SIEMENS

MAGNETOM Amira
A Tim+Dot System

siemens.com/amira

MAGNETOM Amira

Environmental Product Declaration

MAGNETOM Amira

The clever spin on 1.5T

Providers and stakeholders around the world are working to increase the efficiency of healthcare systems. The aim: to achieve better outcomes for patients. MAGNETOM Amira provides answers to these challenges. This MRI scanner is specifically designed to enhance clinical capabilities and deliver comprehensive, advanced technology. MAGNETOM Amira helps extend care to a greater number of patients, improve the patient experience, and boost process efficiency- at lower costs per scan.

Key product features

- Increase patient comfort with Quiet Suite
- Gain diagnostic value with FREEZEit
- Streamline operations with 10-min exams
- Save 30% energy with Eco-Power

Key differentiator

Tim+Dot are the direct response to today's demanding world of healthcare economics.

Tim is Siemens' integrated coil technology and has made fast, flexible, and accurate scans the standard in MRI. DotGO helps to take the complexity out of MRI and at the same time allows to achieve consistently expert results faster & easier than ever before.

Together, they redefine productivity – with an increase of up to 50%. MAGNETOM Amira combines Tim+Dot with a highly attractive total cost of ownership and a highly efficient operation. Eco-power, dynamic controlling of cold head working time, helps to minimize the power consumption during standby or system off.

All together, this results in lower cost for every case.

Zero Helium boil-off magnet technology

MAGNETOM Amira 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 Amira requires no helium refill in normal use. 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

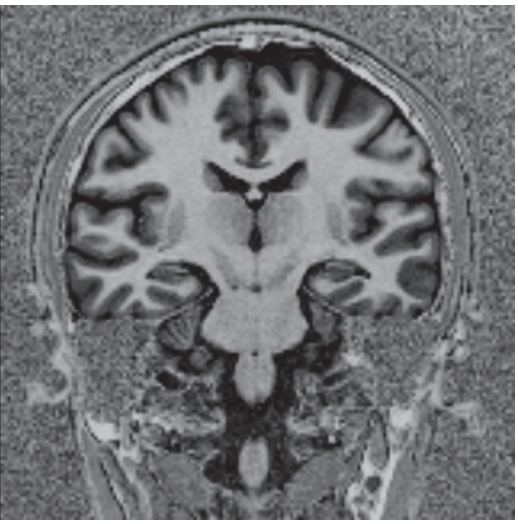
- **Reduction of energy consumption with Eco-power technology***
- **Optimized cooling system with optional EcoChiller**
- **State-of-the-art, Zero Helium boil-off technology**
- **Nearly 90% of the materials** used can be returned to the flow of recyclable materials**
- **Reduced acoustic noise level during scanning with Quiet Suite brings higher patient comfort**

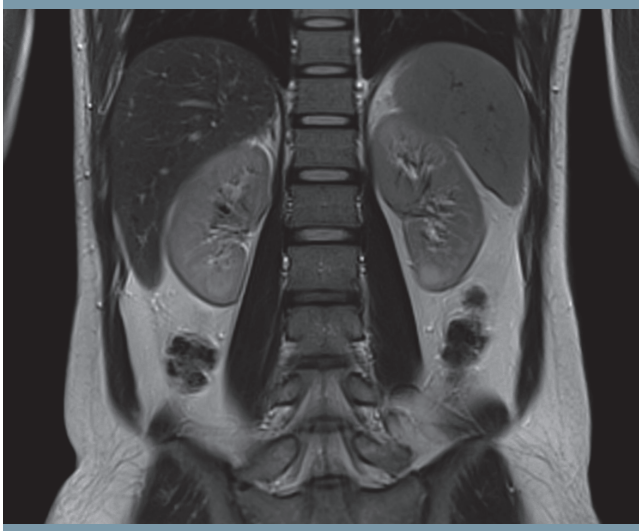
Customer benefits

- **Tim+Dot technology enables consistently high image quality as well as higher productivity**
- **Higher throughput with low TCO (Total Cost of Ownership) resulting in a fast break-even**
- **Latest software platform enables cutting edge technologies to expand service scope**

*Compared with installed 1.5T MR systems

**Data on file; results may vary





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.

