Daily success

with 1.5T

MAGNETOM Sempra
The DNA of Siemens MRI

addresses the challenges of a fundamentally changing environment

**Tim Technology**

Deliver exceptional image quality and speed in MRI

**DotGO Workflow**

Go for consistent results, efficiently

**Trendsetting Applications**

Expand your MRI services

**Life Design**

Maximize patient friendliness and investment protection
MAGNETOM Sempra Introduction
A fundamentally changing environment

A growing need for improved access to quality medical care is driving fundamental change in global healthcare. Healthcare providers have to ensure better outcomes for more patients at lower cost, despite shortages of skilled personnel.

Keeping pace with the latest technological developments is crucial to daily success. There is a real need for cutting-edge solutions that enable lower total cost of ownership, and that meet both referrer and patient requirements.

Siemens Healthineers understands this pressure. We keep our finger on the pulse of healthcare, and draw on our unique expertise to develop corresponding solutions to help you achieve daily success.

“At Siemens Healthineers, we are committed to helping you succeed in your daily environment. Together with you, we want to provide better outcomes at lower costs. MAGNETOM Sempra is a prime example of this.”

Christoph Zindel, MD
Senior Vice President, General Manager
Magnetic Resonance
Siemens Healthineers
A fundamentally changing environment

Changes in demographics and the healthcare market create a challenging situation for healthcare providers. While facing reimbursement cuts, care needs to be provided to a growing and aging population. The market, however, also offers opportunities: Increasing expenditure on healthcare and the continued role of MRI as a dominant diagnostic tool make such equipment an investment in the future.

Demographic change
Global life expectancy is increasing. It has been doing so by an average of over three years per decade since 1950. And this rate is growing. The world’s population, of course, is also increasing – and is expected to reach nine billion by 2040.

Economic pressure
The growing population puts enormous pressure on healthcare systems around the globe. As a result, many have responded with significant cuts in reimbursement.

Increased life expectancy and world population

- Global gains in average life expectancy per decade (in years)¹
- World population in 2015 and estimated population by 2040²

Reimbursement cuts

- Percentage of European institutions operating with significant reductions in reimbursement³
Better informed patients
In addition, out-of-pocket expenditure on healthcare is increasing. Consequently, patients are more informed and more selective. Healthcare providers that positively set themselves apart stand a much better chance of attracting such patients.

Growing expenditure
Public per capita expenditure on healthcare has been growing globally since the early 2000s. Between 2004 and 2014, there was a rise of about 40%. Money is being spent – and the amount is increasing.

Out-of-pocket health expenditure
Fraction of out-of-pocket expenditure in terms of total health expenditure¹

Per capita expenditure on healthcare
Development of per capita expenditure on healthcare over the past decade²
Achieving success every day is the result of many small things going well and accumulating to generate the results you need. The new MAGNETOM Sempra system is designed to do just that: deliver consistent high quality, expand your clinical capabilities, and provide financial certainty. Brain, spine, and MSK exams make up an average of 75 percent of routine daily cases. MAGNETOM Sempra is perfectly equipped to deliver reliable consistency especially for these, including hard-to-image patient groups. Faster exams, reduced operating costs, and an innovative service concept ensure a reduced TCO – and daily success – day in and day out.
MAGNETOM Sempra
Daily success with 1.5T

Up to 75%\(^7\) of standard exams covered by the Dot engines
- Flexible strategies for quick protocol adaptation
- Consistency with AutoAlign slice positioning
- Efficiency through automatic labeling with one single click

10-min\(^5\) exams with optimized protocols
- Higher throughput
- Higher patient satisfaction
- Increased productivity

Additional 30%\(^6\) energy savings with Eco-Power
- Energy savings in standby mode
- Automatic cold head switch off
- More energy-saving features
At a glance

MAGNETOM Sempra

Up to 97% reduction in sound pressure with Quiet Suite

• Completely quiet neuro and MSK exams
• Improved patient experience
• Without compromise in image quality

Up to 30% savings in service with Siemens Healthineers Connect Plan

• Siemens quality service for second and third year included
• Remote services for increased uptime
• Tailored to customer requirements
Consistent quality

every day

Each patient is unique. Staff can fluctuate. Flexible strategies and efficient workflows help you avoid exam inconsistencies that can jeopardize productivity. MAGNETOM Sempra simplifies processes and gives healthcare professionals total control and flexibility with DotGO automated workflows.
75% of all exams are brain, spine, and MSK. MAGNETOM Sempra in its standard configuration comes with Brain Dot Engine, Large Joint Dot Engine, and Spine Dot Engine to automate and standardize your exams for highest consistency across a broad variety of patients and indications.

