Efficiency in CT
SOMATOM Emotion

2-Slice Configuration

syngo CT 2006A
SOMATOM Emotion – Standard Configuration

<table>
<thead>
<tr>
<th>System Hardware</th>
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<tr>
<td>0.8 s rotation time</td>
</tr>
<tr>
<td>Multislice UFC™ (Ultra Fast Ceramic) Detector</td>
</tr>
<tr>
<td>3.5 MHU X-ray tube</td>
</tr>
<tr>
<td>40 kW generator</td>
</tr>
<tr>
<td>CT patient table (200 kg/440 lbs table load)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Workplaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>syngo® Acquisition Workplace*</td>
</tr>
<tr>
<td>19&quot; (48 cm) monitor</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CARE Applications</th>
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</thead>
<tbody>
<tr>
<td>CARE Filter</td>
</tr>
<tr>
<td>CARE Topo</td>
</tr>
<tr>
<td>CARE Dose4D™</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>System Software</th>
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<tbody>
<tr>
<td>syngo Examination</td>
</tr>
<tr>
<td>syngo Viewing</td>
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<tr>
<td>syngo Filming</td>
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<tr>
<td>syngo Archiving &amp; Network</td>
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<tr>
<td>syngo Dynamic Evaluation</td>
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<tr>
<td>syngo Service Solutions</td>
</tr>
<tr>
<td>Image Filter</td>
</tr>
<tr>
<td>SureView™</td>
</tr>
<tr>
<td>SOMATOM® LifeNet</td>
</tr>
<tr>
<td>Video Capture and Editing Tool</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real-time MPR</td>
</tr>
<tr>
<td>syngo 3D SSD (Surface Shaded Display)</td>
</tr>
<tr>
<td>Volume Measurements</td>
</tr>
<tr>
<td>CT-Angiography</td>
</tr>
</tbody>
</table>

* Standard feature

* Syngo, our unique multimodality software-platform brings together solutions for your clinical workflow. This complete integration is now evident in the consistent naming of our workplaces. Syngo Acquisition Workplace replaces the Navigator. Syngo CT Workplace replaces today’s Wizard and syngo MultiModality Workplace replaces today’s LEONARDO.

SOMATOM Emotion 2-slice configuration is registered/licenced as SOMATOM Emotion Duo
### System Hardware
- Additional 19” (48 cm) monitor
- Second 19” (48 cm) monitor with dual display functionality
- Radiation Treatment Planning Enhancement

### Workplaces
- syngo CT Workplace*
- syngo MultiModality Workplace*
- Additional 19” (48 cm) monitor
- Second 19” (48 cm) monitor with dual display functionality
- 2 GB Volume Pro Graphics Accelerator

### CARE Applications
- CARE Contrast CT
- CARE Bolus CT
- CARE Vision CT with HandCARE™

### System Software
- Extended FOV (Field of View)
- syngo Security Package
- Siemens Virus Protection
- Recon Card for syngo CT Workplace

### syngo Applications
- syngo VRT
- syngo InSpace4D
- syngo Fly Through
- syngo Dental CT
- syngo Osteo CT
- syngo Pulmo CT
- syngo HeartView CT (prospective trigger)
- syngo InSpace4D AVA (Advanced Vessel Analysis)**
- syngo Calcium Scoring
- syngo Neuro Perfusion CT
- syngo Neuro DSA CT (Digital Subtraction Angiography)**
- syngo Body Perfusion CT
- syngo Colonography CT
- syngo Colonography CT with PEV (Polyp Enhanced Viewing)**
- syngo LungCARE CT
- syngo LungCARE CT with NEV (Nodule Enhanced Viewing)
- syngo Image Fusion
- Respiratory Triggering CT

* Optional feature

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** On syngo MultiModality Workplace only
SOMATOM Emotion – syngo CT.3D

