SIEMENS

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MAGNETOM Prisma

Environmental Product Declaration

Answers for life.

MAGNETOM Prisma

The 3T PowerPack for exploration.

MAGNETOM® Prisma is the 3T PowerPack for exploration that offers you a unique 3T platform to help you tackle the most demanding clinical and research challenges of today and the future. Its breakthrough design delivers maximum performance under prolonged high-strain conditions and gives you the power to outperform – in the most ambitious projects.

Exciting new applications deliver higher anatomical detail, and open new possibilities for imaging functional processes and understanding diseases. MAGNETOM Prisma offers the power to explore – to enter new areas of research.

MAGNETOM Prisma offers you the tools to translate your research into innovations that aid the clinical routine. With the IDEA network – an open and active MRI collaboration and development network – you can exchange and share with other users. New reproducibility standards introduced by Dot (Day optimizing throughput engine) will help you boost your leadership position in MRI. MAGNETOM Prisma will give you the power to succeed – to set the future trends in imaging.

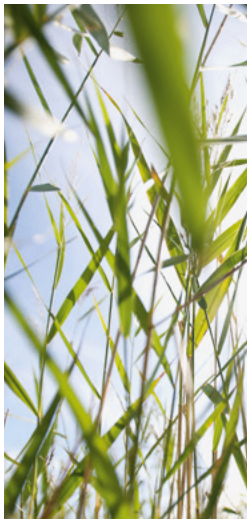
MAGNETOM Prisma also has low operational costs and is easy to site. MAGNETOM Prisma allows for a fast installation. It requires only 33 m^2 floor space. No dedicated computer room is required for the electronic cabinets.

Thanks to the Zero Helium boil-off technology, the system does not use any helium during normal operation, so this expensive and scarce resource does not need regular refill intervals. Additionally, with the new Green Cooling Package (option), customers can decrease their energy consumption for cooling by up to 50%*.

Energy consumption during use accounts for over three-quarters of the environmental impact of medical products. Siemens strives to develop new solutions that are more energy efficient than their predecessor models.

Key product features

- Magnet homogeneity at 40 cm DSV – 0.2 ppm
- Imaging FoV – 50x50x50 cm
- Zero helium boil-off technology
- 80 mT/m @ 200 T/m/s, simultaneously
- High Power Shim – optional
- TimTX TrueShape – standard
- Tim 4G + Dot
- 64 or 128 receive channels
- High-power image reconstructor
- 60 cm bore diameter



* Data on file; results may vary.

Key differentiator: The 3T PowerPack

The PowerPack combines a new, unmatched 3T magnet with 80 mT/m @ 200 T/m/s gradients. The latest parallel transmit technology, TimTX TrueShape, enables zooming into specific body regions for enhanced image quality. Furthermore, the Tim 4G integrated coil technology offers remarkable imaging flexibility and supports complex examinations across the whole body.

Close-to-zero helium consumption

MAGNETOM Prisma uses a superconducting magnet. During operation, the magnet windings must be cooled below their critical temperature. That happens with liquid helium. Equipped with a Zero Helium boil-off technology, MAGNETOM Prisma requires no helium refill in normal use. The only time minor helium loss may not be completely avoidable is during maintenance. The technology allows Siemens to increase refill intervals of typically one year to over ten years for your MAGNETOM system without any increase in energy consumption for cooling. Depending on the frequency and type of applications used, overall savings of up to 1,300 liters of liquid helium per year are possible.

Helium is extracted from natural gas, which makes it of restricted availability. To achieve its cooling performance, it must be liquefied. If helium reaches the atmosphere, it will eventually escape to the universe due to its low weight and be lost forever.

