MAGNETOM Lumina
with BioMatrix

Confidence
to deliver

siemens-healthineers.com/lumina
MAGNETOM Lumina provides you the confidence to deliver

As the reimbursement landscape in the healthcare industry shifts from volume to value, the pressure for operational discipline grows on care providers. At the same time the market is becoming increasingly competitive as consumerism in healthcare has gained significant traction.

In this challenging environment, MAGNETOM Lumina is the new 3T Open Bore system that gives you full confidence to deliver the productivity, reproducibility, and patient satisfaction that you demand. Powered by our premium MR technology, MAGNETOM Lumina combines our unique BioMatrix technology, the new syngo MR XA software platform and our exclusive Turbo Suite to fundamentally transform care delivery for the better.

With a clear focus on financial sustainability, MAGNETOM Lumina also gives you full confidence that your MR asset will deliver the expected returns on investment. Throughout the entire system life cycle, Siemens Healthineers provides you with tailored products and services that guarantee future security.

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MAGNETOM Lumina

Confidence to deliver

As part of our groundbreaking BioMatrix scanner portfolio, MAGNETOM Lumina is the 3T Open Bore system designed to fundamentally transform care delivery in your clinical key areas and provide financial sustainability.

New 3T magnet
with 70 cm Open Bore and large 55 x 55 x 50 cm³ FoV

Tim [180x32] RF technology
with powerful XK gradients
(36 mT/m @ 200 T/m/s simultaneously)

syngo MR XA software platform
for intuitive system operation and
one user interface across your fleet

Innovision³ – the revolutionary patient infotainment solution
designed to redefine the in-bore experience
Unique BioMatrix technology
automatically adjusts to patient biovariability

Turbo Suite
acceleration packages enable up to 50%¹ faster scanning

8 unique Dot Engines
provide highly automated scan procedures for more than 90%¹ of all MRI exams

GO technologies
powered by artificial intelligence boost patient throughput

syngo Virtual Cockpit²
the game-changing remote scanning assistance for standardized results across your system fleet

Patient-centered coil portfolio
powered by Tim 4G and BioMatrix technology puts patients at greater ease
MAGNETOM Lumina

Confidence to deliver productivity gains

MAGNETOM Lumina is designed with the clear goal to deliver significant productivity gains. At the core of its impressive acquisition speed lies our exclusive Turbo Suite allowing for up to 50% faster routine scans. And with the further objective to reduce the overall patient time slot in your institution, MAGNETOM Lumina offers additional remarkable innovations to boost workflow efficiency and ensure your return on investment.
Setting the pace in MR acceleration with Turbo Suite

Turbo Suite for MAGNETOM Lumina is comprised of two packages including our unique parallel imaging, Simultaneous Multi-Slice, and planned Compressed Sensing technologies.

And – with Turbo Suite, you gain access to future developments in MR acceleration, keeping you up to date.

Reduce the total exam time by up to 50%¹

Further information on Turbo Suite: siemens-healthineers.com/turbo-suite
Turbo Suite Essential

Be ahead in scan time and maximize productivity with core MR acceleration technologies

Turbo Suite Essential is our standard acceleration package for MAGNETOM Lumina. This package leverages high element density coils, the parallel imaging techniques GRAPPA and our unique CAIPRINHA to deliver routine exams in 10 to 15 minutes.

Neuro imaging

T2 TSE
0.6 x 0.6 x 4 mm³, TA 1:30 min

T2 Dark Fluid
0.8 x 0.8 x 4 mm³, TA 1:21 min

DWI, b50 b1000
1.1 x 1.1 x 4 mm³, TA 1:01 min

T1 SE
0.6 x 0.6 x 4 mm³, TA 1:10 min

T2*
0.8 x 0.8 x 4 mm³, TA 1:27 min

3D TOF
0.3 x 0.3 x 0.6 mm³, TA 4:08 min

Total exam
10:38 min
Isotropic 3D MSK exams utilize the power of CAIPIRINHA, delivering all clinically relevant contrasts in 10 minutes. For body imaging, up to 50% shorter breath-holds and high-resolution scans are possible with CAIPIRINHA.

