MAGNETOM Sola with BioMatrix

Embrace human nature at 1.5T

siemens-healthineers.com/sola
MAGNETOM Sola embraces human nature at 1.5T

The world’s population will grow by 30% to 9.6 billion by 2050, with life expectancy increasing by 10%. The future of healthcare may lie in precision medicine: the right treatment for the right patient, at the right point in time.

In order to pave the way for precision medicine in MRI, one of the greatest challenges – the variability of the individual patient – needs to be addressed.

Only by reducing unwarranted variations in MRI examinations by adjusting to patient biovariability can healthcare institutions provide standardized results. Standardization means that robust, consistent results are available to support diagnosis. In future, this will enable treatment decisions and therapy response assessment based on quantitative tissue characterization using MRI.

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MAGNETOM Sola

Embrace human nature at 1.5T

MAGNETOM Sola, the first 1.5T system with BioMatrix Technology, turns challenges into opportunities, delivering a whole new level of consistency, efficiency, and increased clinical capabilities.

New 1.5T magnet
70 cm Open Bore
50 x 50 x 50 cm³ FOV

Gradient strength
XQ: 45 mT/m @ 200 T/m/s
XJ: 33 mT/m @ 125 T/m/s

New ultra-high density 1.5T coils
based on our Tim 4G technology

New user environment
syngo MR XA platform technology

Innovision¹ – the revolutionary
patient infotainment solution
Designed to redefine the in-bore experience
BioMatrix Technology
New BioMatrix Sensors, Tuners, Interfaces

Up to 50%\textsuperscript{3} time savings with Turbo Suite

Free-breathing exams with Inline Compressed Sensing

Push-button exams with GO technologies

Intuitive guidance for every exam with our unique Dot Engines

\textit{syngo} Virtual Cockpit\textsuperscript{2}
The game-changing remote scanning assistance
Embrace consistency at 1.5T with BioMatrix Technology

Patients have unique, individual characteristics. Not only their different physiologies and anatomies, but also the way we interact with them and with technology can cause unwarranted variations. BioMatrix Technology helps overcome these challenges using a whole new approach: embracing human nature. Instead of expecting patients to adjust to the technology, BioMatrix automatically adjusts to the patient.
BioMatrix Sensors

Anticipate motion for high-quality results

Motion is a challenge in MRI, as it can dramatically decrease image quality, limiting consistency in scans and leading to costly rescans. Deeply embedded in the system architecture, BioMatrix Sensors capture respiratory and cardiac motion for increased consistency. This allows the user to choose the optimal exam strategy and achieve consistent high-quality results.

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 the workflow.

BioMatrix Beat Sensor

The Beat Sensor is seamlessly integrated into the BioMatrix Body 12 and BioMatrix Body 18. It is designed for cardiac triggering – without the need for the time-consuming application of ECG leads.

Triggers with BioMatrix Respiratory Sensor

3D T2 CS SPACE MRCP
CS 20
0.5 mm iso
TA 1:04 min respiratory triggered
ID 1aaaa2793

Triggers with BioMatrix Beat Sensor

2D CS Cine TrueFISP
Segmented
TA 24 seconds per breath hold
PAT 3
1.7 x 1.7 x 8.0 mm
ID 1aaaa1457
BioMatrix Tuners

Adapt to challenging anatomies for reliable exams

BioMatrix Tuners adapt to challenging anatomies, such as the head/neck area, the spine, and the abdomen, for reliable exams. 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.

BioMatrix CoilShim

Integrated into the new tiltable BioMatrix Head/Neck coils, CoilShim increases diagnostic quality and reduces the need for rescans by delivering improved fat saturation and better DWI quality in the head/neck region. CoilShim technology enables the challenging area to be automatically and optimally shimmed for reproducible quality in every patient.

BioMatrix SliceAdjust

SliceAdjust provides distortion-free whole-body DWI scans as well as reliable fat saturation for both DWI and TSE sequences. It avoids broken spine artifacts in whole-body MRI for excellent correlation with anatomical scans.

Without CoilShim
T2 TSE FS conventional
0.7 × 0.7 × 3 mm³
TA 2:56 min
ID 1aaaa1664

With CoilShim
T2 TSE FS with CoilShim
0.7 × 0.7 × 3 mm³
TA 2:56 min
ID 1aaaa1664

Without SliceAdjust
DWI
Whole body
ID 1aaaa1655

With SliceAdjust
DWI
Whole body
ID 1aaaa1655
BioMatrix Interfaces

**Accelerate patient preparation for increased efficiency**

BioMatrix Interfaces simplify how the user interacts with the scanner and the patient, accelerating patient preparation in order to improve image quality and cost-effectiveness. No matter how tall, large, or mobile a patient is – or how experienced the technologist is – BioMatrix Interfaces speed up the workflow for increased efficiency.