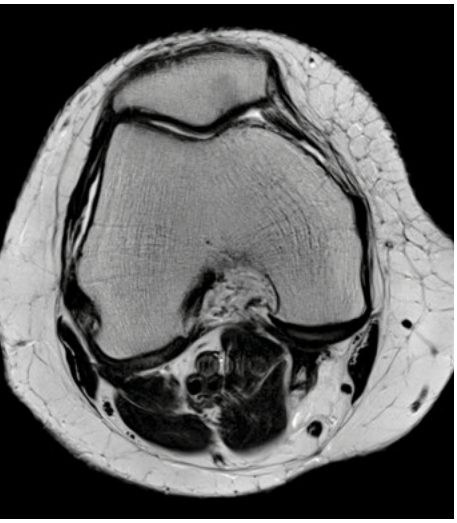
Environmental benefits

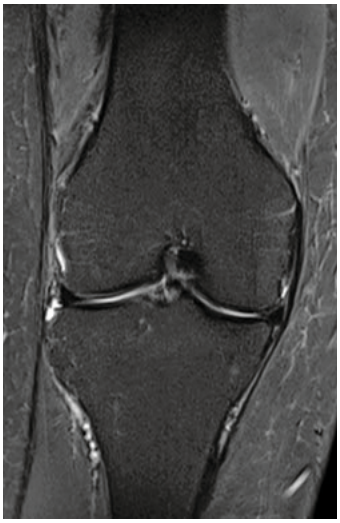
- **Better energy efficiency with new workflow technology Dot and Tim 4G**
- **Zero Helium boil-off**
- **Green Cooling Package (optional) with automatic adaption to cooling requirements to decrease energy consumption for cooling by up to 50%***

Customer benefits

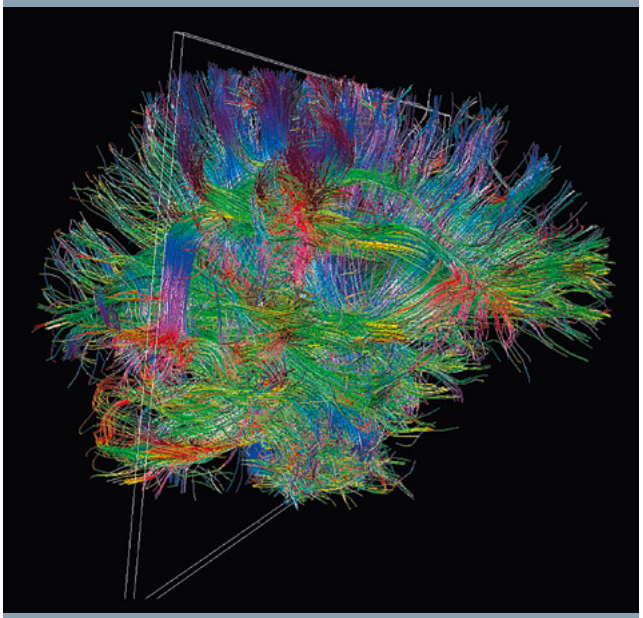
- **Increased productivity through Tim 4G and Dot**
- **Reduced life-cycle costs by increased energy efficiency and no equipment room cooling costs**
- **Ultra-short and lightweight magnet technology requires a smaller installation area that fits into most 3T footprints**
- **Open development platform supporting the largest and most active 3T MR research and development community**

Organ morphometry
High resolution knee with excellent FatSat





Brain connectivity
Whole-brain DSI, b=8000, 514 directions



* Data on file; results may vary.

Image rendering courtesy of TrackVis.

Environmental Management System

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

Across the globe, Siemens Healthcare 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, the entire Healthcare Sector is considered as 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 start-up by the customer

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

End of life: from disassembly at the customer through material and energy recycling

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

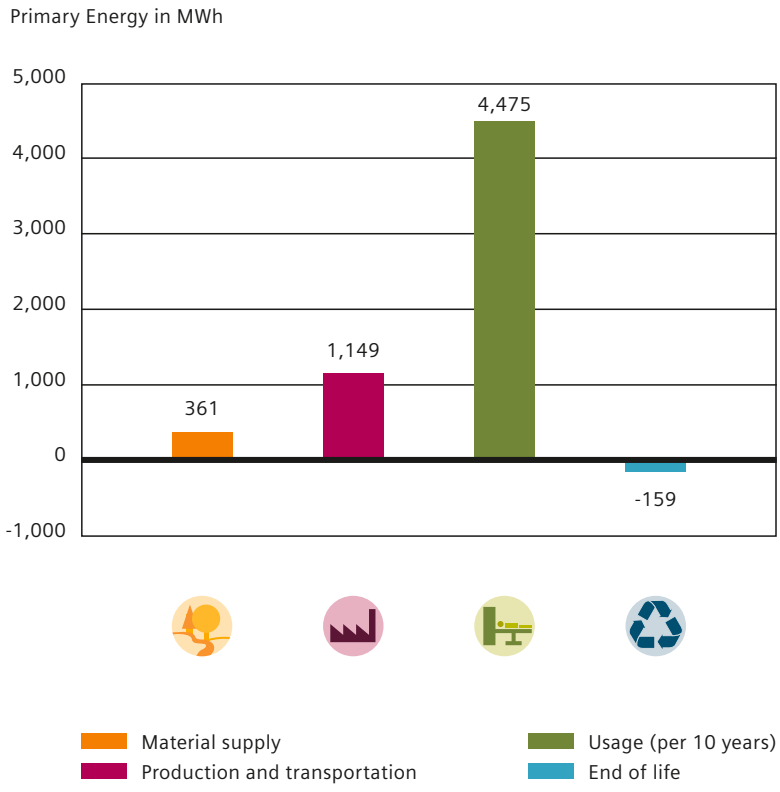
Our product design procedure fulfills the requirements of IEC60601-1-9:2007 “Environmental product design for medical electrical equipment”.

