



MAGNETOM Vida

Environmental Product Declaration

siemens-healthineers.com/vida





Embrace human nature at 3T

MAGNETOM Vida – the first 3T MRI scanner with BioMatrix Technology – embraces human nature and the unique set of challenges that each patient brings to the MRI exam. By embracing these challenges, we overcome patient variability – ushering in a paradigm shift in MRI. The outcome: fewer rescans, predictable scheduling and consistent, high-quality personalized exams for high-end clinical routine as well as clinical research.

In addition to the revolutionary BioMatrix Technology, MAGNETOM Vida has an all-new magnet and system architecture as well as various revolutionary features to serve the increasing demands in high-end clinical imaging and in clinical research.

Key product features

- BioMatrix Technology for less rescans and consistent, high quality personalized exams
- Unifying a new level of 3T performance, patient comfort and cost efficiency with additional > 20% energy savings with Eco-Power¹
- Accelerated workflows and reduced scan times for higher throughput and robustness with GO technologies
- Expanding the patient population eligible for MRI with Inline Compressed Sensing for free-breathing exams in cardiac and abdominal MRI

¹Data on file

MAGNETOM Vida

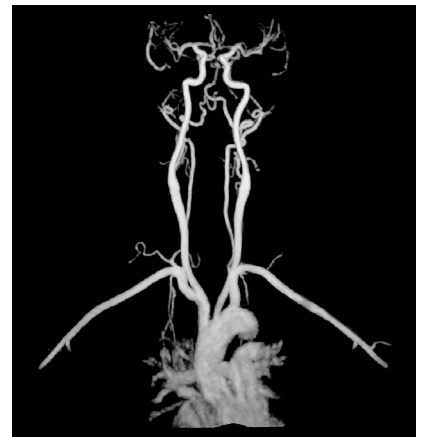
Key differentiator

BioMatrix is the cornerstone technology of MAGNETOM Vida helping to enhance productivity, consistency and robustness in MRI. Productivity is further enhanced by GO Technologies that address the entire workflow of an MRI exam enabling to increase efficiency in every step. In combination with the integrated coil technology Tim 4G scans are substantially accelerated which ultimately increases the number of examinations that can be done with one system – as a result, increasing the energy efficiency. Energy consumption during use accounts for over three-quarters of the environmental impact of medical products. MAGNETOM Vida incorporates several power-saving technologies reducing the energy consumption significantly over comparable systems. Furthermore, MAGNETOM Vida is easy to site with low space requirements and low connection values enabling to use existing infrastructures and with that reduce installation costs.

Zero Helium boil-off magnet technology

MAGNETOM Vida 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 Vida 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 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.

*Image courtesy:
Radiologie in München Harlaching,
Munich, Germany*



Environmental benefits

- Reduction of energy consumption with Eco-Power technology
- State-of-the-art Zero Helium boil-off technology

Customer benefits

- Consistently high image quality and higher productivity with BioMatrix Technology
- Reduced life-cycle costs by increased energy efficiency
- Small installation area enabled by ultra-short and lightweight magnet technology
- Increased marketability and accommodation of more patients thanks to excellent patient comfort options

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

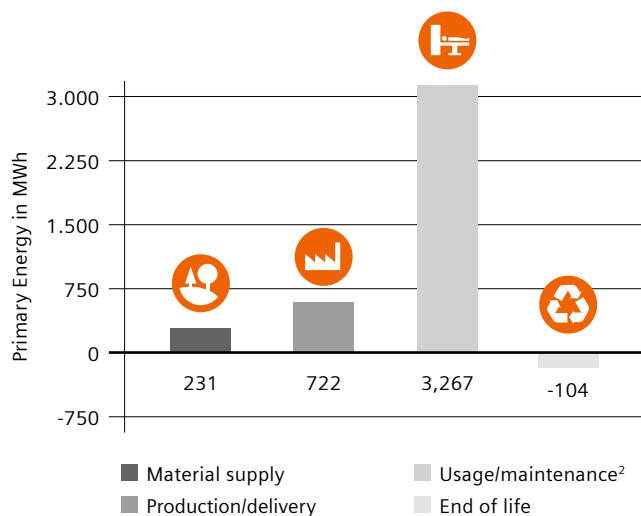
Siemens Healthineers considers environmental aspects in all phases of the product life cycle, including material supply, production/delivery, use/maintenance and end of life.

Our product design procedure fulfills the requirements of IEC 60601-1-9:2007 + A1 2013 Medical electrical equipment Part 1-9: General requirements for basic safety and essential performance – Collateral Standard: Requirements for environmentally conscious design.

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 the Cumulative Energy Demand to assess environmental performance. Cumulative Energy Demand is the total primary energy¹ 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 104 MWh in the form of secondary raw materials or thermal energy to the economic cycle.



