



**Embrace  
human nature at 3T**  
**MAGNETOM Vida**  
**with BioMatrix**



# Our journey to precision medicine

The world's population will grow by 30% to 9.6 billion by 2050, with life expectancy increasing by 10%.<sup>1</sup> A higher number of ill patients and chronic disease cases will lead to greater cost pressure on healthcare systems. Each and every patient, as well as their disease state, is different and individualized treatment paths are necessary.

The future of healthcare can be precision medicine: the right treatment for any patient, anytime, and anywhere.

In order to pave the way for precision medicine in MRI, one of the greatest challenges – the variability of the patient population – needs to be addressed. Only by overcoming the challenge of variability can healthcare institutions provide standardized results.

Standardization means that robust, consistent results are made available, aiding in diagnosis. In the future, this will enable treatment response assessment through quantitative tissue characterization.

Only then can providers deliver individualized therapy guidance, as well as predict survival and prognosis. MRI will play a major role in this context.

*“MAGNETOM Vida and BioMatrix will help our customers achieve fewer rescans, predictable scheduling, and consistent, high-quality personalized examination results. This is just the beginning of where we can go with the technology; we will continue to develop it further to help foster a new era in precision medicine.”*

Christoph Zindel, M.D.  
Senior Vice President, General Manager  
Magnetic Resonance, Siemens Healthineers





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# Embrace human nature with BioMatrix

Patients have unique, individual characteristics. Different physiologies and anatomies – but also the way we interact with them and technology – cause unwanted variability in MRI examinations.

These unique human characteristics, or bio-variabilities, present a challenge and a source of error, rescans, and inefficiency when it comes to MR imaging. This intrinsic patient variability needs to be addressed in order to truly personalize MRI, and pave the way toward precision

medicine. To turn this challenge into an opportunity, we must think differently. Instead of adapting human variability to technology, we adapt technology to humans. We do this by embracing their individual nature – with BioMatrix Technology.

*“To provide our patients with individual therapies, we need every piece of information available. In imaging, this means we need robust, standardized, and reproducible image data, always of the same quality regardless of the patient or user. MAGNETOM Vida with BioMatrix Technology gives us this data quality and comprehensive image information and is helping us on our way to quantitative radiology.”*

Professor Konstantin Nikolaou, M.D.  
University Hospital Tübingen, Germany



## BioMatrix Technology



**Anticipate motion for high-quality results with BioMatrix Sensors.**



**Adapt to challenging anatomies for reliable exams with BioMatrix Tuners.**



**Accelerate patient preparation for increased efficiency with BioMatrix Interfaces.**

# Anticipate motion for high-quality results with BioMatrix Sensors



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<sup>2</sup> motion for increased consistency.

This allows the user to choose the optimal exam strategy, and ensure consistent high-quality results.

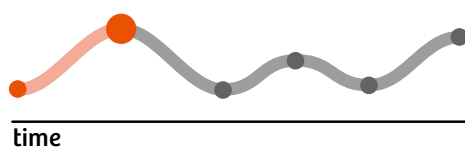
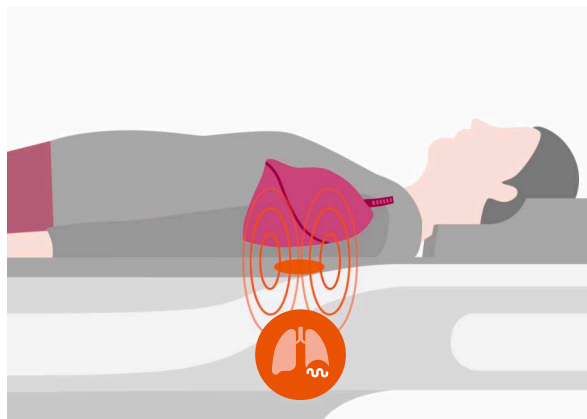


[siemens.com/  
BioMatrix-Sensors](https://siemens.com/BioMatrix-Sensors)

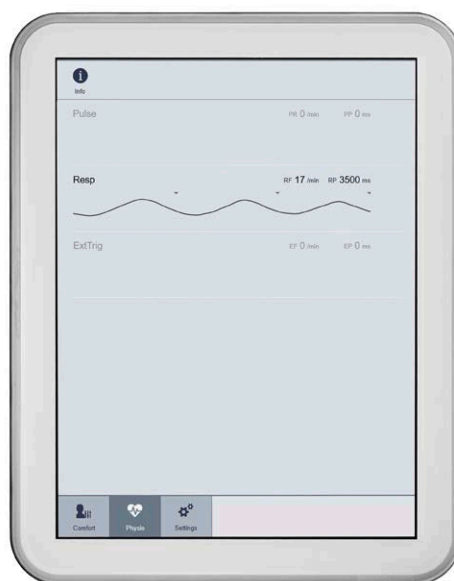
See how it works



## BioMatrix Respiratory Sensors



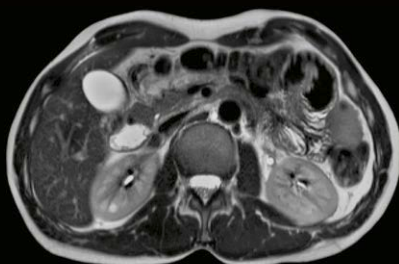
Respiratory Sensors automatically detect breathing patterns as soon as the patient lies on the table. This provides a simplified workflow as respiratory triggered scans can be performed without additional user interaction. (See images below.)