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

Cumulative energy demand

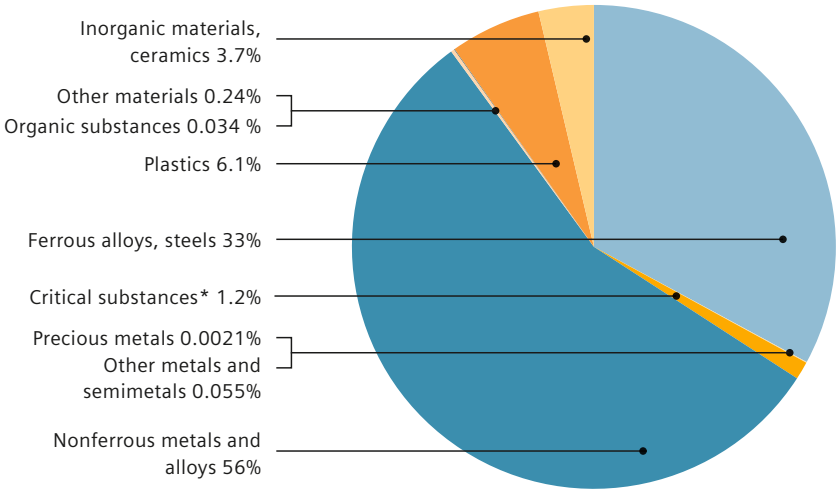
Energy consumption is the most important environmental aspect of medical devices. This is why we use cumulative energy demand to assess environmental performance. Cumulative energy demand is the total primary energy* that is necessary to produce, use and dispose of a device – including all transportation. Our medical devices can be recycled almost completely for materials or energy. With an appropriate end-of-life treatment, it is possible to return 159 MWh in form of secondary raw materials or thermal energy to the economic cycle.

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



Identification of product materials

MAGNETOM Prisma is mainly built out of metals. This ensures a high recyclability.

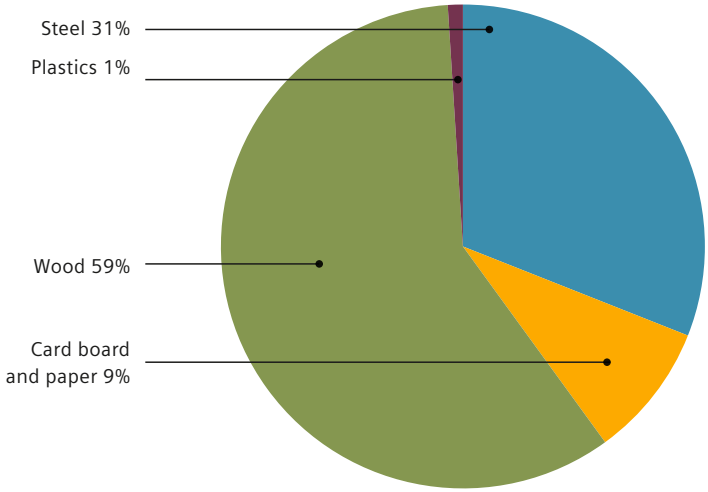


Total weight: approx. 14,200 kg

* Mainly phantom fluids

Packaging

Our magnetic resonance imaging systems are transported within Europe in open packaging. The magnet is only protected by a light dust protective cover. A closed packaging is required for oversea transports. Here, the magnet is delivered on a reusable steel pallet. The values shown on the chart are average values from these two kinds of packaging. The packaging reuse ratio is more than 50%. The rest is supplied to material recycling. Only an insignificant amount (< 1%) has to be recycled for energy.



Total weight:

- open packaging approx. 404 kg
- closed packaging approx. 2,532 kg

Product take back

Most of the materials used to produce MAGNETOM Prisma are recyclable. Around 96% (by weight) can be recycled for material content and 4% for energy.

