



SOMATOM Definition Edge

Environmental Product Declaration

siemens-healthineers.com/somatom-definition-edge





Progress that is Impressive – Ecological Advantages of SOMATOM Definition Edge

- Average energy savings of 30% for standard examinations¹
- 70% less detector power consumption (down to 450W) with Stellar detectors
- Contactless power and data transmission prevents abrasion and dust
- No more lead used for counterweights
- All substances contained in the product and its packaging are documented
- Plastic parts are labeled for recycling
- Disassembly instructions for high-quality recycling are available
- Complete CT systems and their components are taken back and refurbished
- Product take-back according to strict EU directives
- More than 98% of the materials used can be returned to the flow of recyclable materials
- Environmental product declaration is available for download via internet
- Tin Filter allows to lower the dose whilst maintaining image quality for non-contrast scans
- Fast scanning with a full rotation in only 0.28 seconds

¹ Compared to SOMATOM Sensation 64

SOMATOM Definition Edge

Confronted with increasingly complex clinical requirements and rising numbers of patients, medical institutions are expected to perform at the limits of their capacity every day. Healthcare innovation leader Siemens Healthineers invites them to expand their clinical capabilities – and not only meet, but exceed those expectations.

SOMATOM Definition Edge expands your clinical capabilities and helps you and your institution perform to your full potential. Because when it comes to your patient's well-being, second best is not an option.

Exceeding expectations in Cardiology

You will be able to expand your clinical capabilities – not only by catching the bolus, but also by improving contrast media efficiency when performing TAVI planning, introducing highly precise plaque differentiation, and enabling reliable, high-speed triple rule-out scanning.

Exceeding expectations in Emergency Medicine

You will be able to optimize process efficiency with solutions that let you not only improve emergency workflow, but also substantially reduce door-to-image time, whether for pediatric or obese patients.

Exceeding expectations in Oncology

You will be able to improve patient outcomes not only by precisely identifying tumors, but also by reliably evaluating therapy response and implementing improved low-dose therapy control and early detection.

SOMATOM Definition Edge: Reduction of Lead Content

Rotating components of CT-systems have to be balanced for a quiet running. The easiest way is the use of lead as counter balance. But lead is a toxic element. Therefore we abandoned the usage of lead as counter balance at the SOMATOM Definition Edge completely. A minor amount of lead is only necessary for shielding and shaping of radiation. There is no technically and economically feasible alternative at present.

It was a challenge to further reduce energy consumption and dose compared to our successful predecessor models.

The following actions led to success: An adaptive dose shield mounted at the x-ray tube controls, that all unnecessary radiation is blocked from the patient. The average dose saving achieved by this unique technology is 15%.¹

Detectors of modern CT-systems consist of many rows. So X-rays can be utilized better and absorbed radiation doses can be reduced. Increasing the number of detector rows generates average energy savings of 30% in comparison to SOMATOM Sensation 64-slice configuration.

¹ Compared to SOMATOM Sensation 64 (or 64 slice configuration with 40 mm z-coverage without adaptive dose shield)

Environmental Management System

Siemens Healthineers gives high priority to achieving excellence in Environmental Protection, Health Management and Safety (EHS).

Across the globe, Siemens Healthineers has implemented a consistent EHS management system. It lays the foundation for the continuous improvement of our performance in these areas, and regular auditing assures our conformance.

As a result of this consistent approach, Siemens Healthineers is considered one organization and is certified in accordance with ISO 14001 and OHSAS 18001.

Environmental Product Design



Material supply:
From natural resources to delivery of semi-finished products



Production/delivery:
From production of components to operation startup by the customer



Use/maintenance:
Includes daily use by our customers as well as maintenance



End-of-life:
From disassembly at the customer site, through material and energy recycling

Siemens Healthineers considers environmental aspects in all phases of the product life cycle, including material supply, production/delivery, use/maintenance and end of life.

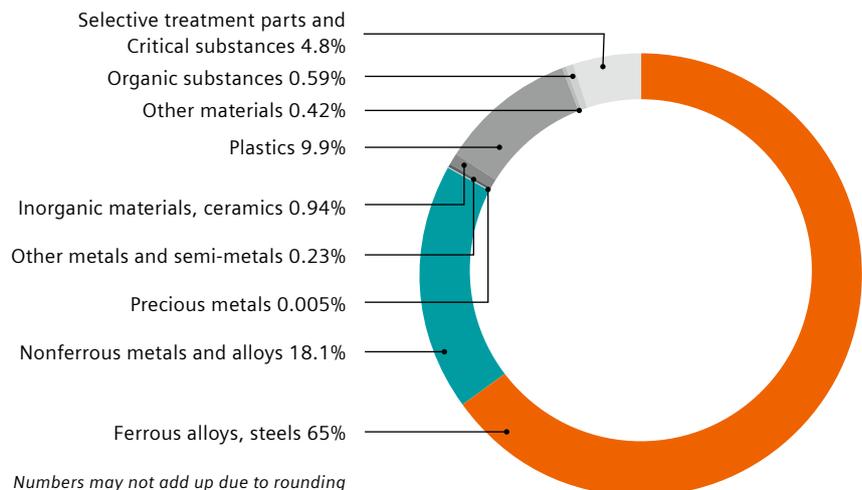
Our product design procedure fulfills the requirements of "IEC 60601-1-9:2007+A1:2013 "Environmental product design for medical electrical equipment".