Display of patient's respiration data, acquired by BioMatrix Sensors.

Excellent quality results without having to set up respiratory belt or perform extra measurements utilizing navigators.

VL\_001



T2 HASTE – respiratory triggered using BioMatrix Sensors.



NATIVE – respiratory triggered using BioMatrix Sensors.

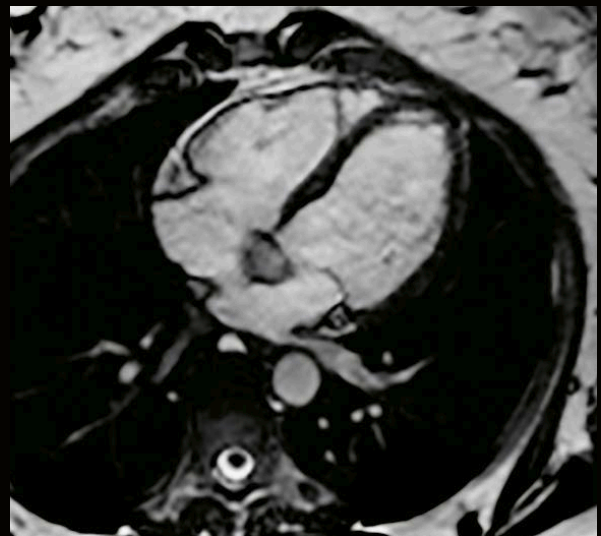
## BioMatrix Beat Sensor



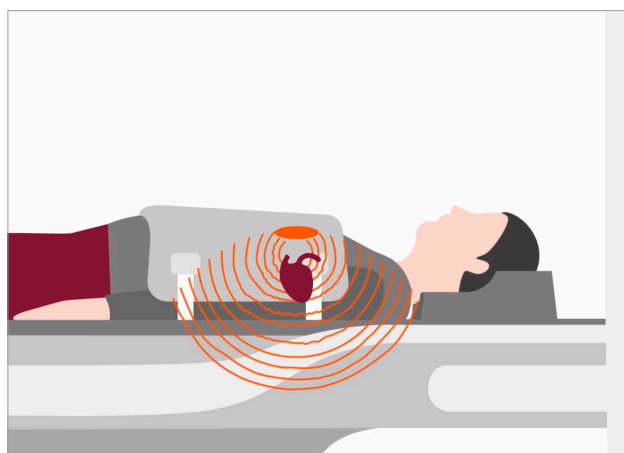
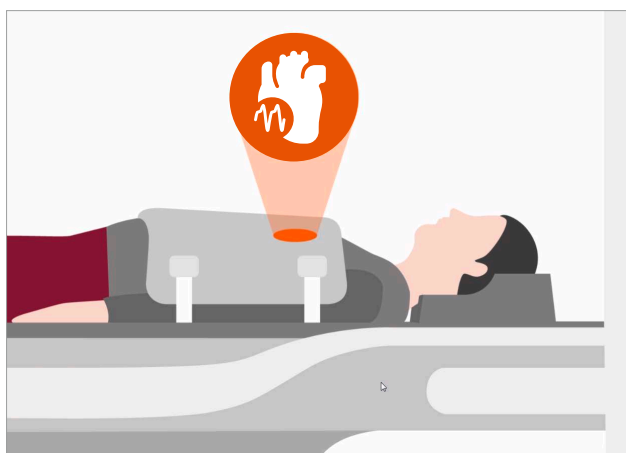
The Beat Sensor<sup>2</sup> is seamlessly integrated into the BioMatrix Body 12<sup>4</sup>. It is designed for automatic cardiac triggering – without the need for ECG leads.



