MAGNETOM Sola Fit Upgrade with BioMatrix

Environmental Product Declaration

↗ siemens-healthineers.us/magnetom-sola-fit

SIEMENS Healthineers

Embrace human nature

By upgrading your MAGNETOM Aera to MAGNETOM Sola Fit with BioMatrix your MRI automatically adjusts to patient biovariability to overcome unwarranted variations in MRI examinations. The outcome: fewer rescans, more predictable scheduling and consistent, high-quality personalized exams with increased productivity as well as new clinical, capabilities as well as new financial opportunities.

Make the most of your initial investment and upgrade to MAGNETOM Sola Fit.

Key product features

- BioMatrix technology for less rescans and consistent, high quality personalized exams
- Increased efficiency with up to 50%[1] faster clinical routine MRI examinations as well a more streamlined workflow with Turbo Suite and GO technologies
- New clinical as well as research capabilities with new innovative software applications
- New financial opportunities with a significant lifetime prolongation and a reduced total-cost-of-ownership

Environmental benefits

- Significant MRI lifetime extension by upgrading to innovative new technology instead of replacing system
- Resource savings due to re-use of existing components like magnet
- Reduction of energy consumption with Eco-Power technology

Customer benefits

- Consistently high image quality and higher productivity with BioMatrix technology
- Reduced life-cycle costs by increased energy efficiency
- Short installation of up to 15 days with less construction costs

[1] *Data on file*

MAGNETOM Sola Fit

Key differentiator

Being at the core of clinical routine, a 1.5T MR system has to provide fast and reliable results – for every patient, every time. The upgrade to MAGNETOM Sola Fit achieves a new level of consistency and robustness with BioMatrix technology. It makes fast and high-quality push-button examinations a clinical reality.

With Turbo Suite complete exams can be accelerated by up to 50%[1]. GO technologies help to streamline the entire workflow from patient positioning to result distribution, powered by artificial intelligence. Additionally, MAGNETOM Sola Fit, provides more patients access to MRI with free-breathing examinations as well as innovative new applications.

Overall, an upgrade to MAGNETOM Sola Fit opens up new financial opportunities. By leveraging its efficiency and new clinical opportunities while at the same time reducing the total-cost-of-ownership of the system.

With EcoPower, a more cost-efficient energy management system, daily energy consumption can be reduced by up to 30%[1]. MAGNETOM Sola Fit is a complete system renewel in a very short installation time of up to 15 days2 with less construction costs.

Upgrade your system in up to 15 days[2]

1. Technical room

Control and cooling unit cabinets are removed and replaced with new ones. New efficient energy management system installed

2. Magnet room

Installation of new DirectRF (RF transmit and receive) components at the magnet

3. New covers

All covers are removed and replaced by new ones with two BioMatrix Interfaces Select&GO

4. New BioMatrix

New BioMatrix technology embedded in scanner architecture, e.g. BioMatrix table including Repiratory Sensor, tiltable BioMatrix Head/Neck 20 with CoilShim or BioMatrix Tuner Slice Adjust

5. Operator's room

All workstations, monitors, and keyboards are removed and replaced by new ones

6. Licenses

Installed licenses are migrated into *syngo* MR XA software platform and MR View&GO

7. Hand over

After installation and image quality test, a comprehensive application training is held to help you get the best out of the new system

↗ Click to view video

Click above to see how few steps it takes to upgrade MAGNETOM Aera to MAGNETOM Sola Fit

[1] *Data on file*
[2] *Depending on system configuration and installation environment 2-3 additional days might be required*

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 ISO 45001

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

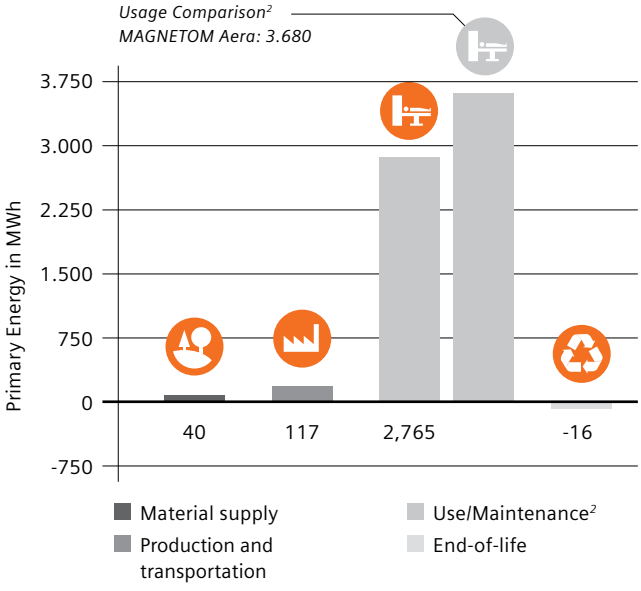
Siemens Healthineers considers environmental aspects in all phases of the product life cycle, including material supply, production/delivery, use/maintenance and end of life.

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 here is the total primary energy[1] that is necessary to produce, use and dispose of the upgrade kits – including all upgrade material and transportation. The energy demand for usage is the cumulative demand after upgrading to MAGNETOM Sola Fit and shows a reduction of 25% compared to original MAGNETOM Aera system. 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 16 MWh of the upgrade kit in the form of secondary raw materials or thermal energy to the economic cycle.

