patient's breathing rate. The direct online connection between the CT and a gating device over the Varian RGSC online interface or the ANZAI interface allows to display and analyze the breathing rate in real time.

DirectBreathhold⁵

DirectBreathhold simplifies DIBH (Deep Inspiration Breath Hold) CT image acquisition by automatically triggering the scan.

Gating interfaces¹

Varian RGSC interface

The online mode enables real-time display of the respiratory curve on the CT console.

ANZAI interface

The online mode enables real-time display of the respiratory curve on the CT console.

Open interface

Interface kit and software license to connect an external respiratory device that supports the Open interface.

Other RT functionalities

- Lung ventilation lobe analysis⁶
- Automated Spine isocenter placement⁶

Oncology Exchange^{1,7}

Oncology Exchange enables further integration between Oncology information systems (OIS) and the CT scanner. Accessible directly via the patient query, the Oncology Exchange allows for the retrieval and visualization of OIS prescription information at the CT acquisition workplace.

Direct Setup Notes^{1,8}

DirectSetup Notes is a mobile software application for patient and accessory setup documentation to ease imaging and RT treatment workflows. DirectSetup Notes documents the patient position and accessories used during CT simulation to make sure that the patient lies in the same position during each radiation therapy treatment session.

DirectSetup Notes FHIR⁸ enables the connection between ARIA and the CT scanner. The report created with DirectSetup Notes is sent directly to the ARIA Documents Workspace using a FHIR interface.

¹ Optional

² Requires an interface to connect to one of the many compatible third-party gating devices, like VARIAN RGSC or ANZAI.

³ Depending on scan protocol, patient size and breathing rate the maximum scan time for 4D CT acquisition can vary.

⁴ Requires online mode and Respiratory Motion Management

⁵ Requires a gating device that can trigger the CT scanner, such as Anzai or Varian RGSC.

⁶ Only available via syngo.via RT Image Suite

⁷ Requires ARIA 18.1 MR2 or higher and FHIR4ARIA 4.6 or higher

⁸ Requires ARIA 18.1 MR2 or higher (incl. ARIA Documents Workspace) and FHIR4ARIA 4.6 or higher. The operation and the configuration of the feature must be conducted by trained healthcare professionals.

Optional clinical applications

Additional clinical applications

CT View&GO – CT Osteo

Non-invasive measurement of the bone mineral density of the lumbar spine to help early diagnosis of osteopenia and osteoporosis, and to assess the effectiveness of treatment. Osteo CT measurements are standardized to the ESP Phantom (ESP: European Spine Phantom). Includes table mat and reference phantom for Osteo CT studies.

syngo.CT Dental

Allows reformatting panoramic views and paraxial slices through the upper and lower jaw, and enables the display and measurement of mandibular bone structures (even on a 1:1 scale) as the basis for OR planning and oral surgery.

Image quality

Low-contrast Resolution

Low-contrast resolution is the ability to see ...

- a small object
- with a certain contrast difference
- on a particular phantom
- with a particular dose (CTDI_{vol})

Phantom CATPHAN (20 cm)

Object size
5 mm

Contrast difference
3 HU

CTDI_{vol} (32 cm)
10.75 mGy

Technique
1.0 s, 10 mm, 120 kV

Isotropic Resolution

Isotropic voxels using Siemens Healthineers' proprietary SureView technology

Isotropic resolution
0.33 mm

High-contrast Resolution

- 2% MTF 15.1 lp/cm ($\pm 10\%$)
- 10% MTF 14.52 lp/cm ($\pm 10\%$)
- 50% MTF 11.99 lp/cm ($\pm 10\%$)

Technique
• Tungsten wire in air
• 160 mA, 120 kV, 1 s, 5 mm

Homogeneity

Cross-field uniformity in a 20 cm water phantom

- Max. ± 4 HU¹
- Typ. ± 2 HU

Phantom positioned near center of rotation

Dose, CTDI₁₀₀ Values mGy/100 mAs (for 64 × 0.6 mm collimation)

Phantom		kV	kV	kV	kV
Ø		70	80	110	140
16 cm	A	3.8	5.9	14.7	25.8
	B	4.3	6.4	15.3	26.6
32 cm	A	0.9	1.5	4.3	8.3
	B	2.2	3.3	8.5	15.3

A: at enter

B: 1 cm below surface

Technique

- PMMA-Phantom
- Absorbed dose for reference material air
- Expected deviation:
± 10% without Split Filter
± 20% with Split Filter
- Max. deviation:
± 20% without Split Filter
± 30% with Split Filter

The actual exposure values, such as CTDI₁₀₀, CTDI_w, CTDI_{vol}, and DLP, may deviate from the values displayed at the scanner and from the values stated here.

The linearity of the radiation output (linearity of measured dose related to displayed mAs) is $\pm 10\%$

	Typical head	Typical body	Typical cardiac
Scan type	Spiral	Spiral	Sequence
Tube voltage	120 kV	120 kV	120 kV
eff. mAs	265	110	15
Rotation time	1 s	0.5 s	0.33 s
Scan time	7.71 s	6.5 s	0.23 s
Pitch factor/ table feed	0.55	0.8	34.5 mm
Collimation	64 × 0.6 mm	64 × 0.6 mm	64 × 0.6 mm
CTDI_{vol}	49.8 mGy	9.9 mGy	1.7 mGy