**BioMatrix Beat Sensor – designed to capture heart motion**



**Segmented cine 4-chamber**  
acquired with Beat Sensor instead of ECG



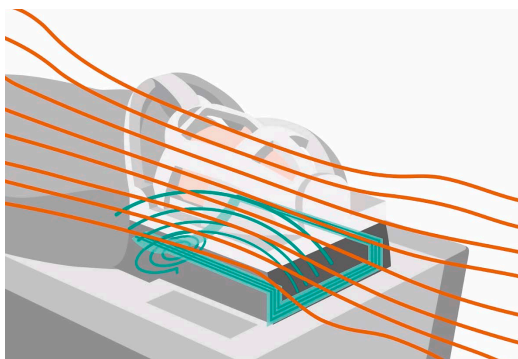
**Segmented cine short axis**  
acquired with Beat Sensor instead of ECG

# Adapt to challenging anatomy for consistent results with BioMatrix Tuners

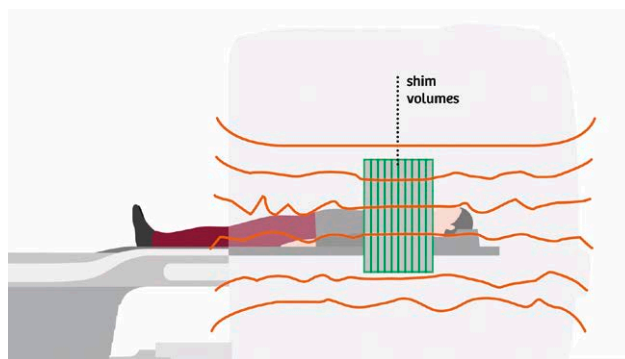


BioMatrix Tuners adapt to challenging anatomies, such as the head/neck area, the spine and the abdomen, for reliable exams. Even for difficult scan regions, our intelligent coil technology consistently delivers excellent homogeneity and fat saturation – driving robustness and reproducible high-quality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

Integrated into the new BioMatrix Head/Neck coils, 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.



Additional shim elements directly integrated into the Head/Neck coil perform region-specific shimming for a more homogeneous B0 field in the challenging head/neck region.



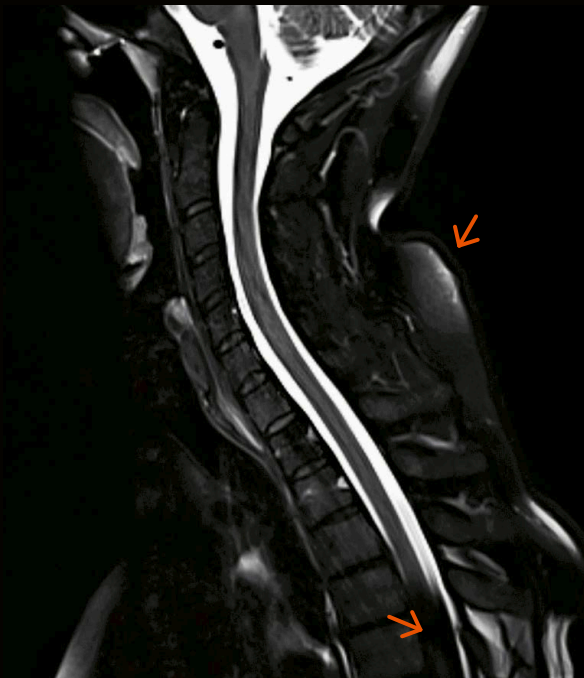
A slice-by-slice shimming procedure is seamlessly integrated for DWI and TSE, for locally optimal shimming in multi-station exams.



[siemens.com/  
BioMatrix-Tuners](https://www.siemens.com/BioMatrix-Tuners)

See how it works

Conventional



CoilShim



Conventional



CoilShim





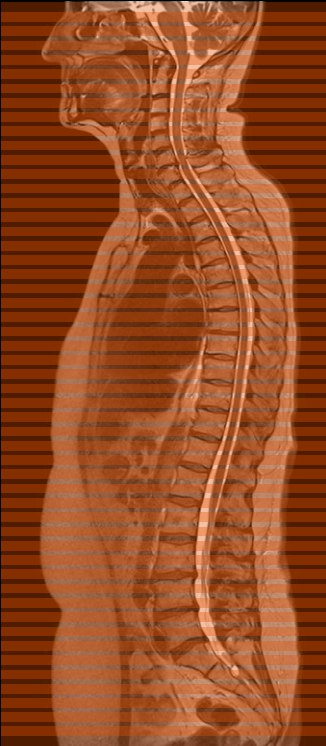


Conventional Volume Adjust  
DWI



SliceAdjust provides reliable and distortion-free whole-body DWI scans.