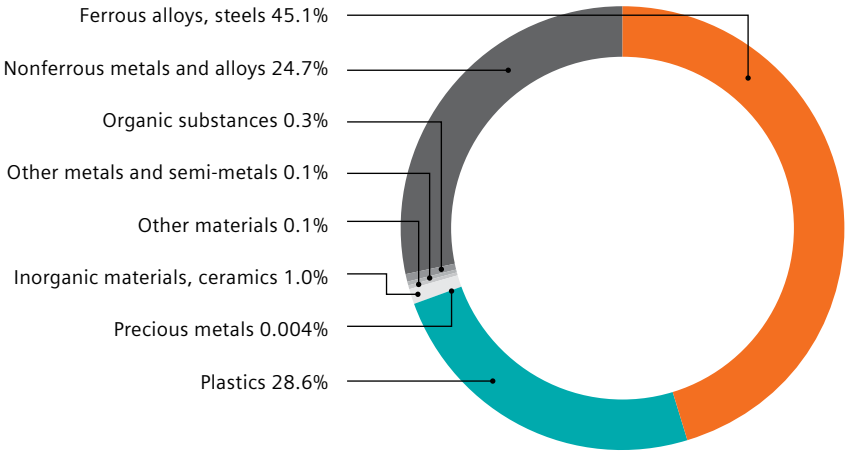


[1] *Primary energy is the energy contained in natural resources prior to undergoing any man made conversions (e.g. oil, solar)*
[2] *Based on 10 years usage*

Product materials

MAGNETOM Sola Fit upgrade kit is mainly built out of metals. This ensures a high degree of recyclability.

Total weight: approx. 1884 kg

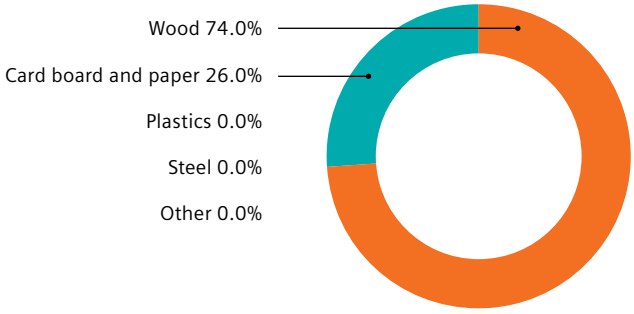


Packaging materials

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

The upgrade components are transported by truck in open packaging for domestic delivery.

Total weight: Open packaging: approx. 501 kg



Product take back

Most of the materials used to produce MAGNETOM Sola Fit upgrade are recyclable. 82% (by weight) can be recycled for material content and 18% for energy.

Our product take back program ensures that we address the environmental aspects of our products – even at the end of life.

We reuse components and subsystems. 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[1]	XJ	XQ Gradients
• System ready to measure[2]	9.0 kW	8.6 kW
• Scan[4]	19.1 kW	21.6 kW
Allowed ambient temperature[4]	18°C–22°C	
Allowed relative humidity[5]	40–60%	
Noise level		
• Basic load	≤ 60.0 dB (A)	
• Full load	≤ XJ 103.0 dB (A)[6]	
Power consumption[1]	XJ	XQ Gradients
• System off[3]	4.3 kW	4.3 kW
• System ready to measure[2]	9.0 kW	8.6 kW
• Scan[4]	19.1 kW	21.6 kW
Power-on time[7]	5.5 min	
Power-off time[7]	5.5 min	

Technical specifications

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

Electromagnetic fields

Measures/techniques to minimize the exposure to electromagnetic fields	• actively shielded magnet • actively shielded gradients • if necessary magnetic shielding • RF-cabin with 90 dB damping

[1] All 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

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

[3] Under usage of the Eco-Power Modus (EPM)

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

[5] Within examination room

[6] Measured according to NEMA in magnet room

[7] From off-mode to operating state

Replacement parts and consumables

Item	Life cycle[1]
• Recharchable 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	• 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 m²

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 instructions are:	
• Recommendations for saving energy	Yes
• Recommendations for efficient cleaning	Yes
• Recommendations for appropriate use of consumables	Yes

[1] *Condition Based Maintenance optional, exchange at a later stage is possible*
[2] *Front cover, front funnel, body coil, patient table overlay, local coil, control elements*

Siemens Healthineers AG (listed in Frankfurt, Germany: SHL) pioneers breakthroughs in healthcare. For everyone. Everywhere. Sustainably. As a leading medical technology company headquartered in Erlangen, Germany, Siemens Healthineers and its regional companies are continuously developing their product and service portfolio, with AI-supported applications and digital offerings that play an increasingly important role in the next generation of medical technology. These new applications will enhance the company's foundation in in-vitro diagnostics, image-guided therapy, in-vivo diagnostics, and innovative cancer care.

Siemens Healthineers also provides a range of services and solutions to enhance healthcare providers' ability to provide high-quality, efficient care. In fiscal 2022, which ended on September 30, 2022, Siemens Healthineers, which has approximately 69,500 employees worldwide, generated revenue of around €21.7 billion and adjusted EBIT of almost €3.7 billion.

Further information is available at www.siemens-healthineers.com.

The outcomes and statements provided by customers of Siemens Healthineers are unique to each customer's setting. Since there is no "typical" hospital and many variables exist (e.g., hospital size, case mix, and level of service/technology adoption), there can be no guarantee that others will achieve the same results.

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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.

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Siemens Healthineers Headquarters
Siemens Healthcare GmbH
Henkestr. 127
91052 Erlangen, Germany
siemens-healthineers.com

USA
Siemens Medical Solutions USA, Inc.
Healthcare
40 Liberty Boulevard
Malvern, PA 19355-9998, USA
siemens-healthineers.us

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