<table>
<thead>
<tr>
<th>syngo CT.3D</th>
<th>syngo CT.3D</th>
</tr>
</thead>
<tbody>
<tr>
<td>(on syngo CT Workplace*)</td>
<td>(on syngo MultiModality Workplace*)</td>
</tr>
<tr>
<td>syngo CT Workplace*</td>
<td>syngo MultiModality Workplace*</td>
</tr>
<tr>
<td>19” (48 cm) monitor</td>
<td>19” (48 cm) monitor</td>
</tr>
<tr>
<td>2 GB Volume Pro Graphics Accelerator</td>
<td>2 GB Volume Pro Graphics Accelerator</td>
</tr>
<tr>
<td>syngo 3D Basic</td>
<td>syngo 3D Basic</td>
</tr>
<tr>
<td>syngo VRT</td>
<td>syngo VRT</td>
</tr>
<tr>
<td>syngo Fly Through</td>
<td>syngo Fly Through</td>
</tr>
<tr>
<td>syngo InSpace4D</td>
<td>syngo InSpace4D</td>
</tr>
<tr>
<td>syngo Volume Calculation</td>
<td>syngo Volume Calculation</td>
</tr>
<tr>
<td>syngo Dynamic Evaluation</td>
<td>syngo Dynamic Evaluation</td>
</tr>
</tbody>
</table>

* Optional feature

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**System Hardware**

<table>
<thead>
<tr>
<th><strong>Gantry</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Aperture</td>
<td>70 cm</td>
</tr>
<tr>
<td>Scan field</td>
<td>50 cm</td>
</tr>
<tr>
<td>Tilt</td>
<td>± 30°</td>
</tr>
<tr>
<td>Rotation time</td>
<td>0.8, 1.0, 1.5 s</td>
</tr>
<tr>
<td>Temporal resolution</td>
<td>down to 400 ms (syngo HeartView CT*)</td>
</tr>
</tbody>
</table>

*Continuously rotating tube-detector unit with optimized geometry for high-resolution data acquisition across the entire scan field*

<table>
<thead>
<tr>
<th><strong>Data acquisition system</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Max. number of slices/rotation</strong></td>
</tr>
<tr>
<td><strong>Number of physical detector rows</strong></td>
</tr>
<tr>
<td><strong>Number of physical detector channels/slice</strong></td>
</tr>
<tr>
<td><strong>Total channels per slice</strong></td>
</tr>
<tr>
<td><strong>Number of projections</strong></td>
</tr>
<tr>
<td><strong>Sequence acquisition modes</strong></td>
</tr>
<tr>
<td><strong>Spiral acquisition modes</strong></td>
</tr>
<tr>
<td><strong>Speed and efficiency based on UFC (Ultra Fast Ceramic) detector with ultra short afterglow</strong></td>
</tr>
<tr>
<td><strong>Designed to effectively suppress scattered radiation</strong></td>
</tr>
</tbody>
</table>

* Optional
## System Hardware

<table>
<thead>
<tr>
<th>Tube assembly</th>
<th>CARE Filter</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tube</strong></td>
<td><strong>Al equivalent</strong></td>
</tr>
<tr>
<td>High performance CT X-ray tube</td>
<td><strong>Beam limiting device</strong></td>
</tr>
<tr>
<td>Tube current range</td>
<td>Max. power</td>
</tr>
<tr>
<td>30–240 mA</td>
<td><strong>Generator</strong></td>
</tr>
<tr>
<td>Tube voltage</td>
<td><strong>Patient table</strong></td>
</tr>
<tr>
<td>80, 110, 130 kV</td>
<td>Max. table load</td>
</tr>
<tr>
<td>Tube anode heat storage capacity</td>
<td>Table feed speed</td>
</tr>
<tr>
<td>3.5 MHU</td>
<td>Vertical table</td>
</tr>
<tr>
<td>Focal Spot size according to IEC 60 336</td>
<td>Vertical travel range</td>
</tr>
<tr>
<td>0.8 x 0.4 mm/8°</td>
<td>Vertical travel speed</td>
</tr>
<tr>
<td>0.8 x 0.7 mm/8°</td>
<td>Scannable range</td>
</tr>
<tr>
<td>Computer controlled monitoring of anode temperature</td>
<td>Distance between gantry front and table base</td>
</tr>
<tr>
<td>Multifan principle with Flying Focal Spot for all rotation times</td>
<td></td>
</tr>
</tbody>
</table>
syngo Workplaces