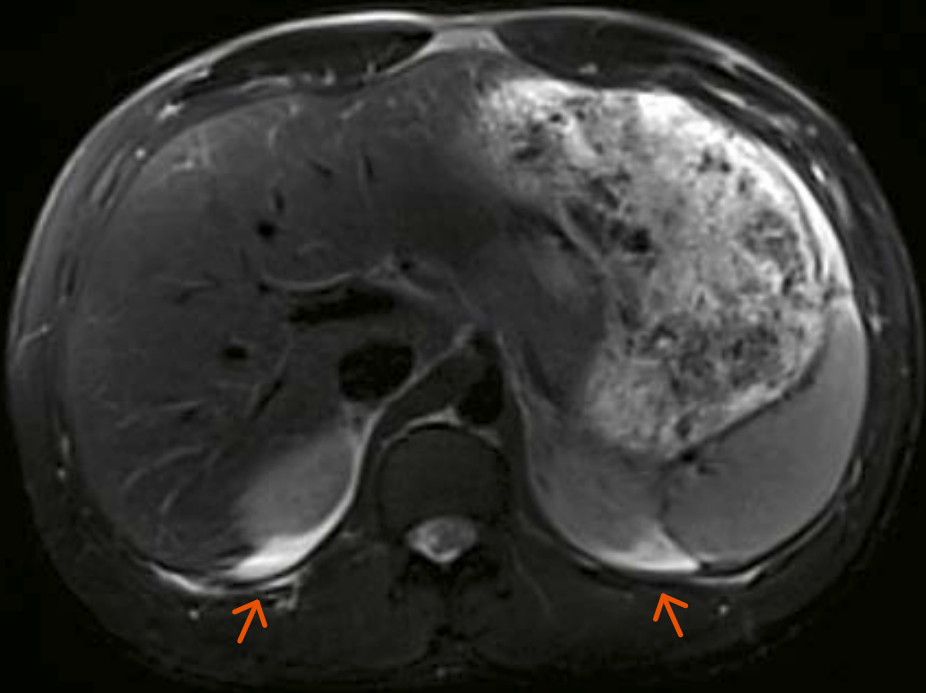
Now SliceAdjust is also incorporated for multistage acquisitions with TSE, enabling also here substantially improved fat saturation over the entire imaging volume.



New SliceAdjust  
DWI

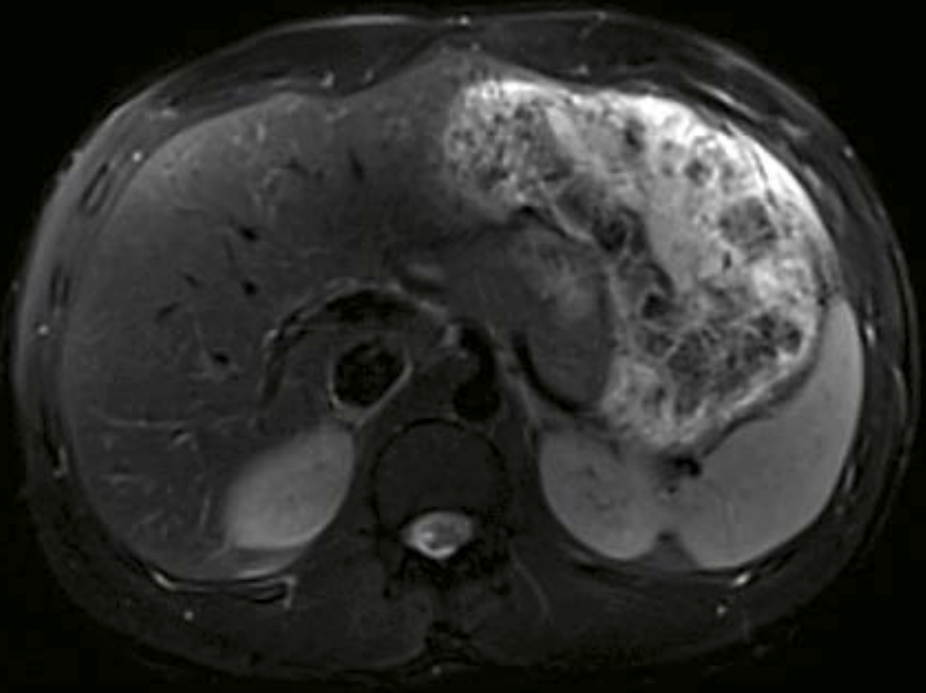


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Conventional Volume Adjust  
TSE

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New SliceAdjust  
TSE<sup>4</sup>

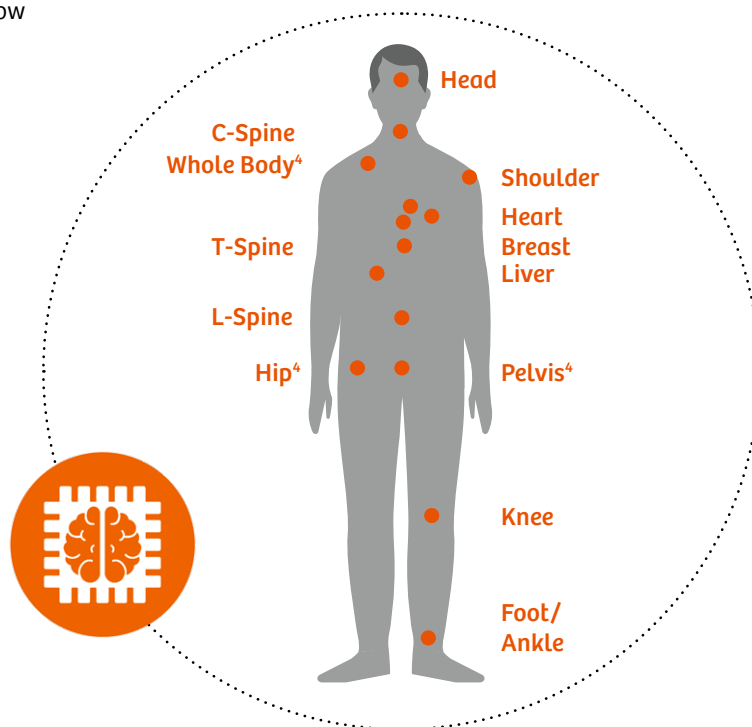
# Accelerate patient preparation for increased efficiency with BioMatrix Interfaces



