Data sheet

SOMATOM go.Top

128-slice configuration
syngo CT VB10

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

SIEMENS Healthineers

Contents

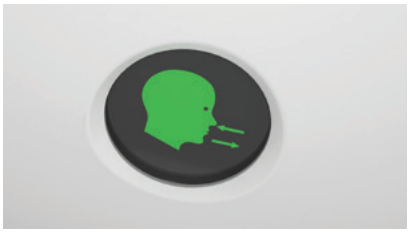
SOMATOM go.Top
Made to match

myExam Companion

Intelligence that works with you.

CARE 2D Camera

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



CARE Breathe[1]

To ease compliance with breath-hold commands.

CARE Moodlight[1]

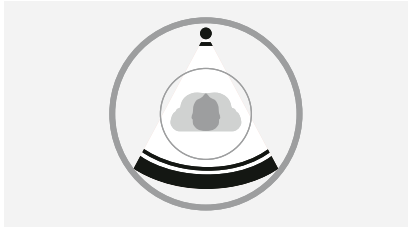
To enhance intuitive system operation and create a calming atmosphere.

FAST 3D Camera gantry-mounted[1]

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

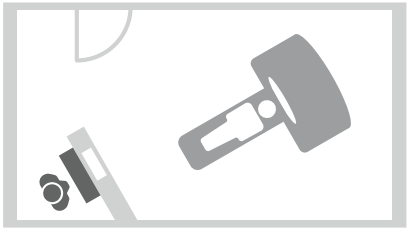
Contact-less charging

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

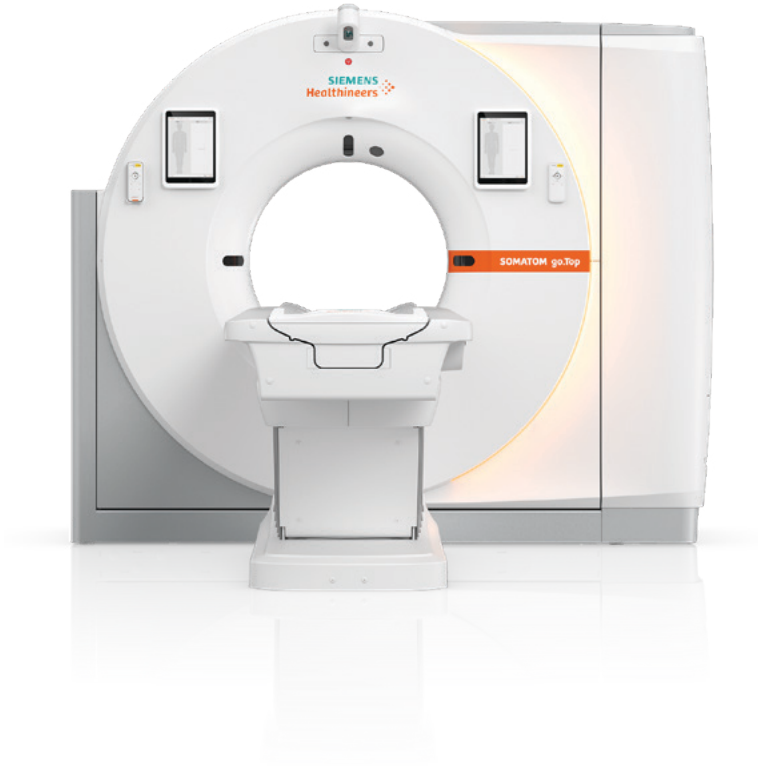
- Control scans remotely with Mobile Workflow
- Reduce workflow steps and increase patient well-being with myExam Compass and myExam Care

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 footprint[1] 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[2] (2060 mA[2,3])
Rotation time	Up to 0.33 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.*
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
- 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
- 50 cm / 19.7"
- 70 cm / 27.5" with HD FOV[1]

System tilt
Virtual tilt with CARE i-tilt 360°
Physical tilt up to ± 30° [2]

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
- 13–825[2] mA
- Max. tube current equivalent to 1560 / 2060[2] 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.