**BioMatrix Select&GO**

Select&GO one-touch positioning utilizes AI to accelerate patient positioning by up to 30\% compared with laser positioning. The user simply selects the body region to be scanned on the touch display and the patient is automatically positioned for the respective scan, helping to avoid delays due to incorrect positioning.

**BioMatrix Dockable Table**

The BioMatrix Dockable Table with its intuitive control panel streamlines your patient flow, especially for immobile patients.
Embrace true 1.5T efficiency

MAGNETOM Sola embraces efficiency and makes push-button examinations a clinical reality. GO technologies speed up the entire workflow from patient positioning to result distribution using artificial intelligence. Three Turbo Suite acceleration packages reduce scan times by up to 50\%\(^3\). Fleet management solutions achieve consistent image quality across the fleet with software solutions such as Dot Engines, synco Virtual Cockpit\(^2\), and MR protocols.
**syngo Virtual Cockpit²**

**Move knowledge, not staff**

syngo Virtual Cockpit² is designed to assist scan procedures – from a distance. Expert colleagues are granted access to the scanner and can support less-experienced technologists – delivering 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, PET-MR, CT, and PET-CT scanners

*Further information on syngo Virtual Cockpit²: siemens-healthineers.com/syngo-virtual-cockpit*

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**teamplay Protocols**

**Manage your fleet protocols and usage with teamplay protocols**

- Central management of all the protocols of your MRI scanner fleet³, beyond physical location, without interrupting scanning
- Easy distribution of your standardized protocols to your syngo MR XA-line systems
- Comprehensive overview of scanner KPIs
- Statistics on scan time, change time, examined body regions, etc.
- Analysis of scanner utilization and table occupancies
- Regional benchmark of performance across institutions

*Further information on syngo Virtual Cockpit²: siemens-healthineers.com/syngo-virtual-cockpit*
GO technologies

Power your MRI workflow

From patient preparation to result distribution, optimize and streamline your entire MRI workflow with BioMatrix and GO technologies. Save the valuable time of your staff and establish precise patient scheduling thanks to useful automation and standardized workflow steps.

30% faster\(^3\) 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 using 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.
Reduced workload for radiologists through advanced applications

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.
Dot Engines

**10 Dot Engines deliver consistent, reproducible results from head to toe**

MAGNETOM Sola’s ten 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 achieve reproducible scan results – every time.

<table>
<thead>
<tr>
<th>Dot Engine</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brain Dot Engine</td>
<td>Standard</td>
</tr>
<tr>
<td>Cardiac Dot Engine</td>
<td></td>
</tr>
<tr>
<td>Abdomen Dot Engine</td>
<td>Standard</td>
</tr>
<tr>
<td>LiverLab Dot Engine</td>
<td>New</td>
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<tr>
<td>Whole-Body Dot Engine</td>
<td></td>
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<tr>
<td>Breast Dot Engine</td>
<td>Standard</td>
</tr>
<tr>
<td>Spine Dot Engine</td>
<td>Standard</td>
</tr>
<tr>
<td>Large Joint Dot Engine</td>
<td>Standard</td>
</tr>
<tr>
<td>Angio Dot Engine</td>
<td></td>
</tr>
<tr>
<td>RT Dot Engine</td>
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</tr>
</tbody>
</table>

Over 90\%\(^3\) of all MRI exams covered

[1] Magnetic Resonance · MAGNETOM Sola
Dot Cockpit

Make your MRI expertise accessible to every technician and at anytime

Manage protocols without taking away table time from the patient with the Dot Cockpit. Thanks to AI, the Dot Cockpit minimizes complexity, increases consistency, and maximizes efficiency for each MRI exam at your institution. Avoid patient recalls with accurate contrast timing. Reduce the number of rescans and increase efficiency in exam planning.

- Fully system-guided workflows
- Automated planning of planes
- Disease-specific clinical protocols

$ Up to $14K^3 savings per tech per year in workforce overtime salary
**Turbo Suite**

**Setting the pace in MR acceleration**

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

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

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Reduce the total exam time by **up to 50%**

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*Explore more clinical images on the Internet.*
Turbo Suite Essential

Ahead in scan time

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

Turbo Suite Essential is our standard acceleration package for MAGNETOM Sola. This package leverages high-density coil elements, the parallel imaging techniques GRAPPA, and our unique CAIPIRINHA to deliver routine exams in 10 to 15 minutes.