Dot engines deliver consistent image quality

DotGO workflows simplify protocol management

Consistent quality is achieved by eliminating variables that arise from varying acquisition techniques and/or non-optimized parameters. Via a central user interface, users can manage all Dot engines within the Dot Cockpit, simplifying protocol optimization, customization, and organization.

Common user interface

The syngo MR E11 software architecture runs on all current Siemens Healthineers MRI scanners. The familiar interface in this powerful software platform helps shorten learning curves, making cross-scanner training easier. It also features faster loading speed and shorter reconstruction times.
Consistent quality MAGNETOM Sempra

Intuitive protocol management with Dot Cockpit

Auto Align for consistent scan results

Google-like search functionality
Address the core of your business with MAGNETOM Sempra, and the three Dot engines that come as standard.

The following Dot engines are also available:
- Angio Dot Engine
- Abdomen Dot Engine
- Cardiac Dot Engine
- Breast Dot Engine

Brain Dot Engine
AutoAlign ensures consistency according to anatomy of interest regardless of operator or patient’s clinical condition.
Spine Dot Engine
Inline workflows enable users to focus on the patient and remain in full control. AutoAlign ensures correct positioning, and automatic spine labeling makes planning faster.

Large Joint Engine
AutoPositioning, AutoAlign, AutoCoverage, and AutoFoV provide consistent imaging quality. Intelligent inline features like MPR assignments help speed up workflows and add efficiency.
Increasing local competition, well-informed patients, and the constant need to attract referrers make it more important than ever to differentiate your services with Trendsetting Applications. Advanced WARP, CAIPIRINHA, and Quiet Suite are just some of these applications available on MAGNETOM Sempra. These make it possible to examine patients who are more challenging to scan, while providing a positive patient experience, and acquiring images with higher diagnostic quality.
New clinical opportunities every day

with Trendsetting Applications

Expand your MRI services
Address previously excluded patient groups with MAGNETOM Sempra. For example, Advanced WARP sequences use SEMAC techniques and View Angle Tilting for scanning patients with MR conditional implants, including the visualization of anatomical structures adjacent to the implant.

Quiet Suite and 10-min exams increase patient comfort
Quiet Suite reduces acoustic noise resulting from sharp gradient switches. QuietX and PETRA sequences are available in T1, T2, proton density, diffusion, and susceptibility weighted contrast exams. 10-min exam protocols help provide a more positive patient experience during MRI exams.

Tim 4G coils for higher SNR and exceptional image quality
Ultra-lightweight, high-density Tim 4G coils and a high signal-to-noise ratio deliver exceptional image quality, and shorten scan times. Most coils are self-supported so that the patient does not feel the weight of the coil. This accommodates a wider range of patients and they can better accommodate patients in pain, for example.

CAIPRINHA for higher resolution and faster scans in 3D exams
CAIPRINHA reduces breath-hold times for 3D VIBE FS and 3D DIXON, crucial especially in abdominal imaging. It also allows state-of-the-art breast imaging with further improvement of the temporal resolution in dynamic scans while maintaining spatial resolution.
Expand services to patients with MR conditional implants

High patient comfort with up to 97% reduction in sound pressure

More comfortable exams with ultra-lightweight Tim 4G coils

Shorten breath-hold times
**WARP and Advanced WARP**

Implant artifacts  
WARP  
Advanced WARP

TSE PD  
TSE PD WARP  
TSE PD Advanced WARP

Reduce susceptibility artifacts due to MR metallic implant\(^9\) for better visualization of surrounding soft tissues.
**Quiet Suite**