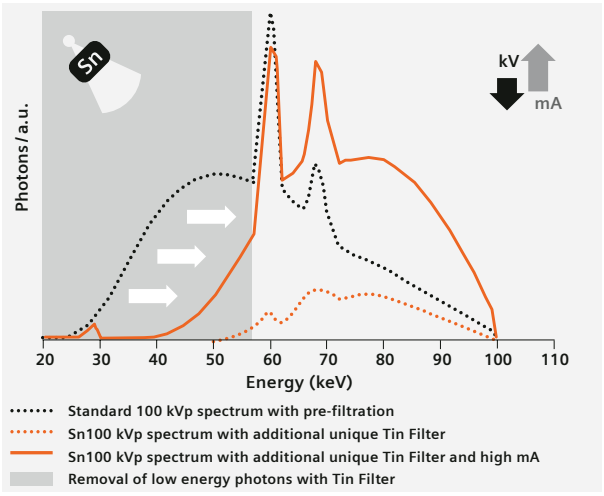
Tube cooling rate
Up to 1700 kHU/min

Focal spot size according to IEC 60336
- 0.8 × 0.8 / 7°
- 1.0 × 1.2 / 7°

[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*

System hardware

Tin Filter

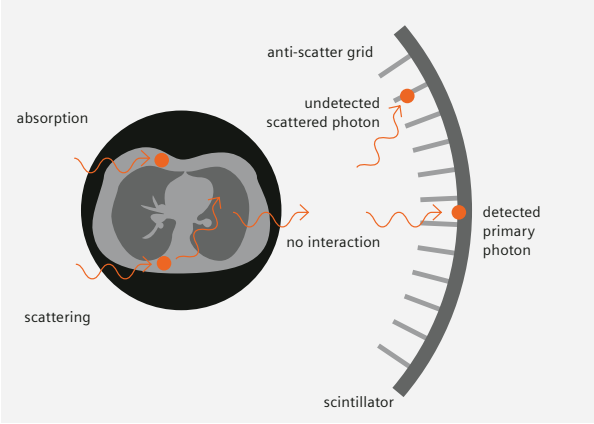


Inherited from high-end dual-source scanners, Tin Filter technology cuts out lower energies to reduce dose and optimizes contrast between soft tissue and air.

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.

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

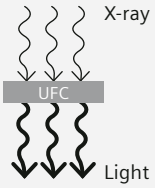


The 3D anti-scatter grid on the SOMATOM go. platform consists of thin grid walls placed between both columns and rows of the detector, all focused towards the focal spot for optimized scatter removal efficiency. The scatter signal and, consequently, the SPR decreases with the 3D anti-scatter grid by 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.

System hardware

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)

Number of detector rows
64

Number of detector elements
53,760

Number of detector channels per row (in-plane)
840

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.

System hardware

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

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 switch[3]
Foot Switch located on the bottom edge of the patient table allowing table positioning

X-ray foot switch[3]
Foot switch for triggering scans from the examination room

Table Side Rails short[3]
Bilateral pleurical short table side rails for convenient mounting of accessories.

Table Side Rails long[3]
Bilateral pleurical long table side rails for convenient mounting of accessories,in particular to mount dedicated interventional hardware

[1] *For CT patient table (227 kg)*
[2] *For RT patient table (227 kg)*

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

Docking station[3]

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 arm[5]

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.

[3] *Optional*
[4] *For CT and RT patient table (307 kg)*
[5] *Optional. Availability depends on country-specific regulatory approval and release.*

System hardware

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 field[1]
5–50 cm / 1.9–19.7"
5–70 cm / 1.9–27.5" with HD FOV[2]

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 Computers[3] and with go.Ultra Computers[3]

Recon matrix
- 512 × 512
- 768 × 768[3,4]
- 1024 × 1024[3,4]

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-1250E[5]
- Intel Xeon W-1290E[5,3]

RAM
- 32 GB DDR4 RAM
- 128 GB DDR4 RAM[3,6]

Graphics card
- Intel UHD Graphics 630[5]
- Nvidia T1000[5,3]

Hard disk
- 960 GB SSD
- 3.84 TB SSD[3,6]

Image and patient data storage
- 432 GB, up to 800,000 images[7]
- 2.85 TB, up to 5,695,000 images[3,6,7]

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

[1] *5–41.5 cm FOV with up to 1.5 pitch; above 41.5 cm FOV with up to 0.8 pitch*
[2] *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.*
[3] *Optional*
[4] *Requires at least go.Power Computers*
[5] *Or equivalent*
[6] *Requires go.Ultra Computers*
[7] *Images include original data and inline results*

System hardware

Screen monitors

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

Additional monitor[1]
Yes

Dual monitor[1]
Yes

myExam Satellite[1,2]

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.[2]
- Same applications available as at the AWP for different clinical cases, including Dual Energy[1] and Neuro Perfusion[1]
- Remote Recon, enabling the possibility to perform RAW data reconstruction directly at the myExam Satellite.