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

The BioMatrix dockable table with eDrive support provides motorized assistance so that even the heaviest patient can be effortlessly moved to and from the scanner.

With one-touch positioning on the Select&GO touch display based on the underlying BioMatrix Body Model artificial intelligence is employed to accelerate patient positioning by up to 30%.<sup>5</sup> Delays due to incorrect positioning can now be avoided. The user simply selects the region or organ to be scanned on the touch display and the patient is automatically and precisely positioned for the respective scan.



[siemens.com/  
BioMatrix-Interfaces](https://www.siemens.com/BioMatrix-Interfaces)

See how it works





Simplify and speed up patient transportation with BioMatrix Interfaces and eDrive support.



Fast and easy positioning with the Select&GO display.

**SIEMENS**  
**Healthineers**



## Embrace human nature at 3T with MAGNETOM Vida

The increasing number of exams, their complexity, and cost pressure are presenting challenges to MRI. 3T MRI needs to better handle patient variability, deliver robust results for all patients, and become more cost-effective. MAGNETOM Vida, the first MRI scanner with BioMatrix Technology, is equipped to master the challenges facing MRI today. 3T MRI with BioMatrix meets these needs with fewer rescans, predictable patient scheduling, and consistent, high-quality personalized exams.

# Embrace human nature at 3T – MAGNETOM Vida with BioMatrix

## Embrace full 3T performance

- An all-new, exceptional 3T magnet design with a large 55 x 55 x 50 cm<sup>3</sup> Field-of-View and the siting requirements of a conventional 70 cm 3T MRI
- Up to 60/200 XT gradients – for up to 25% higher SNR<sup>5</sup> for diffusion-weighted imaging
- Unifying 3T performance, patient comfort, and cost-efficiency with 30% lower energy consumption than the industry average<sup>5</sup>

## Embrace true 3T productivity

- Select&GO for easy, fast, and reproducible patient positioning
- DotGO protocol management and intelligent scan automation – for high consistency and robustness
- Recon&GO automated inline reconstruction for fast preparation of scan results
- MR View&GO viewing and postprocessing capabilities make cases ready-to-read

## Embrace new 3T clinical capabilities

- Perform free-breathing liver dynamics and extend the patient population eligible for MRI with Compressed Sensing GRASP-VIBE
- Enable cardiac examinations under free breathing, capturing the full cardiac MR picture even for severely ill patients
- Perform whole-body MRI exams reliably and predictably – in just 25 minutes<sup>6</sup>



**The world's first  
BioMatrix 3T system**





## Embrace full 3T performance

3T MRI is synonymous with high-performance clinical MRI, as well as for research. With 3T MRI, the expectation is to push and redefine the limits of what is possible in diagnostic imaging. It will set you apart by serving your specific clinical needs and help distinguish your institute as a center of clinical excellence. MAGNETOM Vida exceeds the level of performance for which 3T MRI was designed with unparalleled magnet and gradient power to support the clinical, operational, and financial requirements MRI is facing today.

# Embrace full 3T performance with unparalleled magnet and gradient power

## An exceptional 3T magnet design

The foundation of MAGNETOM Vida is an all-new, exceptional 3T magnet that incorporates aspects of Siemens Healthineers' ultra-high-field research scanners. MAGNETOM Vida delivers not only a large Field-of-View, but also excellent homogeneity throughout the entire measurement volume. The result: robust and reliable fat saturation throughout the entire imaging volume, especially important in abdominal or off-center applications. Large Field-of-View applications and long-bone imaging will profit from this as well.

## A new level of gradient power

MAGNETOM Vida distinguishes itself with a gradient strength of up to 60/200 simultaneously, powered by the strongest gradient amplifiers with up to 2.7 MW per axis – offering the power previously only available on 3T research scanners, now in a patient-friendly 70 cm scanner. Clinical as well as research MRI applications such as diffusion-weighted imaging benefit greatly from powerful gradients through the increased SNR – up to 25% more than with conventional gradient systems – as well as increased scan efficiency<sup>5</sup>.

## Ensure long-term frequency stability with Frequalizers

Demanding applications can induce temperature changes, leading to center frequency shifts and decreased image quality. To avoid this, an array of temperature sensors ensures stability throughout the entire measurement. The benefit: The scanner always stays on resonance. This ensures higher consistency and reproducibility of results, especially when it comes to follow-up examinations.