Conventional TSE
T2 Sag
TA: 3:24 min

QuietX TSE
T2 Sag
TA: 3:24 min

Conventional TSE
T1 Sag
TA: 3:28 min

QuietX TSE
T1 Sag
TA: 3:28 min

Conventional TSE
T2 Tra
TA: 3:17 min

QuietX TSE
T2 Tra
TA: 3:17 min

Conventional TSE
PD fat sat Cor
TA: 3:30 min

QuietX TSE PD fat sat Cor
TA: 3:36 min

Conventional TSE
PD Sag
TA: 3:47 min

QuietX TSE PD Sag
TA: 3:47 min

Conventional TSE
PD fat sat Tra
TA: 4:10 min

QuietX TSE PD fat sat Tra
TA: 4:10 min

Up to 97% noise reduction in sound pressure for brain, spine and MSK exams.
Financial certainty every day

Reimbursement cuts and rising operating costs around the world have put healthcare providers under financial pressure. Cost-cutting technologies like 10-min exam protocols can increase throughput. The Siemens Healthineers Connect Plan as well as lower resource consumption can further reduce operating costs and enhance your operational performance.
Financial certainty every day

with cost-cutting technologies and services

Power-saving technologies reduce operating costs

Built-in power-saving technologies help reduce the cost of every scan, every day. Self-adapting components automatically switch off when not in use, slashing energy consumption. True zero helium boil-off technology means no helium refills for up to ten years under normal operating conditions.

Flexible service offerings can be customized

Customized service plans are designed to fit specific uptime needs. The Siemens Healthineers Connect Plan which comes standard with MAGNETOM Sempra, covers the second and third year, and provides Siemens service quality from day one. Thanks to remote corrective and preventive maintenance, operators can expect less downtime overall.

High patient throughput improves productivity

10-min exams for core body regions, routine protocols, and careful planning make it possible to scan up to six patients per hour with high diagnostic quality. Based on best practice protocols, image quality is optimized to meet high throughput requirements.
Small footprint
10-min exams
Siemens Healthineers Connect Plan\(^\text{10}\)
Power-saving technologies
Eco-Power

TCO

Financial certainty MAGNETOM Sempra
The all-new service model is an entirely new approach to improving scanner uptime, bringing you financial certainty from day one. With many aspects of service – including spare parts11 – covered already in the scanner investment. You can look forward to higher uptime, improved workflows, and efficient support.

**Siemens Healthineers Connect Plan**

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Siemens Healthineers Connect Plan

- Spare parts
- Preventive maintenance
- Remote corrective maintenance
- Remote updates
- Safety inspections and quality assurance
- LifeNet – a web-based portal that lets you manage the performance and maintenance of all your Siemens Healthcare systems 24/7
- Access to Education Platform
- Personalized Education Plan (PEP) for healthcare professional, designed to increase staff competency, efficiency, and productivity
- Possibility to upgrade to Performance TOP contract for uptime guarantee

Performance TOP contract

- Uptime guarantee
- On-site corrective maintenance
- Preferred reaction times
10-min exams

TSE T2 Tra
TA: 2:20 min

TSE T2 Sag
TA: 1:16 min

TSE T1 Sag
TA: 1:17 min
Financial certainty  MAGNETOM Sempra

Exam complete

EPI 2D
b-value 0 + 1,000
0:47 min

TSE T1 Cor
TA: 2:15 min

TSE PD fat sat Cor
TA: 2:47 min

TSE T2 fat sat Tra
TA: 1:52 min

Complete exams faster in 10 minutes

Increase throughput with 10-min exam protocols for core body regions.
MAGNETOM Sempra offers outstanding quality with exceptional value – every day. This extends beyond routine imaging to specialized exams such as advanced neuro, oncology or cardiac exams. The TrueForm magnet design enables effective fat suppression in those body regions where they are needed most including the joints, abdomen, and head/neck region.
Advanced neuro

With MAGNETOM Sempra, advanced neuro applications such as diffusion tensor imaging (DTI) are available. For better assessment of anisotropic diffusion properties of brain tissue with measurement of up to 256 directions of diffusion weighting with up to 16 different b-values.
Clinical highlights  MAGNETOM Sempra

DTI fiber tracking
Excellent fat suppression in body regions where you need it most.