¹ Max. HU value also for 30 cm phantom

Installation

Components

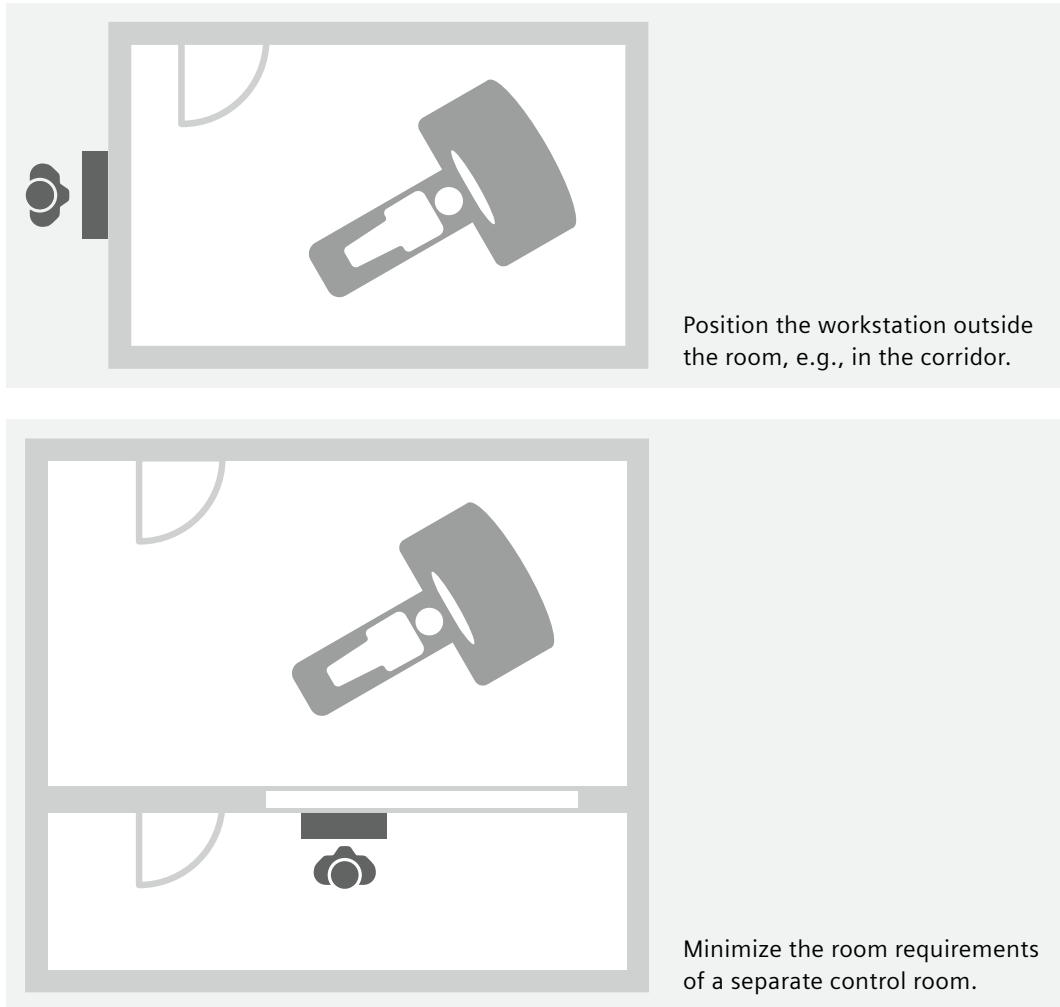
Dimensions	Height (mm/inch)	Width (mm/inch)	Length (mm/inch)	Weight (kg/lbs)
Gantry	≤ 1,860 / 73.2	≤ 2,250 / 88.6	≤ 840 / 33.1	≤ 1,600 / 3,527
CT patient table (227 kg)	≤ 950 / 37.4	≤ 700 / 27.6	≤ 2,480 / 97.6	≤ 500 / 1,102
CT patient table (307 kg) ¹	≤ 950 / 37.4	≤ 700 / 27.6	≤ 2,560 / 100.8	≤ 500 / 1,102
RT patient table ¹	≤ 950 / 37.4	≤ 700 / 27.6	≤ 2,480 / 97.6	≤ 500 / 1,102

Power Supply Nominal voltage ± 10% 380–480 V Nominal line frequency ± 10% 50; 60 Hz	Sound Design Standby 55 dB(A) Peak 67 dB(A)
Power Consumption Max. power consumption <ul style="list-style-type: none"> • ≤ 115 kVA • ≤ 100 kVA with Cos Phi Inductor¹ Standby ≤ 3 kVA	Electromagnetic Compatibility This product is in compliance with IEC 60601-1-2 and fulfills CISPR 11 Class A.
Power Consumption according to COCIR and GPP Use scenario 24-hour power consumption ² Off³ 14.6 kWh Low power⁴ 15.4 kWh Idle (stand-by)⁵ 31.6 kWh	Room Environment Temperature range 18–30 °C / 64.4–86 °F Relative air humidity without condensation 20–75% Heat dissipation (gantry, table and integrated computers) ≤ 7.8 kW scanning
Protection Against Input Power Instability Controllers 20 ms syngo Acquisition Workplace Up to 15 min, with UPS ¹ Frequency stability ± 5% at 50 and 60 Hz	Surface Area for Installation³ System footprint (surface area covered by gantry and moving table top) 4 m ² / 43 ft ² Flexible room design minimum requirement 12 m ² / 130 ft ²

¹ Optional² Values may vary approx. +/- 3% due to specific system conditions, for example of UPS, etc.³ Day: Eco Power activated after 5 minutes of system inactivity; Night: system off with wall-switch⁴ Day: Eco Power activated after 5 minutes of system inactivity; Night: system off⁵ Day: Eco Power activated after 5 minutes of system inactivity; Night: stand-by

Installation

Flexible Room Concepts¹



¹ Subject to local regulations. Safety distances must be checked according to country specific requirements..

Notes

[illegible]

Notes

[illegible]

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