*“MAGNETOM Vida brings the performance of a true research system – large FoV and very strong gradients and combines it with a 70 cm bore which is, of course, more comfortable for patients.”*

Professor Mike Notohamiprodjo, M.D.  
University Hospital Tübingen, Germany

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**55 x 55 x 50 cm<sup>3</sup> Field-of-View**

for higher scan efficiency in  
abdominal and extremity imaging

**70 cm Open Bore**

for greater patient comfort

**Powerful 60/200 gradients  
with 2.7 MW**

for increased SNR and scan efficiency

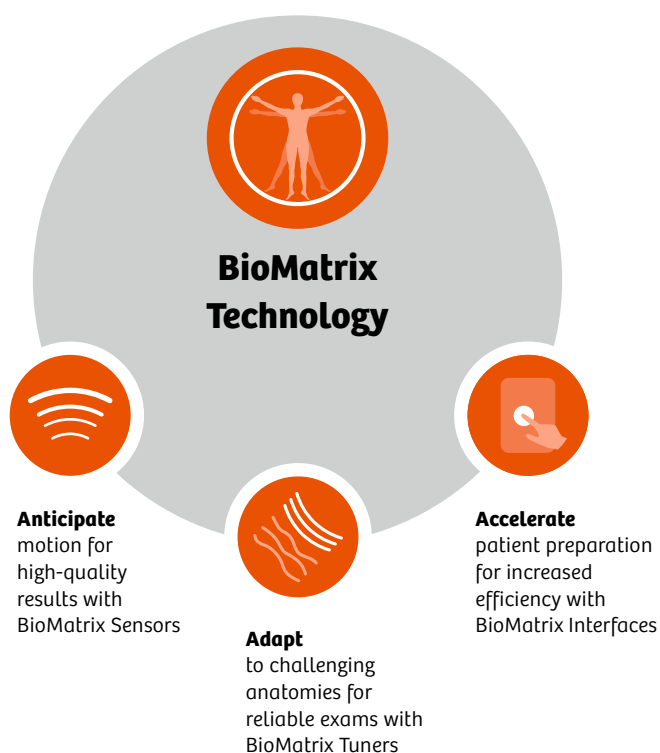
**Frequenzizers**

ensure long-term frequency stability  
in demanding applications

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BioMatrix: a paradigm shift in MRI to sense patient respiration prior to scanning, to adjust to any patient's body, and to simplify and speed up challenging interactions.



### **A new technology, tapping 3T's full potential with ease**

BioMatrix Technology combines the power of Siemens Healthineers' unique Tim 4G architecture with the ability to embrace the individual nature of each patient, and overcomes the challenge of biovariability. Sense patient respiration prior to scanning, adjust to the patient's body, even for regions that are difficult to scan, and simplify patient handling independent of patient mobility and scan region. All performed automatically and integrated into our BioMatrix Sensors, BioMatrix Tuners, and BioMatrix Interfaces.



### **GPU-accelerated Inline Compressed Sensing**

Access patient groups previously excluded from MRI. MAGNETOM Vida redefines 3T performance with a new reconstruction architecture that brings Compressed Sensing applications into the clinical routine. High-quality images based on substantially undersampled data allow for much faster acquisitions, enabling free-breathing examinations in cardiac and abdominal MRI. A powerful reconstruction engine employing parallel GPU computing delivers five times faster<sup>7</sup> reconstructions of complex compressed sensing data sets, finally making it viable in the clinical routine.

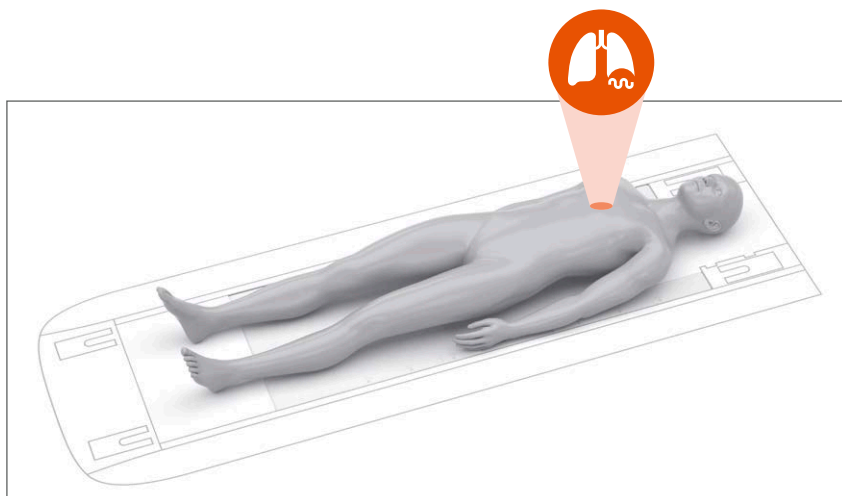
.....  
**Compressed Sensing for  
 free-breathing exams.**