**MSK imaging – 3D exam**

- 3D PD CAIPIRINHA SPACE, CAIPIRINHA 4
  - 0.5 mm iso, TA 4:34 min
  - Total exam 9:05 min
  - 2a00a1252

- 3D T2 CAIPIRINHA SPACE FS, CAIPIRINHA 4
  - 0.6 mm iso, TA 4:31 min
  - 2a00a1252

**Abdominal imaging – significantly shorter breath-holds and improved resolution**

- CAIPIRINHA VIBE, CAIPIRINHA 6
  - Matrix 320, SL 1.4, TA 17.2 s
  - 2a00a1272

- CAIPIRINHA VIBE, CAIPIRINHA 4
  - TA 14 s
  - 2a00a1272
Turbo Suite Excelerate

Be up to 50\%\(^1\) faster for routine, clinical exams

Turbo Suite Excelerate introduces a paradigm shift in productivity with up to 50\%\(^1\) time savings, for all contrasts, orientations, and body regions. Dramatically transform care delivery with cutting-edge acceleration technologies Simultaneous Multi-Slice and planned Compressed Sensing\(^2\) for static 2D and 3D imaging, covering neurological, orthopedic, and body MRI.

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**Simultaneous Multi-Slice**

Conventional

<table>
<thead>
<tr>
<th>Protocol</th>
<th>TA</th>
<th>slice thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>PD TSE FS, PAT 2</td>
<td>2:42 min</td>
<td>0.5 x 0.4 x 3 mm(^3)</td>
</tr>
<tr>
<td>DWI, PAT 3, b50 b800</td>
<td>4:07 min</td>
<td>1.4 x 1.4 x 5 mm(^3)</td>
</tr>
<tr>
<td>RESOLVE(^2), b50 b800</td>
<td>4:21 min</td>
<td>1.2 x 1.2 x 5 mm(^3)</td>
</tr>
</tbody>
</table>

Turbo Suite Excelerate with Simultaneous Multi-Slice and Compressed Sensing

<table>
<thead>
<tr>
<th>Protocol</th>
<th>TA</th>
<th>slice thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMS TSE, PAT 2 SMS 2</td>
<td>1:21 min</td>
<td>0.5 x 0.4 x 3 mm(^3)</td>
</tr>
<tr>
<td>SMS DWI, PAT 2 SMS 2, b50 b800</td>
<td>2:27 min</td>
<td>1.4 x 1.4 x 5 mm(^3)</td>
</tr>
<tr>
<td>SMS RESOLVE(^2), SMS 3, b50 b800</td>
<td>1:44 min</td>
<td>1.2 x 1.2 x 5 mm(^3)</td>
</tr>
</tbody>
</table>

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\(^1\) 50\% reduction

\(^2\) 40\% reduction

\(^3\) 60\% reduction
In addition to our latest Simultaneous Multi-Slice applications for EPI and TSE, the Excelerate package provides future security with granted access to planned new acceleration techniques including Simultaneous Multi-Slice RESOLVE as well as Compressed Sensing acceleration for SPACE, TOF & SEMAC.

**Compressed Sensing**

- **56% reduction**
  - 3D TOF Angio, PAT 2
  - 0.4 mm iso
  - TA 4:28 min
  - 3aaaa0784

- **97% reduction**
  - 3D T2 SPACE MRCP
  - 0.5 x 0.5 x 1.0 mm³
  - TA 7:16 min
  - 3aaaa0783

- **49% reduction**
  - 3D T2 SPACE DIR
  - 1.4 mm iso
  - TA 6:07 min
  - 3aaaa0784

- **51% reduction**
  - SEMAC
  - 1.2 x 1.2 x 3 mm³
  - TA 11:10 min
  - 3aaaa1793

- **56% reduction**
  - 3D CS TOF Angio, CS 10
  - 0.4 mm iso
  - TA 1:58 min
  - 3aaaa0784