Courtesy of University Hospital Erlangen, Germany

[1] *Optional*
[2] *Requires go.Ultra Computers*

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.

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 Moodlight[1]

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

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

CARE Breathe[1]

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

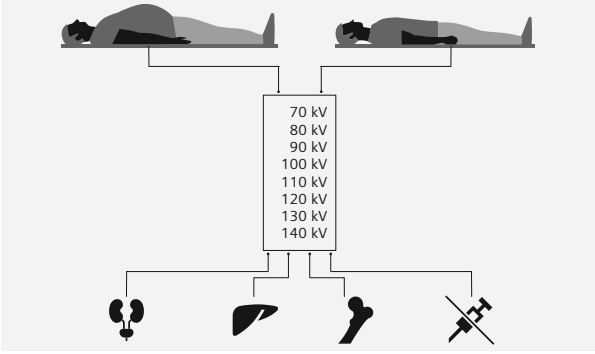
Focus on radiation dose

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.



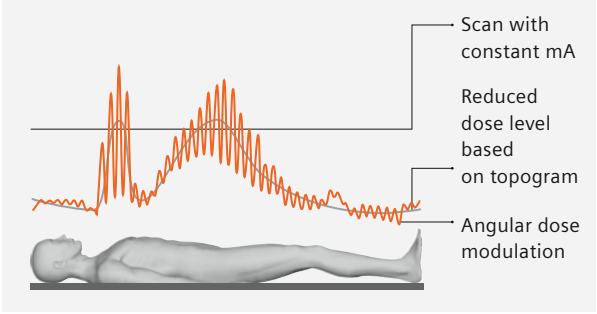
CARE Child

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

Workflow solutions

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.

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&GO[2]

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.

[1] *Optional*
[2] *Availability depends on country-specific approval and release of the wireless devices*

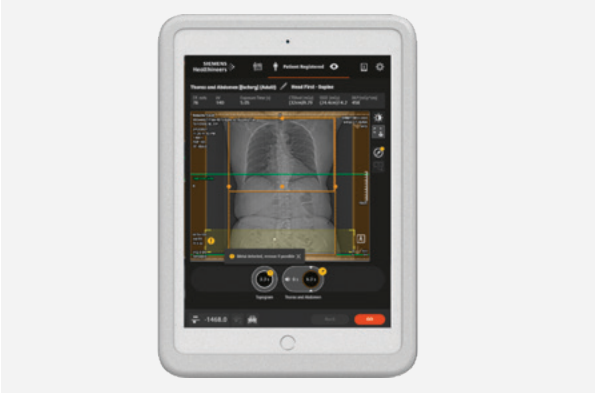
Workflow solutions

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.

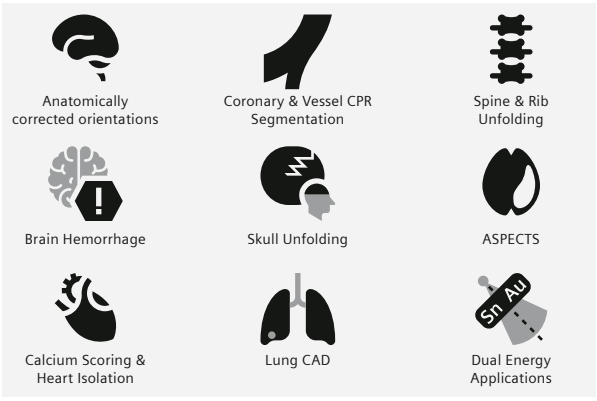
Check&GO detects the center and the radius of the arteries, based on different landmarks depending on the scanned body region the arterial enhancement is measured at relevant locations.



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.

Recon&GO



Recon&GO enables the creation of Inline results, a set of fully automated postprocessing applications 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 Ranges
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

Workflow solutions

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

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

Workflow solutions

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&GO

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.