Isotropic 3D MSK exams use 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.

---

Routine exams in 10–15 minutes

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Turbo Suite Excelerate

One step ahead in acceleration

Be up to 50%\(^3\) faster for routine, clinical exams

Turbo Suite Excelerate introduces a paradigm shift in productivity with up to 50%\(^3\) time savings, for all contrasts, orientations, and body regions. Dramatically transform care delivery with the cutting-edge acceleration technologies Simultaneous Multi-Slice and Compressed Sensing\(^7\) for static 2D and 3D imaging, covering neurological, orthopedic, and body MRI.

In addition to our latest Simultaneous Multi-Slice applications for EPI and TSE, the Excelerate package provides future security through access to planned new acceleration techniques including Simultaneous Multi-Slice RESOLVE as well as Compressed Sensing acceleration for SPACE, TOF, and SEMAC.

Conventional

2D PD fs, PAT 2
0.4 x 0.4 x 3 mm\(^3\)
TA 2:20 min
ID 1aaa01444

DWI, PAT 2, b800
1.6 x 1.6 x 6 mm\(^3\)
TA 3:09 min
ID 1aaa03233

3D TOF MIP, PAT 2
0.5 mm\(^3\)
TA 6:40 min
ID 1aaa02930

Turbo Suite Excelerate with Simultaneous Multi-Slice and Compressed Sensing

SMS 2D PD fs
0.4 x 0.4 x 3 mm\(^3\)
PAT 2 SMS 2
TA 1:18 min
ID 1aaa01444

SMS DWI
1.6 x 1.6 x 6 mm\(^3\)
PAT 2 SMS 2, b 800
TA 1:35 min
ID 1aaa03233

3D CS TOF MIP
PAT 2 CS6.5
0.5 mm\(^3\)
TA 2:00 min
ID 1aaa02930

50% reduction

44% reduction

60% reduction

Up to 50% time savings\(^3\)
Turbo Suite Elite

Expand your clinical capabilities

Increase the number of patients eligible for MRI

With Compressed Sensing GRASP-VIBE, perform full free-breathing liver dynamics for greater patient comfort and fewer rescans.

With Compressed Sensing Cardiac Cine, cardiac function can be captured in one short scan, with free breathing, even in the most challenging cases. With Turbo Suite Elite, you get unlimited access to cutting-edge MRI acceleration techniques.

Conventional

VIBE Dixon arterial phase
1.2 x 1.2 x 3 mm³
TA 0:16 min breath-hold
ID 1aa0207

Free-breathing exam

2D Cine TrueFISP, PAT 2
1.6 x 1.96 x 8.0 mm³
adaptive, segmented, retrospective
TA 3:00 min / 9 breath-holds
ID 1aa01951

Free-breathing exam
> 4 min. saved

Turbo Suite Elite

CS GRASP VIBE Dixon
1.2 x 1.2 x 3 mm³
TA: 4:06 min free breathing in all phases
ID 1aa0207

2D CS Cine TrueFISP, CS 7.3
1.6 x 1.6 x 8.0 mm³
2 shot, segmented, retrospective
TA 0:30 min free breathing
ID 1aa01951

New clinical capabilities
Embrace new clinical capabilities at 1.5T

With MAGNETOM Sola, patients previously excluded from MRI due to the exam’s complexity or their medical condition now have access. Free-breathing Compressed Sensing applications help to improve the patient experience, while extending your range of services. Significantly simplified procedures with automated workflow strengthen clinical fields with growth potential such as whole-body and cardiac MRI.
Whole-body MRI

From head to pelvis in less than 23 minutes scan time

Whole-body MRI has recently been proven to have great potential in supporting the treatment of oncology patients.

MRI is, however, traditionally seen as complex and difficult to perform consistently and efficiently. The Whole-Body Dot Engine enables highly reproducible exams and allows complex studies to be planned and executed to a few clicks in short and predictable time slots. Together with Turbo Suite Elite, these examinations can be done fast, easy, and with free breathing.