- **49% reduction**
  - 3D T2 CS SPACE MRCP
  - 0.5 x 0.5 x 1.0 mm³
  - TA 0:15 min
  - 3aaaa0783

- **51% reduction**
  - 3D T2 CS SPACE DIR
  - 1.0 mm iso
  - TA 3:07 min
  - 3aaaa0784

- **51% reduction**
  - CS SEMAC
  - 1.2 x 1.2 x 3 mm³
  - TA 5:30 min
  - 3aaaa1793
Automate your MR workflow with GO technologies

GO technologies powered by artificial intelligence (AI) and BioMatrix technology are a holistic set of intuitive workflow automations that help you expedite the entire workflow from patient positioning to result distribution.

30% faster¹ patient positioning

Push-button planning & scanning

Zero click fully automated inline processing

Select&GO

BioMatrix Select&GO, powered by AI, enables fully automated exam positioning with one touch on the display.

DotGO

The intuitive Dot workflow offers automatic placement of imaging slices with the AI powered AutoAlign functionality – making even whole-spine imaging a push-button exam.

Recon&GO

Recon&GO automatically performs postprocessing steps in the background. For example: vertebrae in the sagittal, axial, and coronal views are automatically labeled in all contrasts.
**View&GO**

Dual screens allow the user to efficiently check and distribute results in real time. In addition advanced applications such as generating computed high b-value images or 3D reconstructions of the plexus can be performed directly at the scanner, reducing the workload for radiologists.

<table>
<thead>
<tr>
<th>Total workflow for whole-spine exam (in minutes)</th>
<th>Conventional system</th>
<th>MAGNETOM Lumina</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 min</td>
<td>10 min</td>
<td>10 min</td>
</tr>
</tbody>
</table>

**20% faster spine exams with GO technologies**

Reduced workload for radiologists through advanced applications
Streamline patient handling with BioMatrix technology

BioMatrix technology overcomes variations by automatically adjusting to the individual patient. BioMatrix Sensors, Tuners, and Interfaces enable you anticipate motion, adapt to any patient’s body type and accelerate patient positioning. The result: higher diagnostic confidence, fewer rescans, predictable scheduling and consistent, high quality personalized exams.

30% faster patient positioning

BioMatrix Select&GO

Powered by artificial intelligence – the BioMatrix Select&GO touch display enables patient positioning with one-touch, accelerating patient positioning by up to 30%.

Intelligent Body Model powered by AI
BioMatrix Beat Sensor

The Beat Sensor is seamlessly integrated into the BioMatrix Body 12. It is designed for automatic cardiac triggering – without the need for the time-consuming application of ECG leads.

BioMatrix Respiratory Sensors

Integrated into the BioMatrix Spine coil, Respiratory Sensors automatically detect breathing patterns as soon as the patient lies on the table. Respiratory-triggered scans can be performed without additional user interaction to help simplify and accelerate workflow.

Patient respiration data, acquired by the BioMatrix Sensors, are displayed on the user interfaces, including the Select&GO touch display. By viewing the patient’s respiration rate, technologists have a sense for how patients are reacting to the exam and can adapt their patient and scanner interactions.

BioMatrix Dockable Table

The BioMatrix Dockable Table with its intuitive control panel streamlines your patient flow especially for immobile patients.

Further information on BioMatrix:
siemens-healthineers.com/biomatrix
MAGNETOM Lumina

Confidence to deliver reproducible results

MAGNETOM Lumina delivers consistent diagnostic results across your institution. Eight unique Dot Engines and innovative BioMatrix Tuners, achieve highly reproducible scan results. One common interface, syngo MR XA software, and the game-changing syngo Virtual Cockpit enable consistency across your entire scanner fleet.
Automated reproducibility with Dot Engines

MAGNETOM Lumina’s eight unique Dot Engines tailored to different body regions provide highly automated scan procedures for more than 90% of all MRI exams. Each Dot Engine provides a comprehensive guidance system and predefined scan strategies. AutoAlign, powered by artificial intelligence, delivers automatic placement of imaging slices to ensure reproducible scan results – every time.