Our product take back program ensures 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]	19.8 kW
full load[2]	26.9 kW
Allowed room temperature[3]	18°C – 22°C
Allowed room humidity[3]	40 – 60%
Noise level	
basic load	≤ 50 dB (A)[6]
full load	≤ 110 dB (A)[6]
Energy consumption[7]	
during ramp up[4]	8.5 – 19.8 kW
basic load[1]	19.8 kW
full load[2]	26.9 kW
Power-on time[4]	7 min
Power-off time[5]	7 min

[1] Device is in operation but no patient examination takes place

[2] Average value for energy consumption at examination of patients

[3] Within examination room

[4] From off-mode to operating state

[5] From operating state to off-mode

[6] Measured according to NEMA in magnet room

[7] All energy consumption data measured according to COCIR Ecodesign Initiative: MRI – Measurement of the energy consumption: Methodology

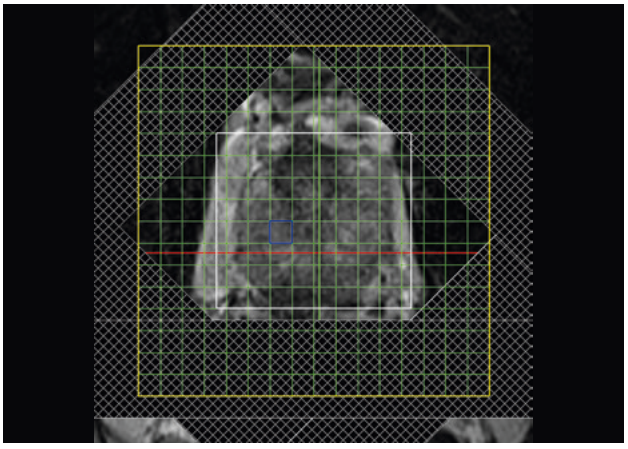
Technical specifications

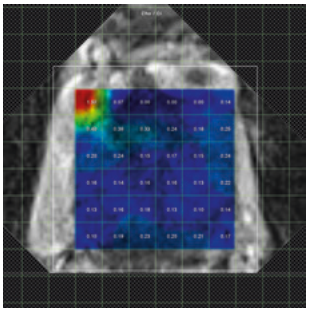
Interface for heat recovery	✓
Possible type of cooling	Water-cooling
Complete switch-off is possible	⦸
Device is adjustable for the user in terms of height	✓
Uniform operating symbols for device families	✓

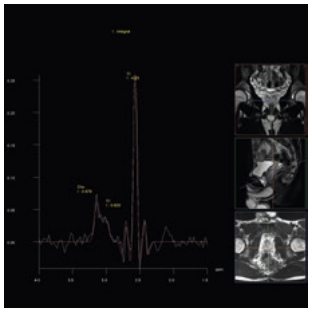
Radiation

Measures/techniques to minimize ionizing radiation exposure	not applicable
Minimization compared to the limit value for patients	not applicable
Measures/techniques to minimize ionizing radiation exposure to electromaqnetic radiation	actively shielded magnet actively shielded gradients if necessary magnetic shielding HF-cabine with 90 dB damping
Minimization compared to the limit value for users	individual

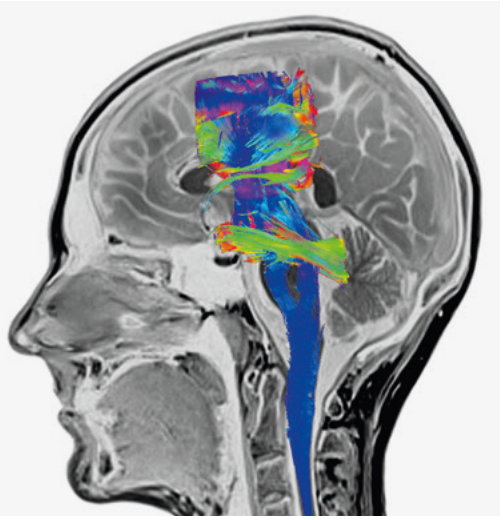
Tissue metabolism
Spectroscopy Imaging



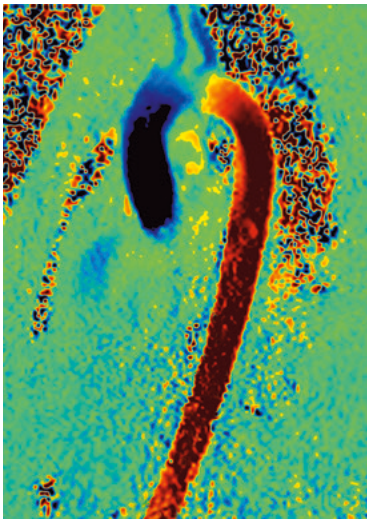




C-spine DTI Tractography



Body physiology
Cardiac Flow Imaging



Replacement parts and consumables

Item	Life cycle*
Absorber	every 2 years
ERDU-battery	every 2 years
Cold head	every 2 years
Vacuum pump filter	every 2 years
EKG-Electrodes	disposable material