syngo Acquisition Workplace
The syngo Acquisition Workplace provides an intelligent and reliable workflow for data acquisition, image reconstruction, and routine postprocessing at the CT scanner. Built on the unique syngo platform, the syngo Acquisition Workplace is intuitive and user friendly.

High-performance computer
1 x Xeon 3.6 GHz processor

Graphics accelerator
NVIDIA graphics card for fast 3D postprocessing

Standard monitor
Flat screen 19” (48 cm) monitor
1,280 x 1,024 resolution
1,024 x 1,024 image display matrix
0.29 mm pixel size

Additional monitor*
Flat screen 19” (48 cm) monitor
Replication of primary monitor at remote location
Distance from host max. 30 m

Second monitor with dual display functionality*
Flat screen monitor 19” (48 cm)
Enables splitting of the syngo task cards onto two monitors. One monitor displays the viewing task card, for instance for the interactive review of images. All other syngo task cards are displayed on the second monitor.

RAM storage
2 GB

Image storage
146 GB; 240,000 uncompressed images

Additional storage
CD-R 700 MB; 1,100 images
MOD DICOM* 4.1 GB cartridge 6,500 images
External USB 2.0 disks for quick and easy raw data storage are supported

DICOM viewer
Included on each CD; automatically started on the viewer’s PC

* Optional
The syngo CT Workplace is a dedicated CT processing workplace that provides instant access to image and scan data via a shared database with the syngo Acquisition Workplace. With access to our comprehensive portfolio of CT clinical applications, the syngo CT Workplace can be customized to further enhance clinical performance. It can be networked via 1 GB LAN.

**High-performance computer**
- 2 x Xeon 3.6 GHz processor

**Graphics accelerator**
- NVIDIA graphics card for fast 3D postprocessing
- Volume Pro Graphics Accelerator*
- 2 GB on-board image memory additionally accelerates applications

**Standard monitor**
- Flat screen 19” (48 cm) monitor
- 1,280 x 1,024 resolution
- 1,024 x 1,024 image display matrix
- 0.29 mm pixel size

**Second monitor with dual display functionality***
- Flat screen monitor 19” (48 cm)
- Enables splitting of the syngo task cards onto two monitors. One monitor displays the viewing task card, for instance for the interactive review of images. All other syngo task cards are displayed on the second monitor.

**RAM storage**
- 2 GB

**Image storage**
- Shared database with syngo Acquisition Workplace

**Additional storage**
- CD-R Media 700 MB; 1,100 images
- MOD DICOM* 4.1 GB cartridge 6,500 images

**DICOM viewer**
- Included on each CD; automatically started on the viewer’s PC

* Optional
**syngo MultiModality Workplace**

syngo MultiModality Workplace provides the unique advantage of an efficient multi-modality diagnostic workflow at a single workplace. Based on the unique syngo platform, it manages the clinical diagnostic workflow anywhere within the clinical environment. With the syngo MultiModality Workplace radiologists and clinicians benefit from access to our comprehensive syngo applications for Computed Tomography, Magnetic Resonance, PET and SPECT imaging, Angiography and Radiation Therapy Planning. The syngo MultiModality Workplace can be networked via 1 GB LAN.