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

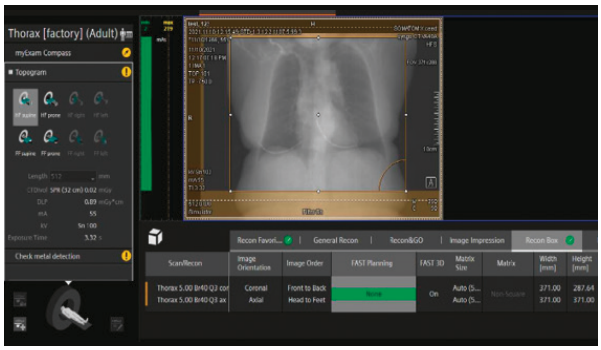
Spine Ranges
- Guided reconstructions of anatomically aligned spine Curved Planar Reconstructions (CPR)
- Automatic detection and labeling of vertebrae

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

Workflow solutions

Standard FAST technologies

FAST Planning



Courtesy of Benson Radiology, Modbury, Australia

FAST Planning is an AI machine learning powered set of algorithms 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.

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 Contact[1]

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

[1] *teamplay Fleet and FAST Contact are subject to country-specific availability.*

Workflow solutions

FAST 3D Camera[1]

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.

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 addtional 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.

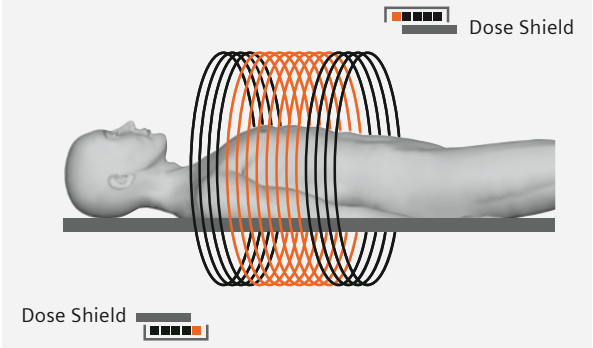
Benefit from patient-specific and user-independent selection of the optimal kV setting with CARE kV in 10 kV steps.

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.

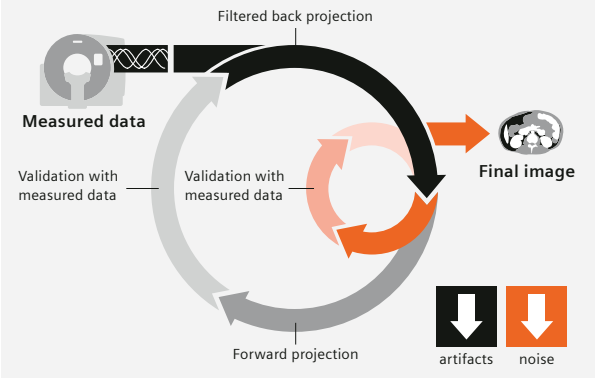
Adaptive Dose Shield



- 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

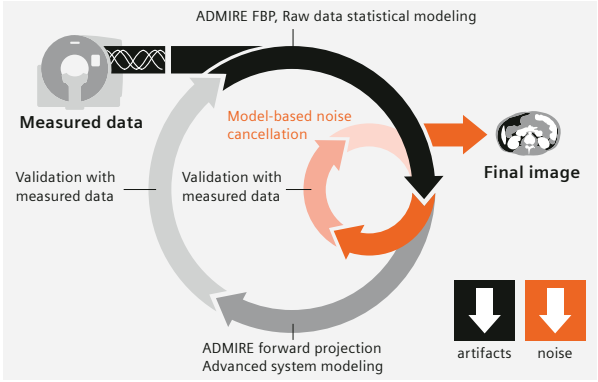
SAFIRE (Sinogram Affirmed Iterative Reconstruction)



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 reconstruction[1]. 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 enable[3]

- 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 WFBP[4].

Alternatively, ADMIRE may enable[3]

- 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.*

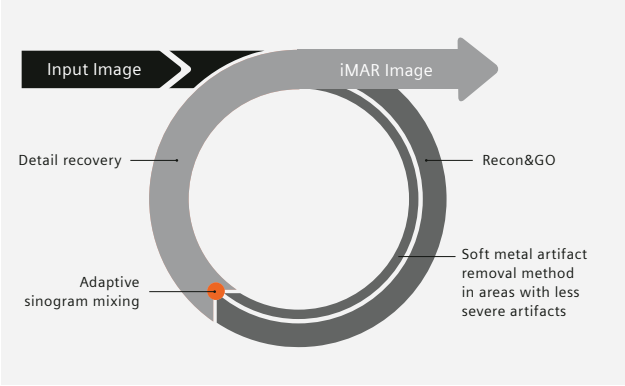
[2] *Optional*

[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: iMAR[1]