This standard supports the effort to improve the environmental performance of our products.

Product Materials

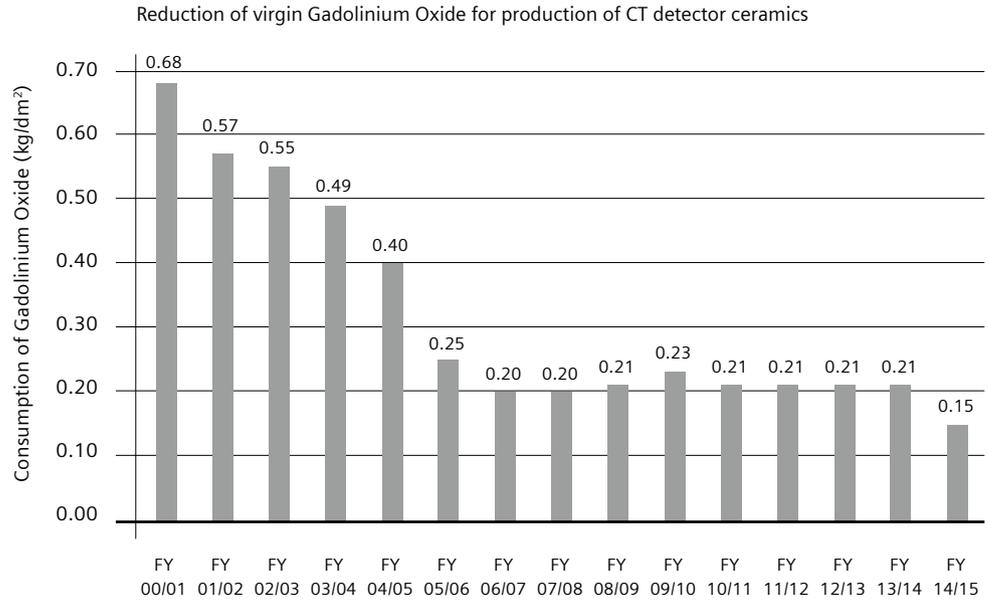
SOMATOM Definition Edge is mainly built out of metals. This ensures a high degree of recyclability.

Total weight: approx. 3,340 kg



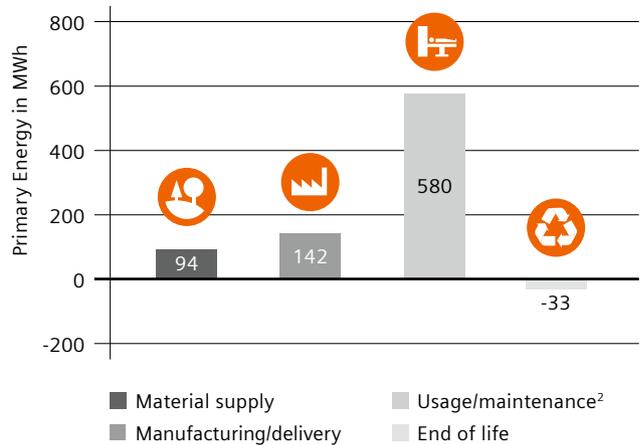
Reduction of Critical Substances

The consumption of material per unit area for CT detectors was reduced significantly. In fiscal year (FY) 14/15 we were able to reduce gadolinium oxide consumption for production of a defined surface area of CT detector ceramics by 78% in comparison to FY 00/01.



Cumulative Energy Demand

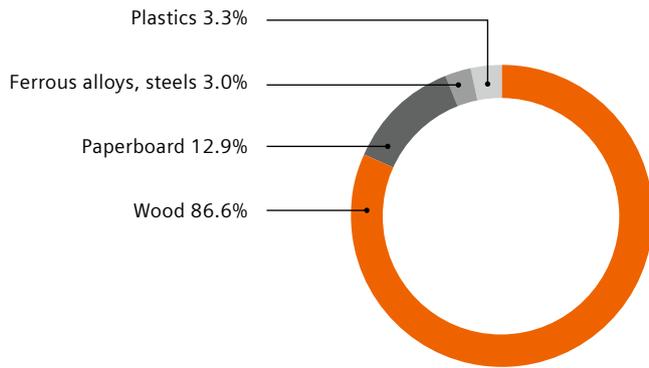
Energy consumption is the most important environmental characteristic of medical devices. This is why we use the Cumulative Energy Demand to assess environmental performance. Cumulative Energy Demand is the total primary energy¹ that is necessary to produce, use and dispose a device – including all transportation. Our medical devices can be recycled almost completely for materials or energy. With an appropriate end of life treatment it is possible to return up to 81 MWh in form of secondary raw materials or thermal energy to the economic cycle.