### High-performance computer

- 2 x Xeon 3.6 GHz processor

### Graphics accelerator

- NVIDIA graphics card for fast 3D postprocessing
- Volume Pro Graphics Accelerator*
- 2 GB on-board image memory additionally accelerates applications

### Standard monitor

- Flat screen 19” (48 cm) monitor
- 1,280 x 1,024 resolution
- 1,024 x 1,024 image display matrix
- 0.29 mm pixel size

### Second monitor with dual display functionality*

- Flat screen monitor 19” (48 cm)
- Enables splitting of the syngo task cards onto two monitors. One monitor displays the viewing task card, for instance for the interactive review of images. All other syngo task cards are displayed on the second monitor.

---

**RAM storage**

- 6 GB

**RAID**

- RAID 0 for enhanced read/write performance

**Image storage**

- 146 GB; 240,000 uncompressed images

**Additional storage**

- CD-R Media 700 MB; 1,100 images
- DVD DICOM Drive 4.7 GB
  - 8,400 images

**DICOM viewer**

- Included on each CD; automatically started on the viewer’s PC
### CARE Applications

<table>
<thead>
<tr>
<th>UFC Detector</th>
<th>CARE Bolus CT*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 30% dose reduction compared to conventional CT detectors.</td>
<td>Scan mode for contrast bolus triggered data acquisition</td>
</tr>
<tr>
<td>High efficiency for low mAs requirements enable best possible image quality with low patient dose</td>
<td>Significant improvement of the planning procedure and diagnosis by enabling an optimum spiral scan start after contrast injection</td>
</tr>
<tr>
<td>Ultra short afterglow. Specially developed for sub-second and multislice applications.</td>
<td>The procedure is based on repetitive low dose monitoring scans at one slice level and analysis of the time density curve in a ROI (Region of Interest)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SureView – Multislice Spiral Image Reconstruction</th>
<th>CARE Vision CT* with HandCARE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brilliant image quality and dose savings up to 20% in spiral mode</td>
<td>Perform interventions with real-time image guidance, including CT fluoroscopic mode.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CARE Filter</th>
<th>Includes Real-time image guidance:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specially designed X-ray exposure filter installed at the tube collimator. Up to 25% dose reduction with increased image quality.</td>
<td>Image rate up to 8 frames/s</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CARE Contrast CT*</th>
<th>Foot switch. Radiation release directly at the gantry.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilitates contrast enhanced CT examinations</td>
<td>Additional monitor. For parallel image display in the examination room.</td>
</tr>
<tr>
<td>Enables the synchronization between scanning and contrast injection</td>
<td>Flat screen 19&quot; (48 cm) monitor</td>
</tr>
<tr>
<td>One button control for easy use</td>
<td>Distance from host max. 30 m</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pediatric protocols</th>
<th>HandCARE. Real-time dose modulation during the CT-guided intervention. The tube current is automatically switched off to avoid direct X-ray exposure to the physician’s hands. HandCARE yields dose savings of up to 70% for the physician and up to 30% for the patient.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special clinical protocols with 80 or 110 kV selection and a wide range of mAs settings. The X-ray exposure is adapted to the child’s (and small adult’s) weight and age, substantially reducing the effective patient dose.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CARE Topo</th>
<th>CARE Dose4D – minimizing dose, maximizing quality – patient by patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real-time topogram</td>
<td>Automated real-time tube current adjustment for best diagnostic image quality at lowest possible dose, independent of patient size and anatomy</td>
</tr>
<tr>
<td>Manual interruption possible once desired anatomy has been imaged</td>
<td>Fully automated dose management for adults and children with up to 68% dose reduction</td>
</tr>
</tbody>
</table>

* Optional
System Software

**Patient registration**
Direct input of patient information on syngo
Acquisition Workplace immediately prior to scan
Pre-registration of patients at any time prior to scan
Special emergency patient registration
(allowing examination without entering patient data before scanning)
Patient information from HIS/RIS via DICOM
Get Worklist
Transfer of examination information from scanner into HIS/RIS via MPPS (Modality Performed Procedure Step)

**Protocols**
Up to 10,000 protocols can be edited, modified and stored

**Patient communication**
Integrated patient intercom
Automatic Patient Instruction (API)
• Freely recordable
• 30 API text pairs
• Presets in nine languages available