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 pacemakers. 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 extension[1]
- 128–2,080 mm[1,2] / 5–82"[1] with table extension[1]

Scan speed
200 mm/s

Scan times
- 1.36–9.2 s
- 1.36–11.2 s[1]

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

Partial scan times (240°)
0.22[1], 0.33, 0.67

Scan times (full scan)
0.33[1], 0.5, 1.0 s

Acquisition with or without table feed

Dynamic Serio Scan

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 ms[1]
- down to 83 ms[1] (bisegment)

Scan times full scan (360°)
0.33[1], 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[1,3,4]
- Max. 200 cm / 78.7" with patient table extension[1,2]

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)

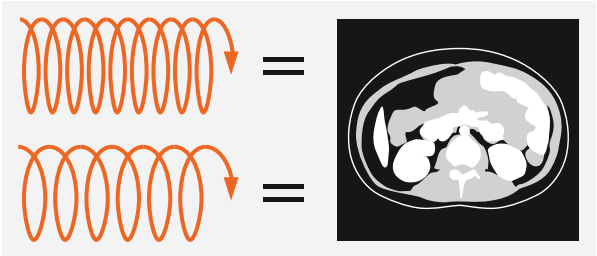
IVR enables utilization of the measured data as effectively as possible. By using IVR, the system extracts the maximum amount of diagnostic information from measured data, thereby improving spatial sampling in z-direction, independent of pitch.

HD FOV[5]

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 (307 kg)*
[3] *For CT patient table (227 kg)*
[4] *For RT patient table*
[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 personel
- 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.

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 applications

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 prospective (Cardio Sequence) and 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 results of Recon&GO Inline CaScoring can be opened in *syngo*.CT CaScoring directly at the AWP and further processed if needed.

Recon&GO – Inline Cardio Ranges
with zero-click CPR creation, Inline Heart Isolation and Inline Coronary Tree with Recon&GO

CT View&GO – Cardio Ranges
allows intuitive and straightforward reading of challenging cases

Trauma imaging

Brain Hemorrhage

Recon&GO – Inline Brain Hemorrhage
Automatic detection and PACS notification of suspected intracranial hemorrhage

Recon&GO – Inline Brain Hemorrhage SAH
The application offers automatic and AI-based triage of potential subarachnoid hemorrhage cases with the Recon&GO Inline Results. This helps in detecting potential intracranial hemorrhage/edema cases including Subarachnoid space.

Recon&GO – Brain Hyperdensity
The application Brain Hyperdensity assists in segmenting and quantifying hyperdense regions in the brain.

Optional clinical applications

CT View&GO – 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.

Recon&GO – Inline Skull Unfolding

Automatic curved MIP images of skull and brain surface to support detection of skull fractures and thin surface hematoma.

Neuro imaging

Flex 4D Spiral – Neuro[1]

- 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
- Facilitates dynamic angiographies for head and neck with a coverage of up to 26.5 cm
- 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

Recon&GO – Inline ASPECTS

Inline ASPECTS automatically calculates the ASPECT score of a non-contrast CT head scan and highlights the affected brain regions as an overlay on the CT image. The images and results are automatically calculated in the background and can be directly sent to PACS without any user interaction. This makes Inline ASPECTS routine ready by providing consistent results independent of the user and always available especially in urgent situations when time is a scarce resource.

CT View&GO – ASPECTS

The ASPECTS application with CT View&GO supports the assessment and severity of ischemic changes on non-contrast CT head scan by automatically calculating the ASPECTS score: 0 (most severe) to 10 (least severe). The application highlights the affected brain regions (bold) and provides the average HU value in each of the 10 segmented regions.

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 for dynamic 4D quantification and visualization of perfusion data.

Stroke Layout

CT View&GO – 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 (e.g., in case of Ischemic Stroke). The results can be read from CT View&GO at the scanner and/or MM Reading (*syngo*.via).

Neuro DSA

CT View&GO – 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.

[1] *Requires 307 kg patient table and 0.33 sec rotation time*

Optional clinical applications

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.

TwinBeam Dual Energy Acquisition

TwinSpiral Dual Energy Acquisition[3]
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.

Recon&GO – Inline DE results for Mixed and Monoenergetic Plus[4]
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.

CT View&GO – Interactive Spectral Imaging for Mixed and Monoenergetic Plus[4]

- 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.