**Parallel GPU computing  
 delivers 5 times faster and  
 fully inline reconstruction.**  
 .....

### **Optimizing Total Cost of Ownership**

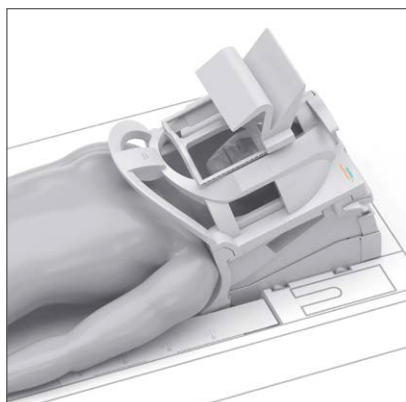
Effective energy management ensures that the exceptional performance of MAGNETOM Vida is provided in a resource-friendly manner. Intelligent power management solutions, such as magnet cold head EcoPower or disabling of power-consuming components during scan breaks, contribute to overall energy savings of up to 30% compared to the industry average (COCIR average of MRI vendors<sup>8</sup>). In addition, MAGNETOM Vida reduces costs even further – additional construction costs are avoided, since siting requirements are the same as for conventional 70 cm 3T systems.

**BioMatrix Coils:** a new generation of ultra-high-density coils that offer more accuracy, flexibility, and speed.

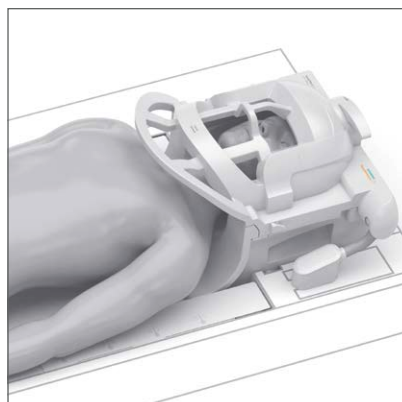


The BioMatrix Spine 24<sup>4</sup>, BioMatrix Spine 32 and BioMatrix Spine 72 utilize seamlessly integrated BioMatrix Sensors to acquire and display the patient's respiration data automatically. The workflow is simplified as respiratory triggered scans can be performed without additional user interaction.

BioMatrix Spine 72 / BioMatrix Spine 32 / BioMatrix Spine 24 with integrated respiratory sensors

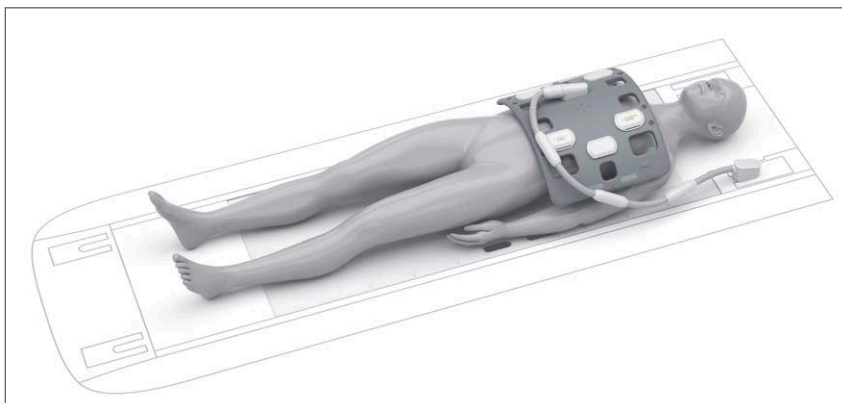


BioMatrix Head/Neck 20  
tiltable with CoilShim



BioMatrix Head/Neck 64  
with CoilShim

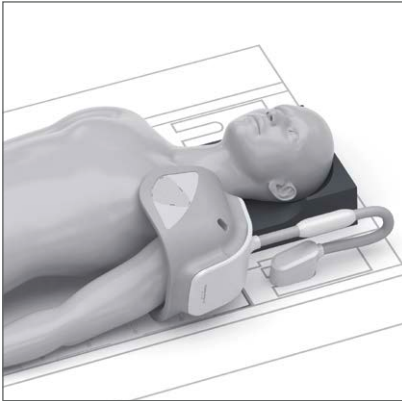
The integrated CoilShim technology in the BioMatrix Head/Neck 20 and BioMatrix Head/Neck 64 ensures that the challenging neck region is automatically and optimally shimmed for reproducible quality in every patient.