Core protocol for bone and lymph node metastasis detection adapted from MET-RADS-P standard

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Time</th>
<th>ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2 STIR HASTE</td>
<td>9:49 min</td>
<td>1aaaa3028</td>
</tr>
<tr>
<td>2D TSE DIXON W</td>
<td>3:07 min</td>
<td>1aaaa3028</td>
</tr>
<tr>
<td>DWI, b800</td>
<td>9:25 min</td>
<td>1aaaa3028</td>
</tr>
<tr>
<td>T2 TSE STIR</td>
<td>6:05 min</td>
<td>1aaaa3028</td>
</tr>
<tr>
<td>T1 TSE</td>
<td>8:05 min</td>
<td>1aaaa3028</td>
</tr>
</tbody>
</table>

Less than 23 min for whole-body

+14:10 min for Spine

Planning of a whole-body exam can be reduced from 14 minutes (= 34% of the exam time) to just 2.5 minutes (= 8% of the exam time)
Compressed Sensing GRASP-VIBE

Beyond speed. Beyond motion.

With our disruptive Compressed Sensing GRASP-VIBE technology, your customers can expand their patient population eligible for abdominal MRI.

Patients with limited breath-hold capability or those who are unable to follow breathing commands, such as patients with dementia, hearing impairment, children or multimorbid patients, can now undergo high-resolution dynamic abdominal imaging with free breathing in one continuous, push-button exam.

Pediatric case (6 years old) with Hepatoblastoma

Push-button, free-breathing liver dynamics with Compressed Sensing GRASP-VIBE

Liver case of a 58-year-old male patient with hepatic cellular carcinoma
Compressed Sensing Cardiac Cine

Case 1: Introducing free-breathing cardiac MRI exams

Extend the benefits of cardiac MRI to your most valuable patients

Conventional cine acquisitions are susceptible to breathing motion or irregular heart beats

Free-breathing acquisition with Compressed Sensing Cardiac Cine

2D cine TrueFISP
1.7 x 1.7 x 6 mm²
ID 1aaaa1455

2D CS cine TrueFISP
1.7 x 1.7 x 6 mm²
ID 1aaaa1455

Compressed Sensing Cardiac Cine

Case 2: Get diagnostic cardiac information in 12 minutes

Learn about morphology, function, and late gadolinium enhancement (LGE)

Contrast injection

Localizer AutoAlign
3 minutes

Cine Real-time Compressed Sensing
4 minutes

LGE PSIR HeartFreeze
5 minutes

Find out more about the MAGNETOM Sola Cardiovascular Edition.
Embrace patient satisfaction

Most patients who need to undergo an MRI scan, experience some level of anxiety. Turn MRI into a comfortable, fast, and entertaining experience by creating a comfort zone with coils that adapt flexibly to the patients’ anatomy. Ease patients’ anxiety with Innovision¹, the in-bore infotainment system that redefines the MRI experience.
Innovision

Redefining the MRI experience

Innovision 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

Bring patient experience solutions
to life with augmented reality

1. Download the "AR Siemens Healthineers" app from your app store.
2. Open the app and explore the solutions in full 3D.

siemens-healthineers.com/ar-ios
siemens-healthineers.com/ar-android
Tim 4G technology

**Provide more comfort, speed, and high image quality at the same time**

MAGNETOM Sola offers a wide range of new high-density coils with seamlessly integrated BioMatrix Sensors and BioMatrix Tuners. The DirectConnect and SlideConnect technology supports a smooth and fast coil positioning. Our unique coils adapt flexibly to patients’ bodies and provide them with greater comfort while they undergo MRI exams.

**BioMatrix Body 18**

The 18-channel Tim4G coil with its excellent image quality offers a flexible and lightweight design, resulting in greater patient comfort.

**BioMatrix Spine 48**

The 48-channel spine coil with integrated respiratory sensors enables respiratory triggering for both head-first and feet-first positioning.

**BioMatrix Head/Neck 20**

First cable-free tiltable coil with DirectConnect™ technology. The coil is tiltable to three positions (0°, 9°, and 18°) and comes with CoilShim technology, offering integrated shim elements.
Contour 24

The soft and lightweight Tim4G coils provide a blanket-like feeling for your patient by flexibly adapting to the body contour. The coverage can be extended to a 48-channel coil by adding a second Contour 24.

UltraFlex 18 Large / UltraFlex 18 Small

The versatile coils combine ultra-high coil element density with high flexibility for multipurpose imaging. Compared to the standard 4-channel flex coils, resolution can be increased and acquisition time accelerated.

Shoulder Shape 16

The iPAT-compatible 16-channel shoulder coil accommodates small and large shoulders through its anthropomorphic design.

Tx/Rx Knee 18

The 18-channel transmit/receive coil with its unique design is especially suited to knee examinations.
Services

Always on. Always in touch.