***syngo*.CT Dual Energy – Advanced applications for AWP**
syngo.CT Dual Energy:

- Preparing and viewing of Dual Energy data
- Monoenergetic

syngo.CT DE Monoenergetic Plus[4]:
Compare lesions and tissues by displaying multiple ROIs and associated attenuation curves.

[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*
[4] *In combination with TwinSpiral not for visualization of iodine, only for metal artifact reduction*

Optional clinical applications

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[1,2]

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

[1] *Only in combination with TwinSpiral Dual Energy and TwinSpiral Spectral Viewing*

[2] *Only for visualization of static iodine enhancement after interventional procedures (not for CTA)*

Dual Energy Bone Marrow[1]

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.

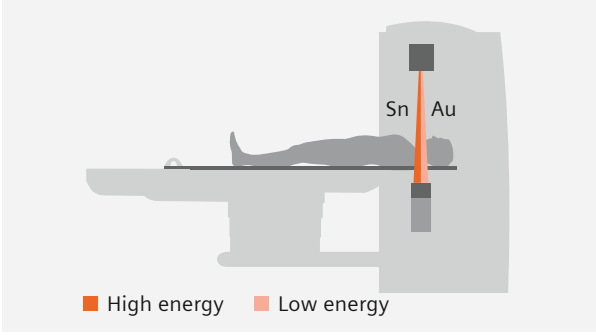
- Zero-click PACS ready Recon&GO – DE Bone Marrow
- Advanced *syngo*.CT DE Bone Marrow application directly at the AWP

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

TwinBeam Dual Energy Acquisistion



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.

Optional clinical applications

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 Viewing[1]

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

Recon&GO – Inline DE 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 Monoenergtic Plus also for further contrast enhancement.

CT View&GO – Interactive Spectral Imaging for Virtual Unenhanced (incl. iodine map) / Liver VNC / Fat map

- Expand the interaction with Dual Energy information to contrast media enhanced scans
- Toggle easily between different postprocessing visualizations and answer your clinical questions in just one work flow directly at the scanner

Dual Energy Direct Angio[2]

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 Analysis[2]

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

Recon&GO – Inline Lung CAD

- Zero-click Lung CAD (Computer Aided Detection) series reconstruction, designed as second reader tool to assist radiologists in the detection of pulmonary nodules during review of CT examinations of the chest
- Designed to assist in the detection of solid pulmonary nodules

CT View&GO – 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.
- Designed to assist in the detection of solid pulmonary nodules

CT-guided interventions

myNeedle Companion[1] is a modular solution for CT-guided interventions. By utilizing the standard system tablet[1] 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[1,2]

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[1,2,3]

For all kind of percutaneous procedures, from simple in-plane interventions, to complex, double-angulated 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 detetcor 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 algorithm 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[1,4,5]

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[1,2]

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).

[1] *Availability depends on country-specific approval and release.*
[2] *Requires a second control-room monitor and an in-room monitor solution*
[3] *Requires go.Ultra Computers*
[4] *Only available together with myNeedle Guide 2D or myNeedle Guide 3D*
[5] *X-ray foot switch required*

Optional clinical applications

X-ray foot switch

Foot switch for triggering scans from the examination room

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

HD FOV

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

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.

Radiation Therapy Basic[3]

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 lasers[4]
- 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

[1] *Availability depends on country-specific approval and release.*
[2] *Included in myNeedle Guide 2D, myNeedle Guide 3D & i-Fluoro*
[3] *Optional*
[4] *Available for following LAP lasers: DORADO 1, 3, 4, DORADOnova 1, 3, 5*

Optional clinical applications

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

4D data management
- 4D phase splitting
- tMinIP, tMIP, AverageCT generation
- Cine-loop
- ITV generation
- Quantitative assessment of 3D tumor trajectory and amplitude and semi-automatic calculation of the midventilation phase
- Control the patient marking workflow with the RT dedicated tablet and avoid unnecessary switching between different interfaces to enter laser coordinates.

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

DirectDensity[1,2]

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.

RT table and overlay[1]
- 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

Respiratory Motion Management[1,3]
- Various acquisition modes and protocols accommodate for a wide range of respiratory patterns and workflows.
- Extended scan time capabilities up to 300 seconds[4]
- 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.

