



# MAGNETOM ESSENZA

Environmental Product Declaration

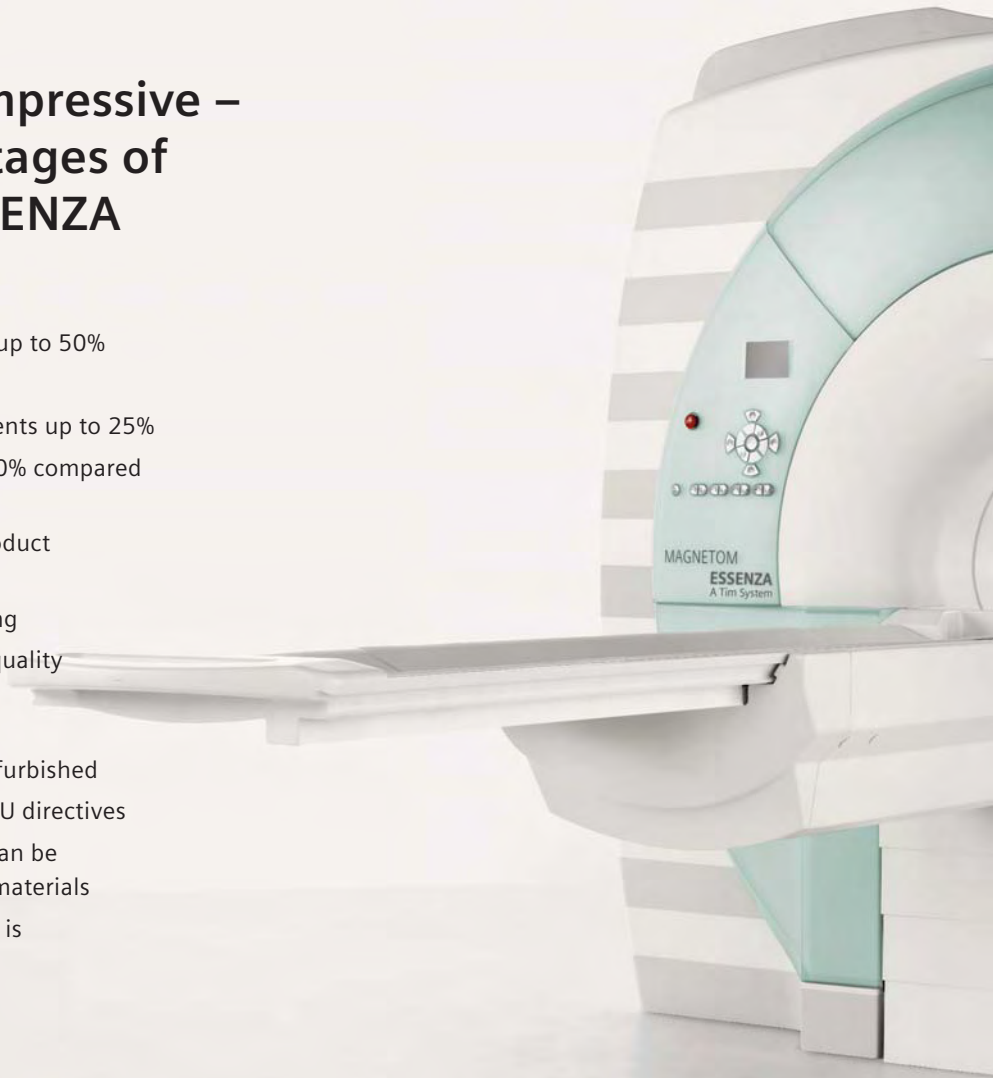
Answers for life.

**SIEMENS**



# Progress that is Impressive – Ecological Advantages of MAGNETOM® ESSENZA

- Reduction of energy consumption up to 50%
- Zero helium boil-off technology
- Reduction of installation requirements up to 25%
- Reduction of product mass up to 20% compared to conventional 1.5T MRI systems
- 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 MR systems and their components are taken back and refurbished
- Product return according to strict EU directives
- Nearly 90% of the materials used can be returned to the flow of recyclable materials
- Environmental product declaration is available for download via internet

