The key to 3T
MAGNETOM Spectra
MAGNETOM Spectra
The key to 3T.

A system that offers unprecedented access to 3 Tesla magnetic resonance imaging? The answer is MAGNETOM Spectra. It’s the key to a new scope of image and healthcare quality for patients. It’s the key to a new level of usability and diagnostic confidence for physicians. And, it’s the key to ensure premium patient care at an attractive total cost of ownership for radiologists.

If access is what you are looking for, then MAGNETOM Spectra is your key to 3T.
Contents

MAGNETOM Spectra

MAGNETOM Spectra at a glance ................................................................. 6
Achieve exceptional financial performance with unmatched TCO .................................................... 9
Expand clinical capabilities with syngo MR E11 ................................................................. 15
Go for consistent results, efficiently with DotGO workflow ................................................... 37
Increase patient experience with Life Design and Quiet Suite ................................................. 45
Magnetic Resonance Imaging ......................................................................................... 51
Why Siemens Healthineers ....................................................................................... 53
MAGNETOM Spectra at a glance
The key to 3T.

Up to 55 % faster MRI exams

- Rapid image acquisition with Tim 4G coil technology
- 6-minute, push-button brain exams with GOBrain²
- 10-minute, push-button true isotropic high resolution 3D knee exams with GoKnee3D³
- Up to 33 % faster time of flight examinations with Segmented TOF

Free-breathing Body MRI with FREEZEit

- Ideal contrasts for dynamic liver exams
- Non-invasive liver evaluation
- Powerful syngo MR E11 software

Push the limits with advanced neuro MRI

- With Simultaneous Multi-Slice reduce DWI scan times by up to 39 %
- Introduce advanced DTI and BOLD imaging for pre-surgical planning with Simultaneous Multi-Slice
Up to 97% reduction in sound pressure⁴

- Complete, quiet neurological and orthopedic examinations
- More patient acceptance, fewer rescans
- No compromise on image quality

Up to 46% fewer parameter adjustments⁵,⁶,⁷

- Routine tasks automated with DotGO workflow
- Time savings for technicians
- Highly efficient preconfigured protocols

Up to 33% TCO savings throughout the system lifecycle

- State-of-the-art Zero Helium boil-off technology
- Reduced power consumption with Eco-Chiller self-adjusting components
- Power-saving technology for higher energy efficiency
Achieve exceptional financial performance

More and more exams are performed, yet healthcare providers are under mounting pressure from falling MRI reimbursements and rising operating expenses. Against this background, enhancing financial performance is a chief concern. MAGNETOM Spectra enables you to address this challenge by placing state-of-the-art 3T technology at your fingertips – while cutting TCO by as much as 33 %.

8
Achieve exceptional financial performance with unmatched TCO

Unmatched TCO

With an outstanding price-performance ratio, small installation footprint and low overall power consumption, MAGNETOM Spectra offers unmatched total cost of ownership – up to 33 % lower across the system’s lifecycle compared to other 3T units. In addition, it features state-of-the-art MR technology, such as Tim 4G, DotGO and Body MRI.
Excellent energy efficiency

On average, MRI systems consume 209.57 kWh of power daily – as computed by COCIR. COCIR is a non-profit organization that represents the medical imaging community and related industries, and provides a common framework for measuring and comparing the energy consumption of MRI systems.

By comparison, MAGNETOM Spectra lies 18% below this average. Its power-saving technology uses less electricity – and in turn, cuts costs. Components switch off automatically when not in use, and optimized sequences reduce the need for gradient switching.

“As a private radiology practice, we work in a cost-sensitive environment, and MAGNETOM Spectra is the first 3T system that gives us the opportunity to provide this very high standard of MR imaging to our patients.”

Dr. Axel McKenno-Kültner
Gemeinschaftspraxis für Radiologie und Nuklearmedizin,
Frankfurt / Bad Nauheim, Germany
Zero Helium boil-off

Cut out helium refills – the fastest-rising MRI operating cost – and improve your eco-footprint with true Zero Helium boil-off technology and lower power and cooling requirements. At the same time, enjoy enhanced performance and greater investment protection.

Power-saving technology

Reap the benefits of cutting-edge, intelligent technology, including components that switch off automatically after a period of inactivity. In addition, optimized sequences reduce the need for gradient switching, contributing to energy savings of up to 18 % in standby mode.