Over 90% of MRI exams covered

Dot Engines powered by artificial intelligence
Whole-body MRI from head to pelvis in less than 24 min\textsuperscript{1} scan time!

The Whole-Body Dot Engine reduces the planning and execution of complex, whole-body exams to a few clicks. Simply select which regions need to be scanned, choose whether a focus region should be investigated, and set a few patient specific parameters (e.g., breath-hold capability).

All core protocols for bone and lymph node metastasis detection are covered
Whole-Body Dot Engine: intuitive and guided workflow

**General Parameters**
- Exam Strategy: Standard
- Focus Adoption: DH + AutoCoverage
- Auto Bolus Detection: ✔
- Auto ROI: ✔

**Breath-Hold Parameters**
- Breath-Hold Capability: 20 s
- Auto Breath Hold Commands: German
- Pause Between Breath-Holds: 10 s

**Coverage**
- Head
- Chest: Focus
- Abdomen: Focus
- Pelvis: Focus
- Legs: FastView

ADC map

DWI, b50 b800

T2 STIR

T1 TSE
Adapt to challenging anatomies for reliable results with BioMatrix Tuners

BioMatrix Tuners adapt to challenging anatomies, such as the head/neck area, the spine and the abdomen, for reliable exam results. Even for difficult scan regions, our intelligent coil technology consistently delivers excellent homogeneity and fat saturation – driving robustness and reproducible high-quality imaging – for every patient, every time.

Significantly improved fat saturation and image quality with BioMatrix Tuner CoilShim

Integrated into the new BioMatrix Head/Neck 20 coil, CoilShim increases diagnostic quality and reduces the need for repeat scans by delivering improved fat saturation and better DWI quality in the neck region. CoilShim technology ensures that the challenging area is automatically and optimally shimmed for reproducible quality in every patient.
Improved image quality in the entire imaging volume with BioMatrix Tuner SliceAdjust

SliceAdjust technology provides reliable fat saturation for both TSE and DWI sequences, as well as distortion-free whole-body DWI scans. It avoids broken spine artifacts in whole-body DWI for excellent correlation with anatomical scans.
Reproducible results across your fleet with *syngo* Virtual Cockpit

*syngo* Virtual Cockpit is designed to assist scan procedures – from a distance. Expert colleagues receive access to the scanner and can support less-experienced technologists – ensuring reproducible results across your entire MR system fleet.

- Each expert can assist up to 3 scanners, simultaneously
- Expert communicates with scanner operator via chat, video, and voice
- Assist MR, MR-PET, CT & PET/CT scanners

Further information on *syngo* Virtual Cockpit: siemens-healthineers.com/syngo-virtual-cockpit
syngo Virtual Cockpit can assist you in a great variety of everyday use cases:

**Routine examinations**
Less-trained technologists can receive live support

**Staff bottlenecks**
Personnel from distant sites can fill in without the need to commute

**Complex examinations**
An expert can assist from remotely, e.g. for protocol adjustment or contrast timing

**Training**
Staff members receive hands-on training remotely

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**Additional fleet management solutions for consistency across your MR scanner fleet**

**syngo MR XA-line**

One common software platform and user interface across our entire BioMatrix scanner generation. Ensuring consistency and reproducible results, no matter which scanner is operated.

**teamplay**

Optimize your scanner performance and ensure protocol consistency across your fleet with our cloud-based performance management solution teamplay.
MAGNETOM Lumina

Confidence to deliver patient satisfaction

Patient experience matters. MAGNETOM Lumina transforms the MRI experience and puts patients at ease.
Redefine the MRI experience with Innovision³

Innovision³ is designed to redefine the patient experience, using a revolutionary in-bore infotainment solution. By engaging patients in an immersive video and audio experience as soon as they lie on the table, patients remain relaxed and at greater ease during the scan.