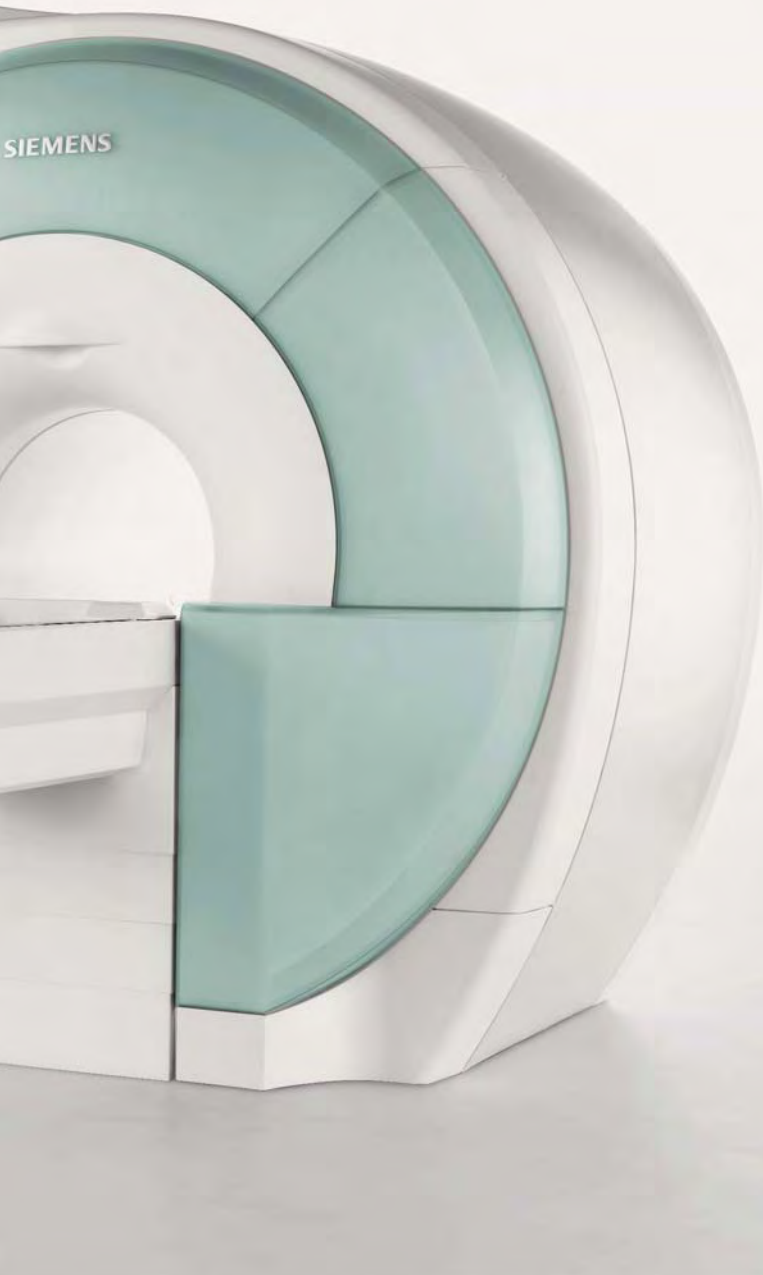


## MAGNETOM ESSENZA: Reduction of Energy Consumption

MAGNETOM ESSENZA is a powerful but yet affordable system that supports the clinical and financial success of its users. In addition to the low initial investment, savings of up to 25% can also be attained on installation costs for space, power requirements and construction. In part this is due to the light-weight 3.5 ton magnet, which makes it possible to install the MAGNETOM ESSENZA even on higher floors. If the system is replacing an existing MR system, it can reduce energy consumption up to 50% thanks to its high-performance electronics.

- Save up to 25%\* on the cost of space with the light-weight, ultra-short magnet and no need for a separate equipment room
- Profit from unique features that are good for your financial health, and for the environment too
  - Low set-up costs
  - Low power requirements
  - Low running costs that may decrease your energy bill by up to 50%

\* When replacing an existing MRI system



## The most affordable\*\* , all-new 1.5T MRI

MAGNETOM ESSENZA was developed from the ground up to be an affordable, reliable powerhouse that will support both your clinical and financial success. This ultra-short, lightweight 1.5T system delivers the flexibility, accuracy and speed of Tim™ (Total imaging matrix) and a powerful new innovation, the IsoCenter Matrix coil.

The MAGNETOM family is synonymous with Siemens' leading technology, applications and workflow.

MAGNETOM ESSENZA provides an exceptional opportunity to access the power of 1.5T MRI at low total cost of ownership.

MAGNETOM ESSENZA is easy to site, easy to learn, easy to operate, and easy on your budget.

### Clinical perspective:

- Greater diagnostic confidence with 1.5T
- A wider range of applications, powered by Tim
- Optimized image quality with the IsoCenter Matrix

### Patient perspective:

- Faster exams, powered by Tim
- Comfortable exams, with ultra-light-weight coils
- More "head out" exams, thanks to the ultra-short magnet design

### Business perspective:

- Low initial investment
- Low installation costs
- Low operating costs

## Reduction of Helium Consumption

MAGNETOM ESSENZA is equipped with a zero helium boil-off technology. Only during coldhead maintenance minor helium loss may not be completely avoidable. It allowed us to increase refill intervals of typically 1 year for our previous systems to over 10 years for new systems operating under normal conditions.