Compared to typical 3T MRI scanners, MAGNETOM Spectra delivers exceptional financial performance throughout the entire lifecycle, reducing TCO by up to 33 %.

Zero Helium boil-off

Magnetic Resonance
Eco-Chiller

Normally, considerable power is needed to liquefy helium for cooling. However, the corresponding pump intelligently adapts to changing pressure levels and cooling requirements, lowering electricity consumption. Furthermore, Eco-Chiller features high heat conversion efficiency.

Short installation time

MAGNETOM Spectra’s compact design means it can be installed within seven working days, helping reduce costs from the start.

Small footprint

MAGNETOM Spectra’s magnet, electronics and console room require less than 31 m² of space. It complies with standard ceiling heights and features an integrated water cooling cabinet.
To accommodate growing demand for MRI and broaden their offering, healthcare institutions need solutions that enhance productivity but avoid complexity. MAGNETOM Spectra features an expanded suite of innovative trendsetting applications, including RESOLVE, Simultaneous Multi-Slice, and FREEZEit. These help achieve exceptional quality and speed. Moreover, features like Advanced Warp enable a greater variety of exams – attracting new patient populations, increasing referrals, and making better use of MRI resources.
Enjoy fast, high-quality imaging

MAGNETOM Spectra paves the way for superior image quality with Tim 4G high-density coil technology and an exceptional signal-to-noise ratio (SNR). Up to 120 channels* that can be connected and 24 independent RF channels** enable efficient scanning with no coil or patient repositioning. Plus, Tim 4G enables MRI for large anatomical areas, even whole body scans.

* Channels (coil elements) that can be connected simultaneously.
** Independent RF channels that can be used simultaneously in one single scan and in one single FOV, each generating an independent partial image.
Expand your MRI services

With a broad portfolio of MR applications and powerful syngo MR E11 software, MAGNETOM Spectra supports a comprehensive and unique range of 3T clinical services. As a result, you can expand and differentiate your offering, and make even the most challenging scans part of your clinical routine.

Leverage cutting-edge applications

Join the forefront of MRI by deploying trendsetting applications. Advanced WARP, for example, enables more accurate visualization of tissue with metal implants. MyoMaps provides powerful myocardial tissue quantification. QISS supports contrast-free angiography exams on par with CE scans. And LiverLab opens up non-invasive evaluations.

“MAGNETOM Spectra has been an excellent choice for us. I believe that 3T will be the imaging modality of choice in the future, because of the advancements that have been put into the machine.”

Dr. Francis Lau,
Island Hospital, Penang, Malaysia
Neurology

Ultra-fast, high SNR head and neck imaging with the Head / Neck 20 coil and Simultaneous Multi-Slice.

Simultaneous Multi-Slice

Bringing advanced DTI into clinical routine

DTI fibertracking post-processed with syngo via

DTI, 20 directions
PAT 2 + SMS 2, TA 3:35 min
SL 4 mm
Head / Neck 20

Colored fractional anisotropy (FA) map

without Simultaneous Multi-Slice

DTI fibertracking post-processed with syngo via

DTI, 20 directions
PAT 2, TA 6:41 min
SL 4 mm
Head / Neck 20

Colored fractional anisotropy map
DWI, b1000  
PAT 2 + SMS 2, TA 1:14 min  
SL 4 mm  
Head / Neck 20

ADC map

Simultaneous Multi-Slice

DWI, b1000  
PAT 2, TA 2:02 min  
SL 4 mm  
Head / Neck 20

ADC map

without Simultaneous Multi-Slice
High-resolution isotropic 3D CAIPI SPACE sequence of the inner ear
RESOLVE:
Experience outstanding diagnostic performance with sharp, high-resolution DWI and DTI of the brain and spine. RESOLVE allows to significantly reduce susceptibility artefacts.

Rinku General Medical Center, Osaka, Japan
GOBrain

Providing push-button brain examinations at an exceptional speed of 5:16 minutes.
Orthopedics

Ultra-high-density coils for orthopedic imaging with maximized SNR and anatomic coverage.