[1] *Optional*
[2] *DirectDensity reconstruction is designed for use in Radiation Therapy Planning (RTP) only. DirectDensity reconstruction is not intended to be used for diagnostic imaging.*
[3] *Requires an interface to connect to one of the many compatible third-party gating devices, like VARIAN RGSC or ANZAI.*
[4] *Depending on scan protocol, patient size and breathing rate the maximum scan time for 4D CT acquisition can vary.*

Optional clinical applications

FAST 4D[1,2]

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.

DirectBreathhold[3]

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

Gating interfaces[1]

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 analysis[4]
- Automated Spine isocenter placement[4]

[1] *Optional*
[2] *Requires online mode and Respiratory Motion Management*
[3] *Requires a gating device that can trigger the CT scanner, such as Anzai or Varian RGSC.*
[4] *Only available via syngo.via RT Image Suite*

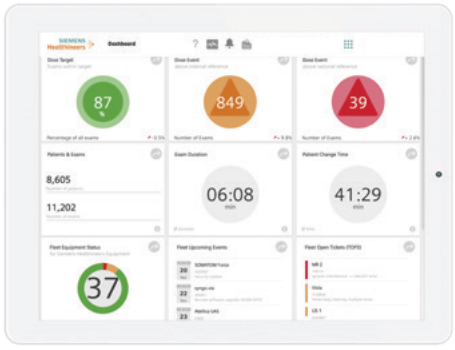
Optional clinical applications

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.

Additional services

teamplay performance management applications



teamplay applications for performance management in healthcare help you make quick and well-informed decisions by offering a clear overview of your clinical and operational performance data. The set of teamplay performance management applications gives you instant, centralized access to operational, technical and clinical data to help you optimize your operations and to deliver higher quality of care. Smart connections between the applications amplify the data insights and provide a seamless user experience.

teamplay Dose
teamplay Dose is an enterprise-wide radiation dose management solution providing you with easy access to dose data, supporting the quality assurance process for monitoring imaging radiation dosage. teamplay Dose displays data for continuous dose performance evaluation, no matter which modality or vendor[1] is used. Perform efficient dose data analysis and get an overview of the scan protocols used by type and target region. Monitor the applied radiation over time by displaying the accumulated dose for each individual patient. And compare your outcomes among peers using global benchmarking[2] with teamplay Dose.

teamplay Usage
teamplay Usage provides you with a transparent view of your radiology department as well as in-depth insights into workflow and clinical processes. Our vendor neutral[1] solution displays key performance indicators (KPIs) for imaging device utilization. Smart filter settings support you in locating the data of interest. Patient change time, exam duration, and table occupancy are performance indicators that help you to understand your workflow and increase efficiency. Figures such as “exams per patient” or “total patients” can give you an insight into the financial side of your department.

teamplay Protocols
Identify best-practice scan protocols for imaging devices and use them for the optimization of your radiology workflow with teamplay Protocols[3]. Keep track of recent protocol changes and improvements – simply explore the version history of your protocols and add annotations for later reference. View all deviations from all your CT scan protocols at a glance – even across scanners or institutions. Save time and resources in your fleet network by distributing protocols remotely to compatible scanners.[4]

teamplay Insights[1]
With teamplay Insights, you get broad access to your radiology department data to discover insights you could not have found before. Build highly flexible, personalized, and interactive data visualization boards for both a monitoring view of your radiology department as well as for a deep dive analysis in specific use cases. Create trackers to check and report whether you will reach your set goals. Analyze and better understand numbers of no-shows and requirement patterns for priority cases. Take deep dives into your dose data to help better understand reasons behind dose outliers, and then decide on measure to be taken to remedy said outliers. Or, find out what the busiest times are to schedule enough staff. With this knowledge at hand you can take well-informed decisions to improve resource utilization. Maximize your insights, optimize your value.

[1] *Optional feature*
[2] *Availability of benchmarking option depends on a minimum number of considered subscribers to guarantee customer anonymity and data protection.*
[3] *teamplay Protocols supports selected Siemens Healthineers scanners. Please contact your Siemens Healthineers representative for more details.*
[4] *Optional feature. Selected Siemens Healthineers scanners support distribution and receiving of protocols. Availability depends on scanner software version. Please contact your Siemens Healthineers representative for more details.*

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 (±10%)
- 10% MTF 14.52 lp/cm (±10%)
- 50% MTF 11.99 lp/cm (±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 HU[1]
- Typ. ±2 HU