Depending on the frequency and type of applications used, overall savings amount to between 700 and 1300 liters of liquid helium per year. Helium is extracted from natural gas which makes it of restricted availability. If helium reaches the atmosphere, it will eventually escape to the universe due to its low weight and be lost forever. To achieve its cooling performance, it must be liquefied at high energy consumption.

\*\* Results may vary. Data on file.

## Environmental Management System

Our environmental, health and safety management system complies with ISO 14001 and aids us in putting our policy into practice.

To find further information about our environmental, health and safety management system, go to [www.siemens.com/healthcare-ehs](http://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 startup at the customer site



**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 during all phases of the product life cycle, including material supply, production/delivery, use/maintenance and end of life.

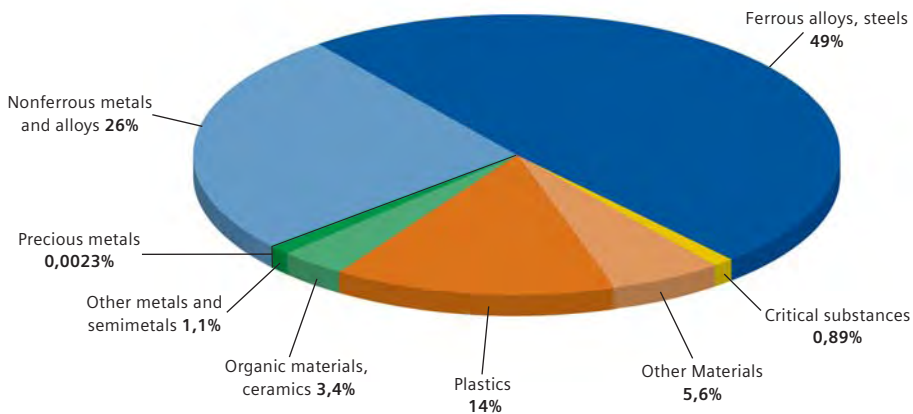
Our product design procedure fulfills the requirements of IEC60601-1-9:2007 "Environmental product design for medical electrical equipment".

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

## Identification of Product Components

During the development of MAGNETOM ESSENZA, a method was piloted that helped determine product components. This provided the prerequisites for high-grade recycling of the system.

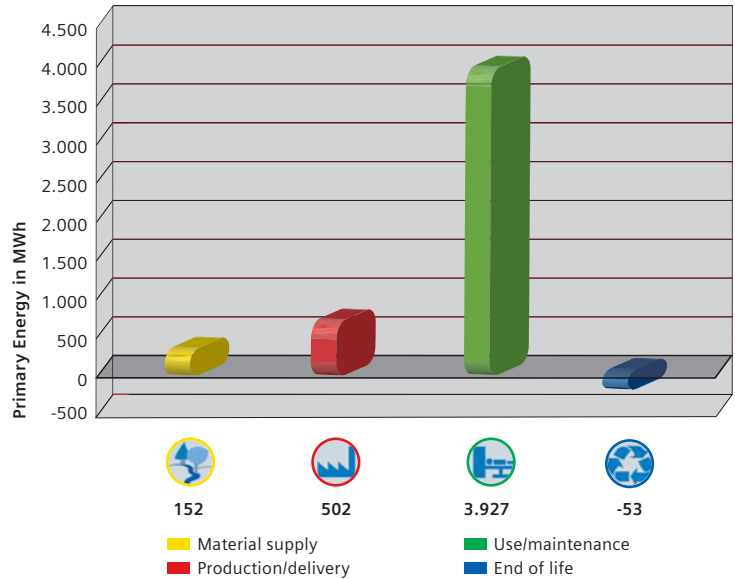
Total weight: **approx. 6600 kg, including the cabinets, workplace equipment and cabling.**



## 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 are nearly entirely recycled for materials or energy. With an appropriate end-of-life disposal, it is possible to return 53 MWh in form of secondary raw materials or thermal energy to the economic cycle.