- **Enhance the patient experience**
  with customizable video content

- **Reduce claustrophobia**
  with a video display that creates a virtually larger bore

- **Keep the patient informed**
  by displaying the scan progress

- **Exceptional sound quality**
  for voice commands and entertainment

- **Effective noise reduction**
  with unique memory foam pillow

Further information on Innovision: siemens-healthineers.com/innovision
**Tim 4G ultra-light and high-density coils are designed for patient comfort**

Based on our proven Tim 4G technology MAGNETOM Lumina offers a broad range of ultra-light and high-density coils that strongly support patient comfort.

**New anatomy-adaptive coils for greater flexibility to accommodate larger patients**

**Shoulder Shape 16**

For orthopedic applications, the new Shoulder Shape 16 and the new Tx/Rx Knee 18 deliver greater flexibility to accommodate larger patients through their anthropomorphic design.

**Tx/Rx Knee 18**
**Better address kyphotic patients with the tiltable BioMatrix Head/Neck 20**

BioMatrix Head/Neck 20  
Head tilting between 0° and 18°

Increase patient comfort, better address kyphotic patients, and improve your imaging results with the tiltable BioMatrix Head/Neck 20.

**Maximize flexibility with the new UltraFlex 18 coils in small & large**

UltraFlex Large 18  
UltraFlex Small 18

The new UltraFlex 18 Large and UltraFlex 18 Small combine ultra-high coil element density with high flexibility, for multipurpose imaging. Compared to standard 4-channel flex coils, resolution can be increased and acquisition accelerated.
MAGNETOM Lumina

Product services

Siemens Healthineers takes care of your equipment throughout the entire equipment lifecycle. We offer a comprehensive product service approach that ensures a smooth clinical workflow based on maximum equipment availability.

MAGNETOM Lumina’s equipment service is based on Siemens Healthineers’ matchless service infrastructure around the world

250 billion data points for AI based error pattern analysis

400 system components constantly monitored

> 70% first visit fix rate

> 1,600 service engineers worldwide
Based on this exceptional infrastructure and connected through our Smart Remote Services MAGNETOM Lumina offers unique services to continuously ensure system availability

**Condition Based Maintenance**
50% reduced downtime by performing maintenance based on system use

**Remote Diagnosis & Repair**
50% remote fix rate, minimizing workflow interruptions

**Guardian Program**
23% reduced downtime through preventive monitoring of 400 critical system components
# MAGNETOM Lumina

## Technical specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field strength</td>
<td>3 Tesla</td>
</tr>
<tr>
<td>Bore size</td>
<td>70 cm Open Bore design</td>
</tr>
<tr>
<td>System length from cover to cover</td>
<td>1.86 m</td>
</tr>
<tr>
<td>System weight (in operation)</td>
<td>7.35 tons</td>
</tr>
<tr>
<td>Minimum room size</td>
<td>31 m²</td>
</tr>
<tr>
<td>RF technology</td>
<td></td>
</tr>
<tr>
<td>Maximum number of channels</td>
<td>180</td>
</tr>
<tr>
<td>Number of independent receiver channels</td>
<td>32</td>
</tr>
<tr>
<td>Gradient strength</td>
<td>XK gradients 36/200 simultaneously [1.7 MVA]</td>
</tr>
<tr>
<td>Helium consumption</td>
<td>Zero Helium boil-off technology</td>
</tr>
</tbody>
</table>
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For accessories, please visit: siemens.com/medical-accessories

1 Data on file.
2 Still under development for MAGNETOM Lumina and not yet commercially available. Its future availability cannot be guaranteed.
3 Innovision is still under development and not yet commercially available. Its future availability cannot be guaranteed.
4 Channels (coil elements) that can be connected simultaneously.
5 Minimum total space requirements for magnet, electronics, and console room.
6 Cardiac Triggering is still under development and not commercially available yet. Its future availability cannot be ensured.
7 syngo Virtual Cockpit is not commercially available yet in all countries. Its future availability cannot be guaranteed.
8 The exemplary images and scan times displayed were acquired on MAGNETOM Vida.
9 The MRI restrictions (if any) of the metal implant must be considered prior to patient undergoing MRI exam. MR imaging of patients with metallic implants brings specific.