**Integrated display panel**
Gantry front display showing current scan parameters such as kV, mA, scan time, table position, gantry tilt, and ECG trace**

**Gantry front control panels**
For convenient patient positioning
(e.g. in case of trauma or interventional exams)
Gantry tilt control from the operator’s console

**Synchronized scanning and contrast injection***
CARE Contrast facilitates enhanced CT examinations through the hardware and software integration of CT scanner and injector

**Three laser light markers**
Coronal, sagittal, and axial laser light, that show the isocentric position of the scan plane. With RTP (Radiation Treatment Planning) Enhancement, the laser lights can be easily adjusted.***

**Topogram**
Length 128–1,024 mm (5–40.3”)
Scan times 1.5–11.2 s
Views a.p., p.a., lateral

**CARE Topo**
Real-time topogram
Manual interruption possible once desired anatomy has been imaged

**Sequence Acquisition**
 Reconstructed 1.0, 1.5, 2.0, 2.5, 3.0, 4.0, slice widths 5.0, 8.0, 10.0
 Scan times 0.8, 1.0, 1.5 s (± 5%) full scan (360°)
 Partial scan times (240°) 0.53, 0.67 s (± 5%)
 No. of uninterrupted scans per range 99
 No. of ranges in autorange 8
 Standard scan 2.5 s (± 10%) at cycle time 1.0 s scan time
 Acquisition with or without table feed
 Automatic clustering of scans

**Dynamic Multiscan:**
Multiple (continuous) sequence scanning without table movement for fast dynamic contrast studies
Dynamic scan 1.2 s (± 10%) at cycle time 0.8 s scan time
 1.5 s (± 10%) at 1.0 s scan time

**Patient breath-hold time indicator**
Patient-friendly display at the back of the gantry for indication of the remaining breath-hold time

**Automatic patient positioning**
Two user-configurable buttons on the gantry panel
One touch, quick patient positioning for pre-selected clinical protocols – e.g. head, thorax

---

* Optional
** Requires syngo HeartView CT
*** Optional for RTP
**SureView: Siemens’ patented solution for Multislice CT reconstruction**

**Excellent for clinical workflow:**
Forget about compromises in your clinical workflow. Just specify the slice thickness in your protocols according to your clinical needs. SureView automatically takes care of providing excellent volume image quality – with exceptional performance.

**Multiply your clinical performance with SureView:**
High-quality imaging at any scanning speed. SureView allows the CT scanner to automatically select the necessary pitch value to achieve the coverage and scan time defined by you, while keeping selected slice thickness.

---

### Multislice Spiral Acquisition

<table>
<thead>
<tr>
<th>Reconstructed slice widths</th>
<th>1.0, 1.25, 2.0, 3.0, 5.0, 6.0, 8.0, 10.0 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scan times</td>
<td>0.8, 1.0, 1.5 s</td>
</tr>
<tr>
<td>full scan (360°)</td>
<td></td>
</tr>
<tr>
<td>Reconstruction increment</td>
<td>0.1–10 mm</td>
</tr>
<tr>
<td>Pitch factor</td>
<td>0.5–2.0</td>
</tr>
<tr>
<td>Volume pitch</td>
<td>1.0–4.0</td>
</tr>
<tr>
<td>Spiral scan time</td>
<td>max. 100 s</td>
</tr>
<tr>
<td>Scan length</td>
<td>max. 150 cm (59&quot;)</td>
</tr>
</tbody>
</table>

**Extended Field of View***

Special image reconstruction algorithms that provide visualization of objects using a FOV up to 70 cm**

---

* Optional

** The image quality for the area outside the standard 50 cm scan field does not meet the image quality specifications shown in the technical data sheet and image artifacts may appear, depending on the anatomy scanned.
### System Software