Advanced WARP:

Serve a rapidly growing population of patients with artificial joints and implants. The benefits are substantial: infections can be diagnosed earlier and there is a significant gain in image quality for any MR indication.
UltraFlex Coils

Maximize flexibility and SNR with the ultra-high density UltraFlex 18 Large & Small.
GOKnee3D

Provides clinically validated true isotropic high resolution 3D knee examinations in just 9:32 min.¹¹

AutoAlign Localizer
TA 0:14 min

3D IW / PD CAIPIRINHA
SPACE²³
TA 4:37 min
0.5 x 0.5 x 0.5 mm³

3D IW / T2 CAIPIRINHA
SPACE fat sat²³
TA 4:41 min
0.6 x 0.6 x 0.6 mm³
Body imaging

High-channel body imaging thanks to the combination of ultra-high-density body and spine coils

**StarVIBE:**
Enable freebreathing and contrast enhanced exams for a range of patient groups thanks to StarVIBE’s intelligent insensitivity to motion artifacts.

_Gemeinschaftspraxis für Radiologie und Nuklearmedizin, Frankfurt / Bad Nauheim, Germany_

**FREEZEit:**
Take abdominal imaging to the next level with our motion-embracing technology. MRI exams of the liver have become increasingly difficult due to contrast timing challenges and breathing motion. FREEZEit, which comprises TWIST-VIBE and StarVIBE, makes MRI faster and more robust than ever, overcoming previous limitations and significantly pushing the boundaries of what’s possible.

_TWIST-VIBE:_
Benefit from high temporal and high spatial resolution, to always achieve the right contrast in dynamic examinations.

_Gemeinschaftspraxis für Radiologie und Nuklearmedizin, Frankfurt / Bad Nauheim, Germany_
Body 12 coil

High-density coil providing maximum SNR and acquisition speed for abdominal imaging
Body 12 coil

High-density coil providing maximum SNR and acquisition speed for examinations of the pelvis
LiverLab:
Monitor cases of liver disease as they become increasingly common across the globe. LiverLab supports quantitative, non-invasive liver evaluation.

Gemeinschaftspraxis für Radiologie und Nuklearmedizin, Frankfurt/Bad Nauheim, Germany
WHOLE BODY:
Superior-quality imaging from meters to microns. Scan the entire length of the body up to 205 cm, with high resolution using the 512 matrix to see small details.
Men’s health

Comprehensive prostate exam according to PI-RADS 2

- **T2 TSE**
  - PAT 2, TA 3:43 min
  - SL 3 mm (interpolated)
  - Body 6, Spine 24

- **T1 VIBE dynamic**
  - PAT 2, TA 0:10 min
  - SL 3 mm (interpolated)
  - Body 6, Spine 24

- **RESOLVE, b 1400**
  - SL 3 mm
  - Body 6, Spine 24

- **ADC map**

*Radiomedicum*
*Bad Nauheim, Germany*
Women’s health

Coils and imaging applications providing excellent diagnostic image quality for diagnosis and MR-guided breast interventions.

MAGNETOM Spectra and Tim 4G offer a wide selection of breast coils and outstanding image quality.


Simultaneous Multi-Slice

Significantly accelerating diffusion imaging.

DWI
PAT 2 + SMS 2, TA 1:55 min
SL 5 mm
Breast 18

ADC map
CARDIOLOGY

Cardiac examinations benefit from high SNR and increased parallel imaging factors in any direction to achieve ultra-fast acquisition times, from morphology, function, and perfusion, to viability.

Delayed Enhancement Magnitude image
TA 1:11 min
Body 6, Spine 24

Delayed Enhancement Magnitude image
TA 0:04 min
Body 6, Spine 24

MyoMaps:
Benefit from inline myocardial quantification, detect normally missed global, diffuse, myocardial pathologies (T1 Map) and better depict cardiac edema (T2 Map) with MyoMaps, based on Siemens’ unique HeartFreeze.

Gemeinschaftspraxis für Radiologie und Nuklearmedizin, Frankfurt / Bad Nauheim, Germany
Angiography

Tim 4G’s new ultra high-density coils and 205 cm scan range allow you to perform high resolution whole-body angiography easily and without repositioning the patient.