*Recommended exchange interval

Disposal / substance information

End of life concept	✓
Recycling information	✓
List of hazardous substances (not contained in the device)	✓

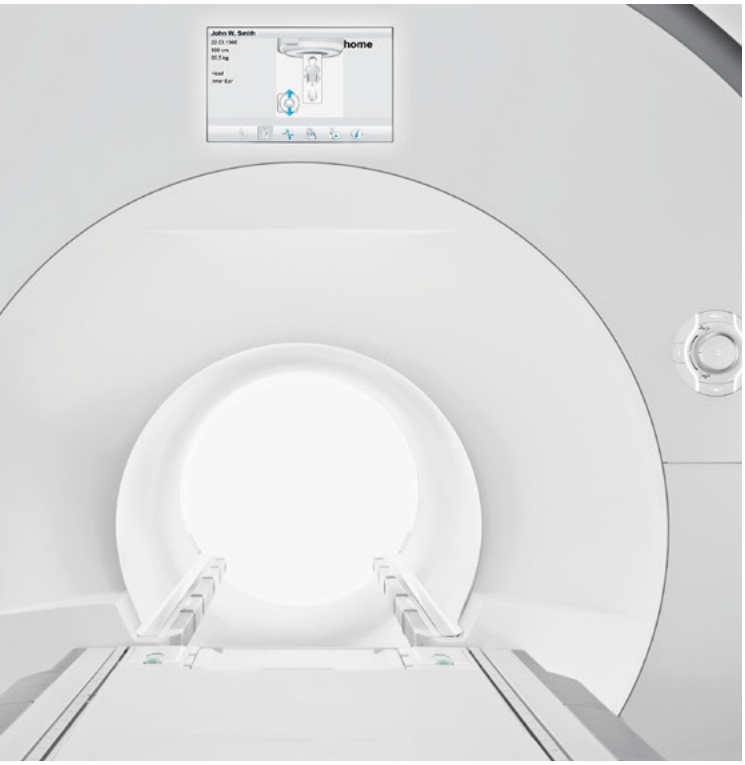
Cleaning

Incompatible cleaning processes	
total device	⦸
restrictions for particular device components	⦸
List of incompatible substance classes	
total device	alcoholic/etheric disinfections sprays organic solvents scouring solvents products containing phenolalcylamin / lye
restrictions for particular device components	⦸
Suitability of the device for sterile areas	⦸
Size of the surface to be cleaned*	approx. 5 m²

*Body Coil (inside), patient table overlay, local-coil, control element, console, keypad, intercom, mouse

Further ecologically relevant information

Elements of instruction are	
recommendations for savings energy	✓
recommendations for efficient cleaning	⦸
recommendations for appropiate use of consumables	✓



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medical-accessories

Global Business Unit
Siemens AG
Healthcare Sector
Magnetic Resonance
Henkestr. 127
91052 Erlangen
Germany
Phone: +49 9131 84-0

Local Contact Information

In the USA
Siemens Medical Solutions USA, Inc.
51 Valley Stream Parkway
Malvern, PA 19355
Phone: +1 888-826-9702
Phone: +1 610-448-4500
Fax: +1 610-448-2254

In China
Siemens Medical Park, Shanghai
278, Zhouzhu Road
SIMZ, Nanhui District
Shanghai, 201318, P.R. China
Phone: +86-21-38895000
Fax: +86-10-28895001

In Japan
Siemens-Asahi
Medical Technologies Ltd.
Takanawa Park Tower 14F
20-14, Higashi-Gotanda
3-chome
Shinagawa-ku, Tokyo 141-8644
Phone: +81 3 5423 8411

In Asia
Siemens Pte Ltd
Healthcare Sector
Regional Headquarters
The Siemens Center
60 MacPherson Road,
Singapore 348615
Phone: +65 6490-6000
Fax: +65 6490-6001

Global Siemens Headquarters
Siemens AG
Wittelsbacherplatz 2
80333 Muenchen
Germany

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

Legal Manufacturer
Siemens AG
Wittelsbacherplatz 2
DE-80333 Muenchen
Germany

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