**Image reconstruction**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real-time display</td>
<td>Real-time image display (512 x 512) during spiral acquisition</td>
</tr>
<tr>
<td>Slice thickness</td>
<td>1.0–10.0 mm</td>
</tr>
<tr>
<td>Scan field</td>
<td>50 cm</td>
</tr>
<tr>
<td>Recon field</td>
<td>5–50 cm, 5–70 cm with extended FOV*</td>
</tr>
<tr>
<td>Standard recon time</td>
<td>up to 5 images/s</td>
</tr>
<tr>
<td>Recon matrix</td>
<td>512 x 512</td>
</tr>
<tr>
<td>HU scale</td>
<td>-1,024 to +3,071</td>
</tr>
<tr>
<td>Extended HU scale</td>
<td>-10,240 to +30,710</td>
</tr>
<tr>
<td>Wide range of selectable slice thickness for prospective selection and/or retrospective reconstruction for spiral scans</td>
<td>Real-time image display in 512 x 512 matrix parallel to spiral acquisition (e.g. for trauma)</td>
</tr>
</tbody>
</table>

**CINE display**

- Display of image sequences
- Automatic or interactive with mouse control
- Max. image rate: 10 frames/s

**Windowing**

- Window width and center freely selectable
- Single window
- Double window (e.g. bone/soft tissue)
- Multiple window settings for multi-image display
- Organ-specific window settings, e.g. for soft tissue and bones

**Filming**

- Digital film documentation; connection to 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

**Image transfer/Networking**

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

**Raw data**

- Drive size: 65 GB
- Capacity: 12,000 scan-seconds
- External USB 2.0 disks for quick and easy raw data storage are supported

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*Optional; reconstruction area outside the standard 50 cm FOV is for visualization purposes only and is not of diagnostic image quality.*
Video Capture and Editing Tool
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.

2D postprocessing
Image zoom and pan
Image manipulations
• Averaging, subtraction
• Reversal of gray-scale values
• Mirroring

Advanced image algorithms
• Posterior Fossa Optimization for reduction of beam hardening artifacts in head images
• Low Contrast Enhancement for improving low contrast detectability
• High Contrast Enhancement for increased sharpness of high contrast structures
• Advanced Smoothing Algorithm edge preserving and smoothing filter, dedicated to cardiac exams

syngo Security Package*
Provides functionality for user management and flexible access control for patient data

Siemens Virus Protection*
Offers top-level defense in safeguarding CT systems against viruses

* Optional
Image Quality

Low-contrast resolution

Low-contrast resolution is the ability to see
• a small object (mm)
• with a certain contrast difference (HU)
• on a particular phantom (Ø)
• at a certain mAs value (mAs)
• with a particular patient dose (mGy)

Phantom CATPHAN (16 cm)
Object size 3 mm
Contrast difference 3 HU
Dose at the surface 19.7 mGy* at 100 mAs
Technique 1.0 s/0.8 s, 10 mm, 130 kV

Phantom CATPHAN (20 cm)
Object size 5 mm
Contrast difference 3 HU
Dose at the surface 15.8 mGy* at 90 mAs
Technique 1.0 s/0.8 s, 10 mm, 130 kV

High-contrast resolution

0% MTF (± 10%)  15.5 lp/cm, 0.32 mm
2% MTF (± 10%)  14.0 lp/cm, 0.36 mm
10% MTF (± 10%) 12.3 lp/cm, 0.41 mm
50% MTF (± 10%)  9.0 lp/cm, 0.56 mm
Technique Tungsten wire in air
60 mAs, 130 kV,
1.0 s/0.8 s, 1.0 mm

Homogeneity

Cross-field uniformity in a 20 cm water phantom
Phantom positioned near center of rotation