Flash 3D
TA 0:57 min
SL 1.1 mm
Body 6, PA 36, Spine 24

QISS
For non-CE peripheral MRI: QISS delivers accuracy comparable to contrast-enhanced MRI.
Excellent SNR and large coverage:
The Head / Neck 20 coil reveals great details and allows for large coverage – improving insights in neuroanatomy while reducing scan time and enhancing resolution.

Kajikawa Hospital, Hiroshima, Japan

“MAGNETOM Spectra is so easy to use. Our technologists really like the new system, especially the Tim coils. We could easily shift our routine from 1.5T to 3T.”

Dr. Chieko Wakabayashi, Suiseikai Kajikawa Hospital, Hiroshima, Japan

Segmented TOF
By intelligently allocating the saturation pulses acquisition times for Segmented TOF can be reduced by up to 33 % in comparison with conventional time of flight examinations while keeping the image quality comparable.

Segmented TOF 3D
TA 3:37 min
SL 0.5 mm
Head / Neck 20
Go for consistent results, efficiently

In the face of diverse patient needs and complex MR software functionality, greater standardization and consistency are vital. MAGNETOM Spectra allows you to tailor and manage protocols in line with your specific needs, improve flexibility and deliver reliably high-quality care. With DotGO, you enjoy a comprehensive overview of processes, intuitive user guidance and smart automation – all integrated into a single user interface. The result is greater efficiency and excellence for each and every scan.
**Go for consistent results, efficiently with DotGO workflow**

**Flexibility**

With one central user interface to configure any protocol and flexibly create your exam strategies, DotGO empowers you to define a higher standard of care and service for more patients and referrers. And it lets you adjust strategies ad hoc to accommodate a multitude of clinical requirements, individual patient needs and changing scenarios.
Consistency

DotGO enables you to standardize your MRI operations with a comprehensive guidance system, predefined strategies and Dot engines that create reproducible, high-quality outcomes every time. This significantly reduces the need for rescans and allows any technician to perform any exam with consistent results – even for complex cardiac imaging.

Efficiency

Thanks to DotGO’s automated functionalities, MAGNETOM Spectra dramatically improves the efficiency of your MRI workflow. Automatic slice positioning, voice commands, and organ labeling reduce the level of interaction required from technicians, freeing them up for other important tasks. Additionally, they standardize exams and lower costs.

“The key feature of the new DotGO is the ability to quickly see your entire protocol on one page, as opposed to having to drill down multiple levels to see what your protocols actually are. It gives us a great overview of the protocol. You know exactly what’s in there at any given time just by glancing at it.”

Anthony Pavone,
Chief MRI Technologist
Zwanger-Pesiri Radiology, New York, USA
Dot Cockpit: A central user interface enables fast and intuitive protocol configuration and management. Dot Cockpit delivers up to 80% greater usability.

Drag & drop from the sidebar in Editor
Multiple User Trees

Build as many strategies as you need

Explorer and Editor in one interface
Easy navigation and shortcuts

Edit protocols instantly

Zoom in and out to conveniently display protocols

Create a strategy with one click (drag & drop)

Dynamic context search, highlighting results

Go for consistent results, efficiently ∙ MAGNETOM Spectra
Brain Dot engine
More efficient and reproducible brain exams.

Breast Dot engine
Increased certainty in breast imaging.

Spine Dot engine
Optimized spine imaging for a wide range of patients and conditions.

Cardiac Dot engine
Up to 50 % increase in patient throughput.

“Dot engines really enhance our throughput in day-to-day scanning, but also improve quality reproducibility. Dot helps technicians and radiologists produce excellent images.”

Anthony Pavone
Chief MRI Technologist
Zwanger-Pesiri Radiology, New York, USA
Large Joint Dot engine
Increased consistency for all large joints – hip, shoulder, and knee.

Abdomen Dot engine
Optimized bolus timing for dynamic liver examinations.

Angio Dot engine
Optimally timed contrast images with interactive bolus timing.

“The number of failed examinations has been drastically reduced by the Dot engines, and the angiographies have become better. Everything is simply much more standardized now.”