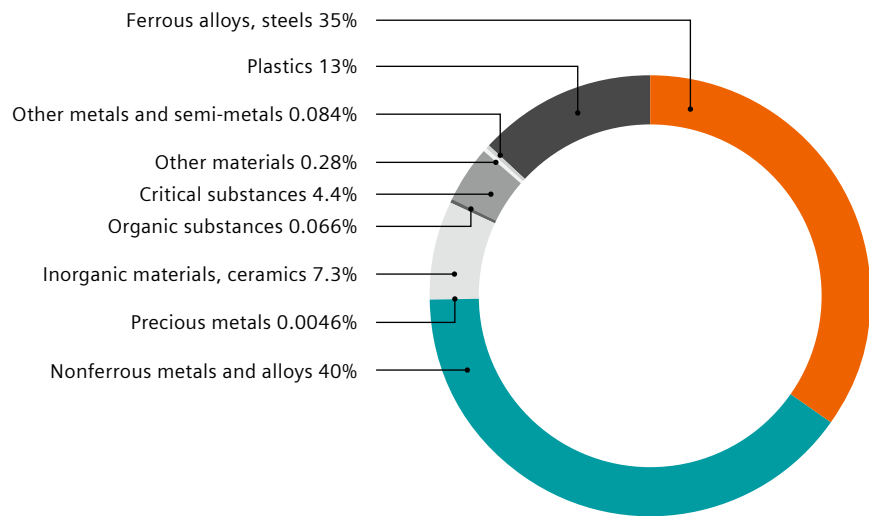
¹Primary energy is the energy contained in natural resources prior to undergoing any man made conversions (e.g. oil, solar).

²Based on 10 years usage.

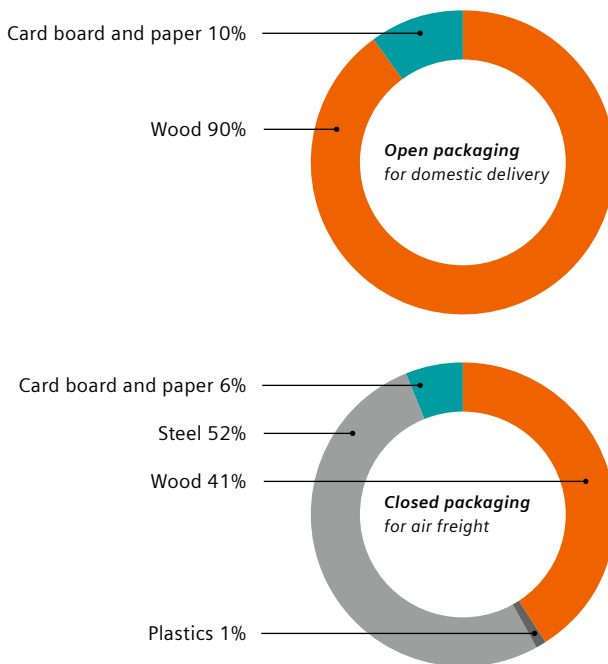
Product materials

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

Total weight: approx. 10,000 kg



Numbers may not add up due to rounding



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.

For domestic delivery our MRI systems are transported by truck in open packaging. For overseas delivery by air freight closed packaging is used and the magnet is delivered on a reusable steel pallet (see graphs on the left). In case of sea freight the components are additionally vacuum packed.

The packaging reuse ratio for closed packaging 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. 450 kg

Closed packaging: approx. 2,400 kg

Product take back

Most of the materials used to produce MAGNETOM Vida are recyclable. 93% (by weight) can be recycled for material content and 7% for energy.

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 device¹

• System ready to measure ²	8.4 kW
• Scan ³	23.1 kW (XQ gradients)
	27.4 kW (XT gradients)

Allowed ambient temperature ⁴	18°C–22°C
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Allowed relative humidity ⁴	40–60%
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Noise level

• Basic load	≤ 62.9 dB (A) ⁵
• Full load	≤ 102.9 dB (A) ⁵

Power consumption¹

• System off	4.3 kW
• System ready to measure ²	8.4 kW
• Scan ³	23.1 kW (XQ gradients)
	27.4 kW (XT gradients)

Power-on time ⁶	5.5 min
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Power-off time ⁶	5.5 min
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Technical specifications

Interface for heat recovery	No
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Possible type of cooling	Standard: water-cooling Optional: air-cooling
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Complete switch-off is possible	No
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Device is adjustable for the user in terms of height	Not applicable
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Uniform operating symbols for device families	Yes
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Electromagnetic fields

Measures/techniques to minimize the exposure to electromagnetic fields	<ul style="list-style-type: none"> • actively shielded magnet • actively shielded gradients • if necessary magnetic shielding RF-cabin with 90 dB damping
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¹All values are typical values, applicable for 400V/50Hz. 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.

²Device is in operation but no patient examination takes place.

³Average value for energy consumption at examination of patients.

⁴Within examination room.

⁵Measured according to NEMA in magnet room.

⁶From off-mode to operating state.

Replacement parts and consumables

Item	Life cycle ¹
• Rechargeable battery (mobile table)	3 years
• Cold head	2 years
• ECG-Electrodes	Disposable material

Disposal/Substance information

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

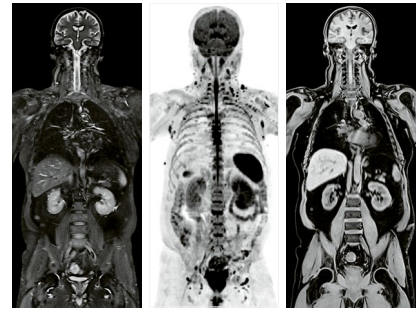
Cleaning

The following classes of active agents in specific concentrations have been tested and are approved for cleaning	<ul style="list-style-type: none"> • Aldehydes • Guanidine derivatives • Peroxide compounds • Pyridine derivatives • Chloro derivatives • Commercially available cleaning agents, detergent substances
Suitability of device for sterile areas	No
Size of the surface to be cleaned ²	Approx. 9 m ²

Please refer to the dedicated user 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 instruction are	
• Recommendations for saving energy	Yes
• Recommendations for efficient cleaning	Yes
• Recommendations for appropriate use of consumables	Yes



¹Recommended exchange interval.

²Front cover, front funnel, body coil, patient table overlay, local coil, control elements.

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