Dose, CTDI\textsubscript{100} values*

<table>
<thead>
<tr>
<th>Phantom Ø</th>
<th>110 kV</th>
<th>130 kV</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 cm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>14.4</td>
<td>21.7</td>
</tr>
<tr>
<td>B</td>
<td>15.7</td>
<td>23.3</td>
</tr>
<tr>
<td>32 cm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>4.2</td>
<td>6.7</td>
</tr>
<tr>
<td>B</td>
<td>8.4</td>
<td>12.8</td>
</tr>
<tr>
<td>A: at center</td>
<td>B: 1 cm below surface</td>
<td></td>
</tr>
</tbody>
</table>
Technique PMMA-Phantom
Absorbed dose for reference material air
Max. deviation ± 30%
Expected deviation 15%
Slice > 1 mm

* Air KERMA, measured on the surface of the phantom with max. deviation ± 30%
Applications

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)
syngo 3D SSD (Surface Shaded Display)
Three-dimensional display of surfaces with different
density values
• Soft tissue
• Bone
• Contrast-enhanced vessels
Volume measurements
Measurements of various tissues and organs with
HU-based region growth algorithms and interactive
ROI definition
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 in up to 4 tissue classes
CT-Angiography
MIP: Maximum Intensity Projection
MinIP: Minimum Intensity Projection
Thin MIP function for projection within a small slab
to focus on particular vascular structure
Evaluation of spiral images and display of vessels,
vascular anomalies, aneurysms, plaques, and
stenoses
syngo InSpace4D* – real-time interactive
evaluation, in space and time
One-click bone removal
Automated segmentation and removal of bony
structures for vascular analysis
High performance volume reading for physician’s
diagnosis and pre-surgical planning in daily clinical
routine

syngo Fly Through*
Virtual Endoscopy software enabling visualization
of vessels, airways, and the intestines
syngo Dental CT*
Reformatting of panoramic slices and paraxial
sections through the lower and upper jaw for
analysis in connection with implantation surgery
syngo Osteo CT*
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 Pulmo CT*
Quantitatively evaluates lung density and structure
to help early diagnosis and treatment of lung
disease and surgical intervention planning
syngo HeartView CT*
ECG-synchronized acquisition using prospective ECG
triggered mode
Basis for 3D cardiac reconstructions, e.g.
CT-Angiography of the coronary vessels and
Calcium Scoring
The ECG signal used for triggering the CT images
is acquired by an integrated ECG device. The ECG
signal is displayed on the gantry front cover.

* Optional
Applications

**syngo InSpace4D AVA** *(Advanced Vessel Analysis)*
Optional plug-in for syngo InSpace4D
Dedicated syngo-based application for analysis of vessel lesions
Automatic vessel segmentation plus accurate quantification of vascular lesions. Compatible with CT and MR datasets.

**syngo Calcium Scoring**
Displays the quantity and distribution of coronary calcification for the diagnosis and treatment of cardiac disease

**syngo Neuro Perfusion CT**
Evaluates dynamic CT data of the brain. Used for the early differential diagnosis of acute ischemic stroke. Additionally, it allows imaging of blood brain barrier disruptions in brain tumors.

**syngo Neuro DSA CT** *(Digital Subtraction Angiography)*
A fully automated workflow, facilitates optimal visualization and evaluation of complex intracranial vascular structures and helps to delineate aneurysms and other vascular diseases

**syngo Colonography CT**
For non-invasive visualization and quantitative evaluation of colon polyps
Enables real-time virtual 3D endoluminal viewing

**syngo Colonography CT with PEV** *(Polyp Enhanced Viewing)*
Computer-assisted identification of polyps with virtual second reader support

**syngo LungCARE CT**
Software for fast 3D-based visualization and quantitative evaluation of lung nodules, with lowest possible radiation dose. Includes fully automated follow-up.

**syngo LungCARE CT with NEV** *(Nodule Enhanced Viewing)*
Provides computer supported identification of lung nodules. Functions as a second reader opinion.

**syngo Body Perfusion CT**
For functional analysis of organs and tumors. Useful for interventional procedures and radiation therapy monitoring and planning.