VIBE Dixon

TSE T2 Dixon

TSE PD fat sat

DESS water excitation
Clinical highlights MAGNETOM Sempra

HASTE T2 Cor

TSE T2 Tra  CAIPIRINHA 4 VIBE  StarVIBE

b-value 50  b-value 800  ADC map
HASTE T2 Cor
3-steps

TSE T1 Cor
2-steps

Inline composing without post processing.
Seamless extended field-of-view imaging with Tim 4G, without patient repositioning.
Service and Exchange

Peer-to-peer information

- MAGNETOM World
  MRI online community

- MAGNETOM Flash
  Customer magazine

- Siemens Healthineers User Forum
  Exclusive healthcare professionals network
**MAGNETOM World**
The global MRI community offered by Siemens Healthineers offers peer-to-peer support and information. Radiologists, cardiologists, technologists, and physicists have all contributed with publications, presentations, training documents, case studies, and more—all freely available to you via this unique network.

[www.siemens.com/magnetom-world](http://www.siemens.com/magnetom-world)

**MAGNETOM Flash**
MAGNETOM Flash is the MR magazine. Published quarterly, it features up-to-date clinical case studies, application tips, as well as technical and product information relevant to you. All content is carefully compiled by experts to meet the needs of today’s MRI users in both clinical and research scenarios. In fact, 98.5% of readers report that MAGNETOM Flash is clinically relevant.

[www.siemens.com/magnetom-flash](http://www.siemens.com/magnetom-flash)

**Siemens Healthineers User Forum**
The online space for peer-to-peer clinical knowledge exchange. Listen and engage in different topics that are relevant to your particular field of medicine or research. Easily and directly connect with clinical experts who are sharing their insights and the results of their work with any interested parties and finally keep up to date with exclusive Siemens Healthineers information. Join and benefit from the exclusive healthcare professionals network.

[www.siemens.com/healthcare-userforum](http://www.siemens.com/healthcare-userforum)
Technical specifications

**MAGNETOM Sempra**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field strength</td>
<td>1.5 Tesla</td>
</tr>
<tr>
<td>Bore size</td>
<td>60 cm / 1.97 ft</td>
</tr>
<tr>
<td>Helium consumption</td>
<td>Zero helium boil-off technology</td>
</tr>
<tr>
<td>Shimming</td>
<td>Passive and active</td>
</tr>
<tr>
<td>RF technology</td>
<td>Tim [96 x 16], [96 x 8]</td>
</tr>
<tr>
<td>Power consumption</td>
<td>Eco-Power technology</td>
</tr>
<tr>
<td>Magnet length</td>
<td>155 cm</td>
</tr>
<tr>
<td>System Length$^{17}$</td>
<td>171 cm / 5.61 ft</td>
</tr>
<tr>
<td>System weight (in operation)$^{17}$</td>
<td>4.55 tons / 10,035.44 lbs</td>
</tr>
<tr>
<td>Minimum room size$^{17}$</td>
<td>28 m² / 302 sq ft</td>
</tr>
<tr>
<td>Gradient strength</td>
<td>XF Gradients (30 mT/m @ 100 T/m/s)</td>
</tr>
</tbody>
</table>
Why Siemens Healthineers?

At Siemens Healthineers, our focus is to help healthcare providers succeed in today’s dynamic environment.

Healthcare providers around the world have long relied upon our engineering excellence – leading-edge, high-quality medical technologies across a broad portfolio. Our technologies touch an estimated five million patients globally every day.18 At the same time, they help hospital departments to continuously improve their clinical, operational, and financial outcomes.

We now consolidate this unprecedented volume of data and insights and turn them into pioneering enterprise and digital health services. With those, we maximize opportunities and share risk for the success of your entire health system.

Partnerships are built on people. With Siemens Healthineers there is no team more committed and more connected than we are to realize your success together.

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