www.siemens.com/healthcare-ehs

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

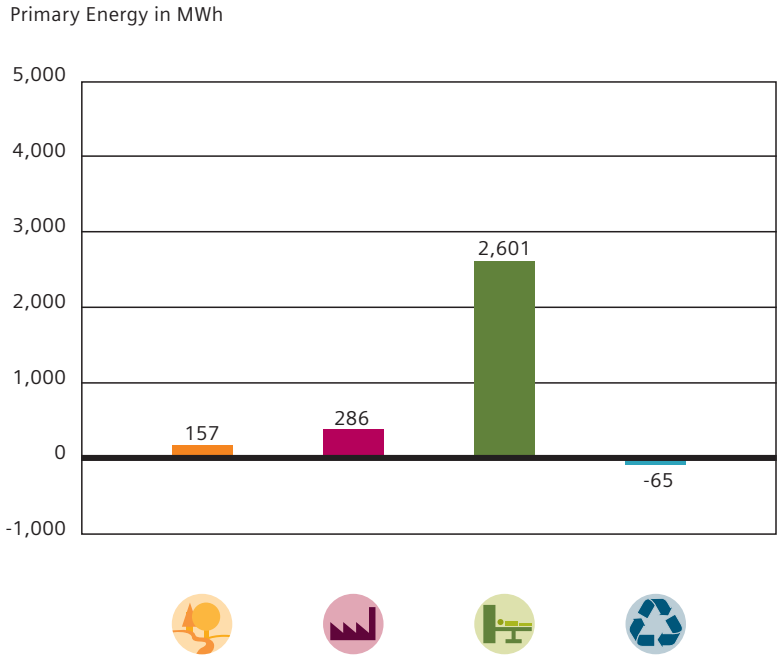
Siemens Healthcare considers environmental aspects in all phases of the product life cycle, including material supply, production/delivery, use/maintenance and end of life.

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

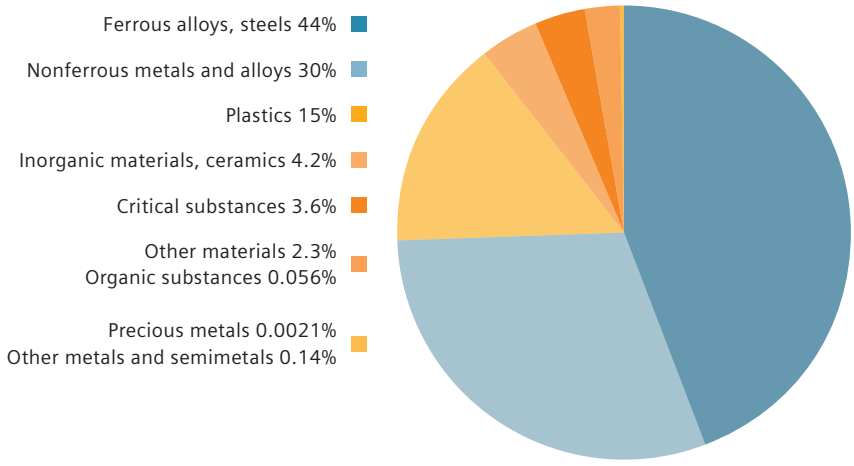
Energy consumption is the most important environmental characteristic of medical devices. This is why we use Cumulative Energy Demand to assess environmental performance. Cumulative Energy Demand is the total primary energy* that is necessary to produce, use and dispose of a device – including all transportation. Our medical devices can be recycled almost completely for materials or energy. With an appropriate end-of-life treatment it is possible to return up to 65 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 Amira is mainly build out of metals. This ensures a high degree of recyclability.

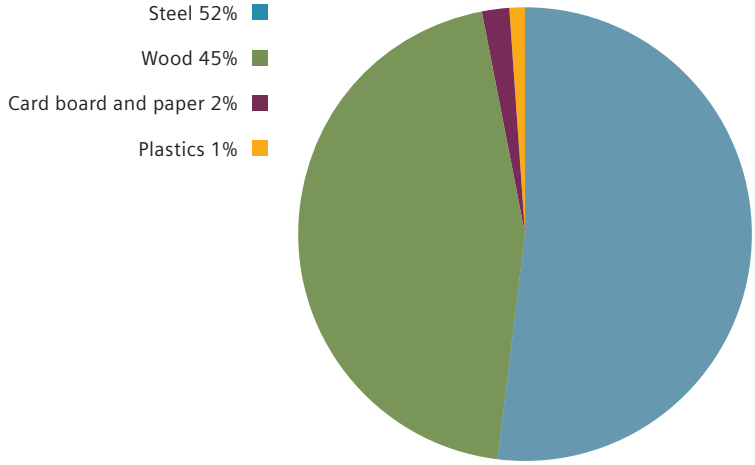


Total weight: approx. 6,416 kg

Packaging

Our MRI systems are transported by 40' flat truck for airfreight (most of carton box) and by 40' open top container for sea freight (the components packed by vacuum packing and wooden box) and domestic delivery (same as airfreight delivery). 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:

- airfreight or domestic delivery packaging approx. 2,300 kg
- seafreight delivery packaging approx. 2,600 kg

Product take back

Most of the materials used to produce MAGNETOM Amira are recyclable. 90.4% (by weight) can be recycled for material content and 9.6% 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[7]	
Ready for measurement[1]	≤ 8.7 kW
Typical examination[2]	≤ 13.1 kW
Allowed room temperature[3]	18°C–22°C
Allowed relative humidity[3]	40–60%
Noise level	
basic load[1]	≤ 60.7 dB (A)[6]
full load[2]	≤ 85.4 dB (A)[6]
Energy consumption[7]	
System off	4.4 kW
Ready for measurement[1]	8.7 kW
Typical examination[2]	13.1 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 roome

[7] All values are typical values, applicable for 400 V/50 Hz
Consumption or optional separator pump and other options not included
Peak power in scan mode is significantly higher

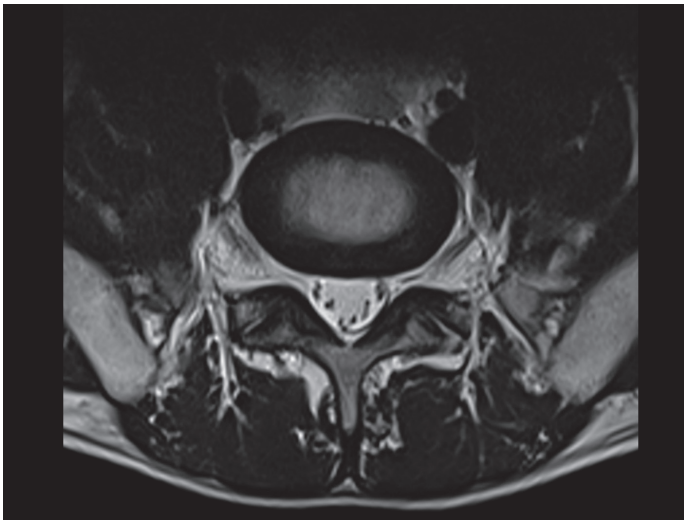
The power consumption described herein is based on results that were achieved in a setting according to the COCIR methodology MRI – Measurement of the energy consumption (http://www.cocir.org/site/index.php?id=46). Since many variables impact power consumption (e.g. sequences used for scanning and sequence parameters, scan time), there can be no guarantee that each customer will achieve the same values.

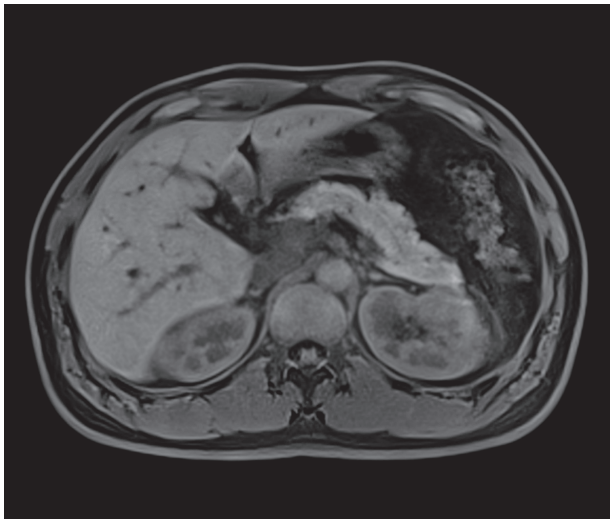
Technical specifications

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 the exposure to electromagnetic 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





Replacement parts and consumables

Item	Life cycle*
Absorber	every 3 years
ERDU-battery	every 2 years
Cold head	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 appropriate use of consumables	✓

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