Prof. Thomas Vogl
Interventional Radiology of the University Hospital Frankfurt, Germany
Spokesperson of the Frankfurt Klinikallianz
Improving patient experience

Healthcare users today have greater choice. Consequently, ensuring a positive patient experience plays a central role in securing revenue. MAGNETOM Spectra gives you a competitive edge by enhancing patient comfort. Expand your services to anxious patients, and those requiring specialized care – such as children and the elderly – with a variety of applications. Reduce sound pressure during exams by up to 97%, and enable free-breathing and short set-up times for optimal results.
Increase patient experience with Life Design and Quiet Suite

Up to 97% reduction in sound pressure with Quiet Suite

173 cm ultra-short system length

Award-winning design in pure white

DirectConnect and SlideConnect for faster and easier patient set-up

Enhanced patient comfort

A key element of Life Design is putting the patient first. The shortest magnets in the industry enable more exams to be performed with the head outside the bore. These and other leading-edge features increase satisfaction and allow you to serve more patient groups.
SlideConnect: Position coils simply, swiftly, and reliably – accelerating patient set-up.

“Quiet Suite sequences are less loud and, even more importantly, have significantly less vibration, making the examination more comfortable for the patients. This ‘soft scanning’ comes at no compromise to image quality or scan time, an important factor for our busy practice.”

Dr. Johan Dehem,
Chief Radiologist,
Jan Yperman Ziekenhuis, Ieper, Belgium

Increased workflow efficiency
Life Design helps make your MRI operations more efficient and economical. And the central syngo user interface offers a consistent look and feel at every scanner, helping staff perform tasks faster and enhance their productivity.

Improved scanning experience
Diverse patient populations have diverse requirements. MAGNETOM Spectra incorporates Quite Suite and an ultrashort magnet to help address the needs of particularly anxious patient groups, or those that otherwise require special care. All in all, it helps provide a better scanning experience.
**Quiet Suite:** Conduct complete, quiet exams for neurology and orthopedics, with up to 97% reduction in sound pressure. Quiet Suite minimizes the need for sedation of certain groups of patients such as children and the elderly – without compromising image quality. Because imaging is to be seen, not heard.

**Tim coil technology:** Tim 4G technology accelerates set-up and provides a high level of patient comfort.
Quiet Suite

Imaging is to be seen, not heard. Complete, quiet examinations for neuro and orthopedics.

- Up to 97% reduction in sound pressure
- No compromise on image quality, no need for hardware modification
MAGNETOM Spectra
Technical specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field strength</td>
<td>3 Tesla</td>
</tr>
<tr>
<td>Bore size</td>
<td>60 cm</td>
</tr>
<tr>
<td>System length&lt;sup&gt;17&lt;/sup&gt;</td>
<td>173 cm</td>
</tr>
<tr>
<td>System weight (in operation)&lt;sup&gt;17&lt;/sup&gt;</td>
<td>5.5 tons</td>
</tr>
<tr>
<td>Minimum room size&lt;sup&gt;17&lt;/sup&gt;</td>
<td>31 m² / 334 ft²</td>
</tr>
<tr>
<td>Maximum number of channels&lt;sup&gt;18, 19&lt;/sup&gt;</td>
<td>96, 120&lt;sup&gt;20&lt;/sup&gt;</td>
</tr>
<tr>
<td>Number of independent receiver channels that can be used simultaneously in one single scan and in one single FOV, each generating an independent partial image</td>
<td>24</td>
</tr>
<tr>
<td>Gradient strength</td>
<td>33 mT / m @ 125 T / m / s</td>
</tr>
<tr>
<td>Helium consumption</td>
<td>Zero Helium boil-off technology</td>
</tr>
</tbody>
</table>
Magnetic Resonance Imaging

Our innovative MRI technologies offer you exceptional image quality, efficiency, and speed, while providing patient friendliness and investment protection. Equipped with these technologies and a very strong global collaboration network, we enable you to lead in MRI.
At Siemens Healthineers, our purpose is to enable healthcare providers to increase value by empowering them on their journey towards expanding precision medicine, transforming care delivery, and improving patient experience, all enabled by digitalizing healthcare.

An estimated 5 million patients globally everyday benefit from our innovative technologies and services in the areas of diagnostic and therapeutic imaging, laboratory diagnostics and molecular medicine, as well as digital health and enterprise services.\textsuperscript{21}

We are a leading medical technology company with over 170 years of experience and 18,000 patents globally. With more than 48,000 dedicated colleagues in 75 countries, we will continue to innovate and shape the future of healthcare.
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