**syngo Image Fusion**
Registration and composite display of CT, MR, NM, and PET images. Provides for optimal physician’s diagnosis by fusion of morphological data with functional information.

**RTP Enhancement**
Hardware and software components to optimize the RTP process

**Respiratory Triggering CT**
Hardware and software components that allow for the capture and storage of a patient’s respiratory signal data during a triggered sequence acquisition
Organ motion artifacts caused by respiration are minimized or eliminated and better accuracy is obtained regarding organ position, size, and volume

* Optional
** Optional on syngo MultiModality Workplace only
## Installation

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Height (mm/inch)</th>
<th>Width (mm/inch)</th>
<th>Length (mm/inch)</th>
<th>Weight (kg/lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Components</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gantry</td>
<td>≤ 1,780 / 70,1</td>
<td>≤ 790 / 31,1; 26,7</td>
<td>≤ 2,320 / 91,3</td>
<td>≤ 1,200 / 2,640</td>
</tr>
<tr>
<td>Patient table</td>
<td>≤ 940 / 37,0</td>
<td>≤ 680 / 26,7</td>
<td>≤ 2,230 / 87,8</td>
<td>≤ 430 / 946</td>
</tr>
<tr>
<td>Operator’s console*</td>
<td>≤ 700 / 27,5</td>
<td>≤ 800 / 31,5</td>
<td>≤ 1,400 / 55,1</td>
<td>≤ 60 / 132</td>
</tr>
<tr>
<td>UPS</td>
<td>≤ 160 / 6,3</td>
<td>≤ 250 / 9,8</td>
<td>≤ 560 / 22,1</td>
<td>≤ 20 / 44</td>
</tr>
<tr>
<td>Image reconstruction system</td>
<td>≤ 445 / 17,5</td>
<td>≤ 205 / 8,1</td>
<td>≤ 560 / 22,1</td>
<td>≤ 30 / 66</td>
</tr>
<tr>
<td><strong>Computer system</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>syngo Acquisition Workplace</td>
<td>≤ 445 / 17,5</td>
<td>≤ 205 / 8,1</td>
<td>≤ 560 / 22,1</td>
<td>≤ 30 / 66</td>
</tr>
<tr>
<td>syngo CT Workplace</td>
<td>≤ 445 / 17,5</td>
<td>≤ 205 / 8,1</td>
<td>≤ 560 / 22,1</td>
<td>≤ 30 / 66</td>
</tr>
</tbody>
</table>

* Includes monitor, keyboard, mouse, scan control box, and operator’s desk (optional)
Installation

<table>
<thead>
<tr>
<th>Power supply</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal voltage ± 10%</td>
<td>190–480 V</td>
</tr>
<tr>
<td>Nominal line frequency</td>
<td>50; 60 Hz</td>
</tr>
<tr>
<td>Max. power consumption</td>
<td>≤ 48 kVA</td>
</tr>
<tr>
<td>Power consumption</td>
<td>≤ 1.0 kW standby</td>
</tr>
<tr>
<td>Mean power consumption</td>
<td>≤ 4.7 kW scanning</td>
</tr>
</tbody>
</table>

**Protection against input power instability**

| X-ray            | 20 ms               |
| Controllers      | 300 ms              |
| Computer         | 3 min               |
| Frequency stability| ± 5% 50; 60 Hz    |

**Electromagnetic compatibility**

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

**Examination room environment**

Temperature range 18–30 °C
Relative air humidity 20–85% without condensation
Heat dissipation

| Heat dissipation (Gantry) | ≤ 4.7 kW scanning |
| Heat dissipation (Computer) | ≤ 1.5 kW standby |

**Surface area for installation**

<table>
<thead>
<tr>
<th>min.* recommended</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete system</td>
<td>18.5 m² 22.0 m²</td>
</tr>
<tr>
<td>Gantry &amp; table only</td>
<td>15.5 m² 17.0 m²</td>
</tr>
</tbody>
</table>

* Full performance in terms of gantry tilt and scannable range
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