Today, the service experience goes above and beyond pure maintenance. Service can make the difference to your daily operations and help you evolve. This is why we keep innovating our portfolio and team up with you for enhanced efficiency and optimized clinical outcomes.

With our services, we are by your side whenever you need us. Always on. Always in touch.

UpTime Services

UpTime Services are designed to provide equipment availability and assure long-term quality and safety to allow you to manage (un-)planned downtimes so that your equipment performs optimally.

UpSpeed Services

UpSpeed Services give you access to experts any time to answer technical and clinical application questions remotely and proactively monitor your equipment – for fast and smooth-running operations.

The Guardian Program7 maximizes your equipment uptime through real-time system monitoring, AI-based prediction mechanisms, and proactive services. It detects and corrects errors before they even occur and turns unplanned downtime into planned activities. Learn more at siemens-healthineers.com/guardian-program.

UpSkill Services

UpSkill Services enable you to enhance your understanding of the application and technical aspects of our equipment and increase your clinical knowledge.

- **Education & Training** for workforce know-how, efficiency through knowledge, and competency development
- **Optimization & Consulting** for equipment optimization and standardization of imaging protocols and examination workflows
**Connect Platforms and Smart Enabler**

By connecting to our digital platforms – the Connect Platforms – we can enhance your daily operations as they provide access to our service experts, equipment information, and education insights. Customer Services Smart Enablers are top-notch technologies that expedite the delivery of our services in a highly efficient way.

**Smart Remote Services (SRS)** is a fast, secure and powerful data link that connects your medical equipment to our experts, who provide you with proactive and interactive services that support you in your daily routine and bring speed to your running operations. Learn more at siemens-healthineers.com/srs.

**UpLift Services**

To keep your assets up-to-date and cybersecure, we provide you with ongoing update and upgrade programs so that your business runs smoothly and sustainably.

**UpTeam Services**

Team up for flexible solutions for workforce and technology management as well as expertise sourcing to boost efficiency in your operations and help you focus on what matters most: your patients.

**Service Plans**

Protecting your investment in medical equipment is key to sustainable business success. You can have optimal service coverage with our service plan that perfectly matches your needs. Benefit from maximized equipment performance and improved staff expertise while keeping unplanned service costs to a minimum – so you can enjoy peace of mind.

The **Advance Plans** enable your equipment to be future-proof, cybersecure and highly efficient throughout its entire serviceable life, while at the same time covering your regulatory, quality and financial needs. Learn more at siemens-healthineers.com/advance-plans.

Learn more about the service offerings at siemens-healthineers.com/customer-services
MAGNETOM Sola

Technical specifications

Field strength | 1.5 tesla
Bore size | 70 cm Open Bore design
System length from cover to cover | 1.57 m
System weight (in operation) | 4.2 tons
Minimum room size | 28 m² / 302 ft²

RF technology
Maximum number of channels | 204
Number of independent receiver channels that can be used simultaneously in one single scan and with one single FOV, each generating an independent partial image | 32, 48, 64

Gradient strength
XQ gradients 45/200 simultaneously [2.03 MVA]
XJ gradients 33/125 simultaneously [1.25 MVA]

Helium consumption
Zero Helium boil-off technology
International version. Not for distribution or use in the U.S.

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The information in this document contains general technical descriptions of specifications and optional features which do not always have to be present in individual cases. Siemens Healthineers reserves the right to modify the design, packaging, specifications, and options described herein without prior notice. Please contact your local Siemens Healthineers sales representative for the most current information.

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For accessories, please visit: siemens-healthineers.com/medical-accessories

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1 Innovision Audio is pending 510(k) clearance and is not yet commercially available in the United States. Its future availability cannot be guaranteed.

Innovision Display is still under development and not commercially available yet. It is not for sale in the United States. Its future availability cannot be guaranteed.

2 syngo Virtual Cockpit is not commercially available yet in all countries. Its future availability cannot be guaranteed.

3 Data on file. Results may vary.

4 Cardiac Triggering is still under development and not commercially available yet. Its future availability cannot be ensured.

5 teamplay protocols are applicable for other imaging devices.

6 MR scanning has not been established as safe for imaging fetuses and infants less than two years of age. The responsible physician must evaluate the benefits of the MR examination compared to those of other imaging procedures.

7 Guardian deliverables vary by device and are not applicable to all Siemens Healthineers equipment. Ask a local Customer Service representative for advice. Prerequisites: stable SRS connection with adequate bandwidth. Only available when connected to SRS infrastructure.