Phantom positioned near center of rotation

[1] *Max. HU value also for 30 cm phantom*

Dose, $CTDI_{100}$ 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 $CTDI_{100}$, $CTDI_{w}$, $CTDI_{vol}$, 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 ±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

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

Power Consumption

Max. power consumption
- ≤ 115 kVA
- ≤ 100 kVA with Cos Phi Inductor[1]

Standby
≤ 3 kVA

Power Consumption according to COCIR and GPP

Use scenario 24-hour power consumption[2]

Off[3]
16.6 kWh

Low power[4]
17.5 kWh

Idle (stand-by)
32.4 kWh

Protection Against Input Power Instability

Controllers
20 ms

***syngo* Acquisition Workplace**
3 min, with UPS[1]

Frequency stability
± 5% at 50 and 60 Hz

Sound Design

Standby
55 dB(A)

Peak
67 dB(A)

Electromagnetic Compatibility

This product is in compliance with IEC 60601-1-2 and fulfills CISPR 11 Class A.

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

Surface Area for Installation[3]

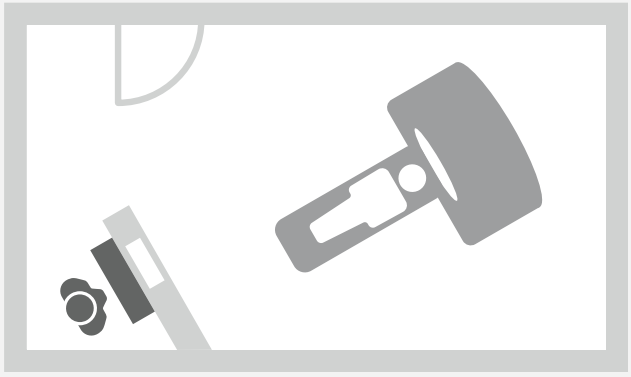
System footprint (surface area covered by gantry and moving table top)
4 m² / 43 ft²

Flexible room design minimum requirement
12 m² / 130 ft²

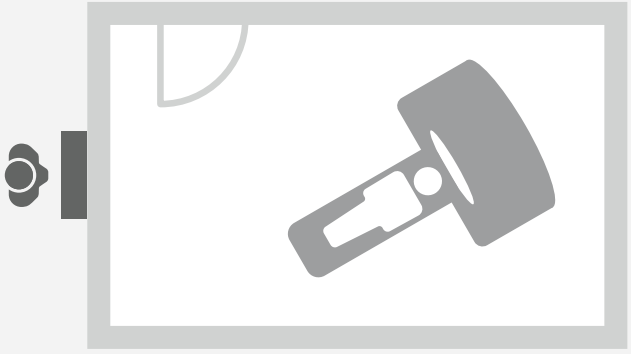
[1] *Optional*
[2] *Values may vary approx. +/– 3% due to specific system conditions, for example of UPS, etc.*
[3] *With wall-switch*
[4] *System off*

Installation

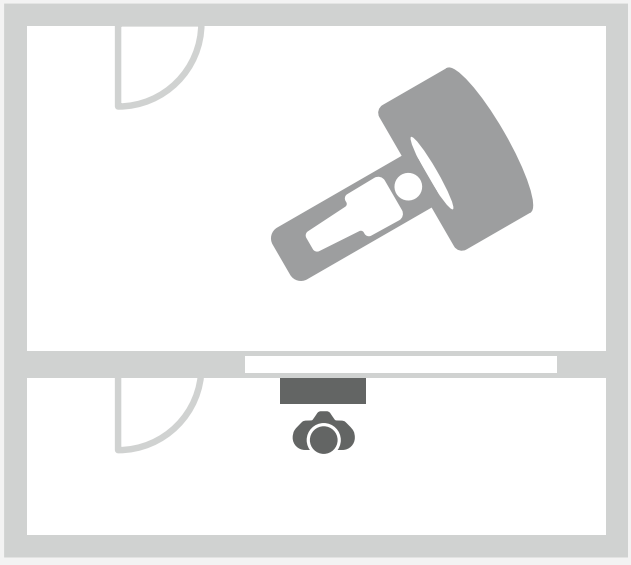
Flexible Room Concepts[1]



Follow the “niche” concept to work in the examination room.



Position the workstation outside the room, e.g., in the corridor.



Minimize the room requirements of a separate control room.

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

Notes

Notes

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Published by Siemens Healthineers AG · Order No. CT-00070-18T1-7600 · Printed in Germany · 13474 1223 ·