EMAS: validated information – Environmental declaration 2008

¹ Primary energy is the energy contained in natural resources prior to undergoing any man made conversions (e.g. oil, solar).

² Based on 70 patients per day, 10 sec scan time, 10 years usage.



Numbers may not add up due to rounding

Packaging Materials

It is our goal to minimize our packaging material and reduce the packaging waste by reusing and recycling it.

The SOMATOM Definition Edge system is transported within Europe in open packaging, the CT Gantry is only protected by a light dust protective cover. A closed packaging is required for e.g. oversea transports.

The values shown on the chart are average values from the different kinds of packaging types of the SOMATOM Definition Edge. The packaging materials consist of almost entirely wood and cardboard all of which can be recycled.

Total weight:
 open packaging: approx. 200 kg
 closed packaging: approx. 1,500 kg

Product Take Back

The high-performance X-ray tube assemblies are designed the way that as much parts as possible may be reused. At the end of life the tube assemblies are taken back and are refurbished. Quality is guaranteed by compliance to standard IEC 62309. Under optimal conditions up to 40% of a tube assembly may consist of reused parts.

Our product take back program ensures that we address the environmental aspects of our products – even at the end of life. As part of this program, we refurbish systems and reuse components and replacement parts whenever possible through our Refurbished Systems business.

We reuse components and subsystems for non-medical products. We also recycle for material or energy value. Disassembly instructions for disposal and recycling are available for our products.

Operating Data

Heat emissions of the device	
• Basic load ¹	< 3.1 kW
• Full load ²	< 15 kW
Allowed ambient temperature ³	18°C–28°C
Allowed relative humidity	20–75%
Noise level ³	≤ 68 dB (A)
Energy consumption	
• Basic load ¹	< 3.1 kW
• Full load ²	~ 20 kW
• Maximum load	125/140 kVA optional
Power-on time ⁴	< 4 min
Power-off time ⁵	< 2 min



Technical Specifications

Interface for heat recovery	Yes
Possible type of cooling	Standard: water/water Optional: water/air
Complete switch-off is possible	Yes
Device is adjustable for the user in terms of height	Yes
Uniform operating symbols for device families	Yes

syngo[®], the ergonomic and user-friendly user interface supports the clinical workflow. The intelligent automation functions accelerate your examination and make a smooth, efficient workflow for all modalities, departments and people possible. With *syngo* your workplace is prepared for your mode of operation perfectly.

¹ Device is in operation but no patient examination takes place

² Average value at examination of patients (abdomen routine mode)

³ Within examination room

⁴ From off-mode to operating state

⁵ From operating state to off-mode

Radiation

Measures/techniques to minimize ionizing radiation exposure

- Stellar detectors and iterative reconstruction create excellent image quality with reduced noise. Tin Filter allow to lower the dose whilst maintaining image quality for non-contrast examinations
- Straton® MX tubes enable low dose scanning and reduce scan time for all types of examinations
- CAREkV allows a precise user independent kV selection
- Superfast Scanning with a full rotation in only 0.28 seconds

Electromagnetic fields

Measures/techniques to minimize the exposure to electromagnetic radiation

Not applicable

Reduction compared to the limit value for users

Not applicable

Replacement Parts and Consumables

Item

- X-ray tube
- UPS-battery

Life cycle¹

- 1 year warranty
- 24 months



¹ Recommended exchange interval

Disposal/Substance Information

End-of-life concept	Yes
Recycling information	Yes
List of hazardous substances	Yes

Cleaning

Incompatible cleaning processes:

Total device	<ul style="list-style-type: none"> • Sprays • Chlorine releasing agents • Substituted phenols based agents • Scouring cleaning agents • Organic solvents • Ammonia releasing agents
Restrictions for particular device components	<ul style="list-style-type: none"> • Not applicable

Suitability of device for sterile areas	Not applicable
Size of the surface to be cleaned ¹ user in terms of height	Approx. 3 m ²

Please refer to the dedicated operator manuals for system and components for a detailed list of approved and not approved cleaning substances and further instructions.

Further Ecologically Relevant Information

Elements of instructions are:	
• Recommendations for saving energy	Yes
• Recommendations for efficient cleaning	Not applicable
• Recommendations for appropriate use of consumables	Yes

¹Gantry-tunnel (inside), patient tabel overlay, control elements, console, keypad, intercom, mouse

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

Siemens Healthineers reserves the right to modify the design, packaging, specifications and options described herein without prior notice. Please contact your local Siemens Healthineers sales representative for the most current information.

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International version.

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