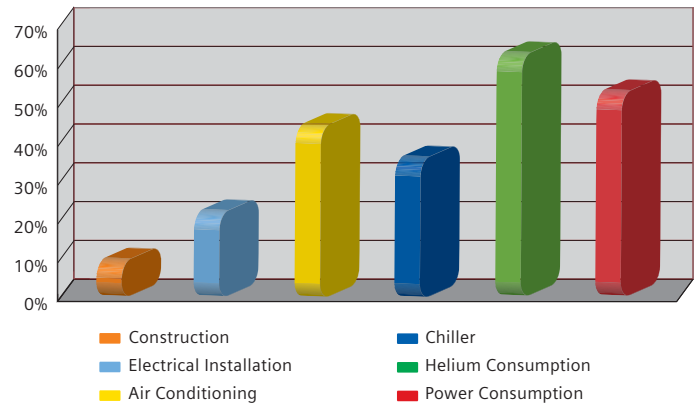
\* Primary energy is the energy contained in natural resources prior to undergoing any man-made conversions (e.g. oil, solar).



## Savings

MAGNETOM ESSENZA is a powerful but yet affordable system that supports the clinical and financial success of its users. In addition to the low initial investment, savings of up to 25% can also be attained on installation costs for space, power requirements and construction. In part this is due to the lightweight 3.5 ton magnet which makes it easier to install the MAGNETOM ESSENZA on higher floors.

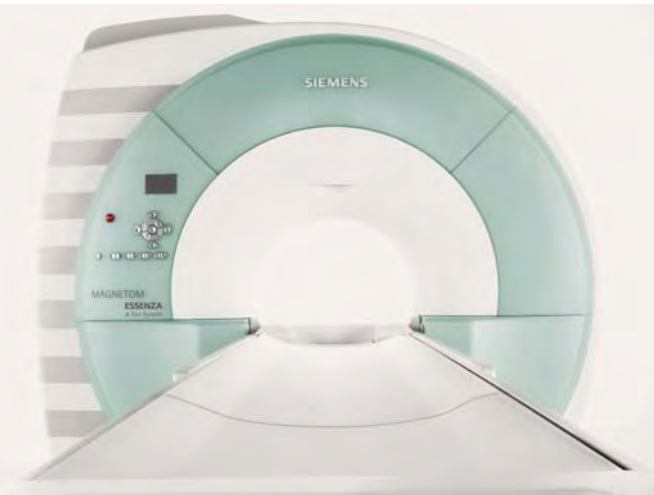
Savings with MAGNETOM ESSENZA Compared to Conventional 1,5T MRI Scanners



## Product Return

Most of the materials used to produce MAGNETOM ESSENZA are recyclable. 89% (by weight) can be materially and 10% can be energetically recycled.

Our product return program ensures that we address the environmental aspects of our products – even in the end-of-life phase. 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.



Data		
<b>Heat emissions of the device</b>		
– basic load <sup>1</sup>	≤ 9 kW	
– full load <sup>2</sup>	≤ 21 kW	
<b>Allowed room temperature<sup>3</sup></b>	18°C - 22°C	
<b>Allowed relative humidity<sup>3</sup></b>	40 - 60%	
<b>Noise level</b>		
– basic load <sup>1</sup>	≤ 75 dB (A)	
– full load <sup>2</sup>	≤ 99 dB (A) <sup>6</sup>	
<b>Energy consumption:</b>		
	<b>PCS</b>	<b>ACS</b>
– during ramp up <sup>4</sup>	9 - 20 kW	9 - 20 kW
– basic load <sup>1</sup>	≤ 12 kW	≤ 24 kW
– full load <sup>2</sup>	≤ 23 kW	≤ 35 kW
<b>Power-on time<sup>4</sup></b>	6 min	
<b>Power-off time<sup>5</sup></b>	3 min	

- <sup>1</sup>) Device is in operation but no patient examination takes place
- <sup>2</sup>) Average value for energy consumption at examination of patients
- <sup>3</sup>) Within examination room
- <sup>4</sup>) From off-mode to operating state
- <sup>5</sup>) From operating state to off-mode
- <sup>6</sup>) Measured according to NEMA

*syngo*<sup>®</sup>, the unique software platform for medical applications and systems, integrates all patient-related information, physiological and imaging data across your entire clinical workflow. In every workplace, *syngo*'s innovative user interface allows you to know intuitively what to do. Its intelligent automation features accelerate your examination, enabling smooth efficient workflow, across modalities, departments and people. With *syngo*, your workplace is uniquely customized to the way you work. The "program" concept in *syngo* MR enables scanning patients with a minimum of mouse clicks. This speeds up the total examination time.

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	✓

The combination of our world-class gradients together with Tim (Total imaging matrix) enables the most demanding applications.

#### General Features

- Actively shielded (AS), super-compact whole-body gradient coil system
- Extremely low eddy currents
- Water-cooled coil and amplifier for maximum performance

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 RF-cabine with 90 dB attenuation
Minimization compared to the limit value for users	individual



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