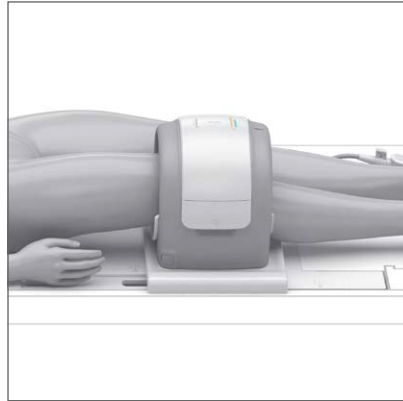
BioMatrix Body 12 with Beat Sensor

The new BioMatrix Body 12<sup>4</sup> provides a seamlessly integrated Beat Sensor<sup>2</sup>. It is designed for automatic cardiac triggering – without the need for ECG leads.

## New ultra-high-element-density coils with patient adaptive design.

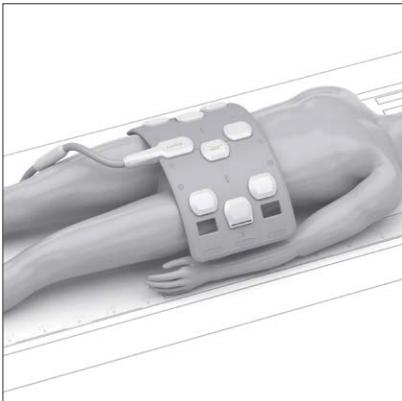


Shoulder Shape 16

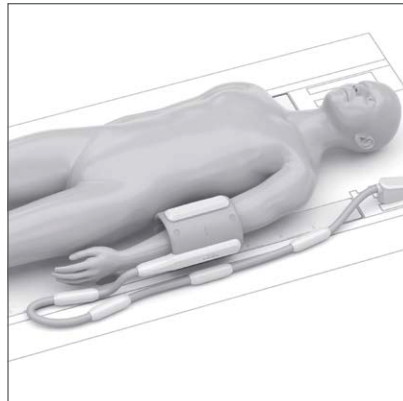


Tx/Rx Knee 18

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.

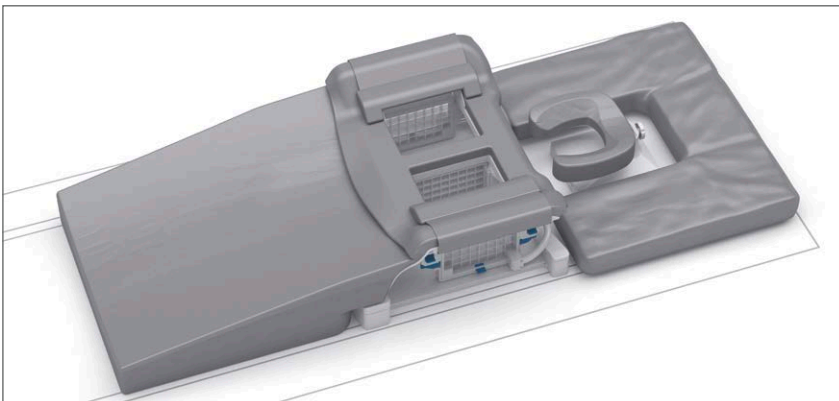


UltraFlex Large 18



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 can be accelerated by up to 54%.<sup>5</sup>



Breast BI 7

Uncompromised image quality – even during a biopsy: the new breast coil design of the Breast BI 7 allows all coil elements to be included in the exam. The new Breast BI 7 provides better and a more homogeneous distribution of SNR than conventional 8-channel breast coils. To aid the biopsy procedure, user-friendly features like LED lighting make the coil easy to use.

A new work environment. Two monitors enable a comprehensive overview of the scanning environment, fewer context changes between planning, scanning, and postprocessing. Clever interactions and automation steps make the job easier.







### Patient registration and scanning

The left monitor: scanning, planning, and protocol management.



### MR View&GO: quality check, reconstructions, and result distribution

The right monitor: new for viewing, quality control, result distribution, and – if desired – the ability to perform advanced postprocessing directly at the scanner.

## A new user environment:

With its full 3T performance, MAGNETOM Vida offers a new workspace for technicians. Evolving from the proven *syngo* MR E11 software line, the new *syngo* MR XA platform offers an optional dual-monitor scanning workplace with larger monitors and a reorganized user interface for a more comfortable scanning and viewing experience.

This dual-monitor setup with separate scan and viewing monitors provides a more natural layout, offering the technician a complete overview of the examination and results. The new user interface reduces constant context switches and user distraction, enabling true multitasking for increased quality and productivity.



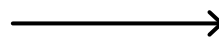


## Embrace true 3T productivity

For routine MR examinations, such as neuro or orthopedic exams, the most challenging developments for customers are reimbursement pressure and a substantial increase in patient referrals due to changing demographics. This forces imaging providers to shorten exam slot assignments, increasing the risk that any unpredictable event may lead to scheduling delays as well as personnel and patient frustration.

MAGNETOM Vida with the new GO technologies, embraces true 3T productivity and makes push-button examinations a clinical reality, by addressing the complete workflow, from patient positioning to result distribution.

# Embrace true 3T productivity with GO technologies

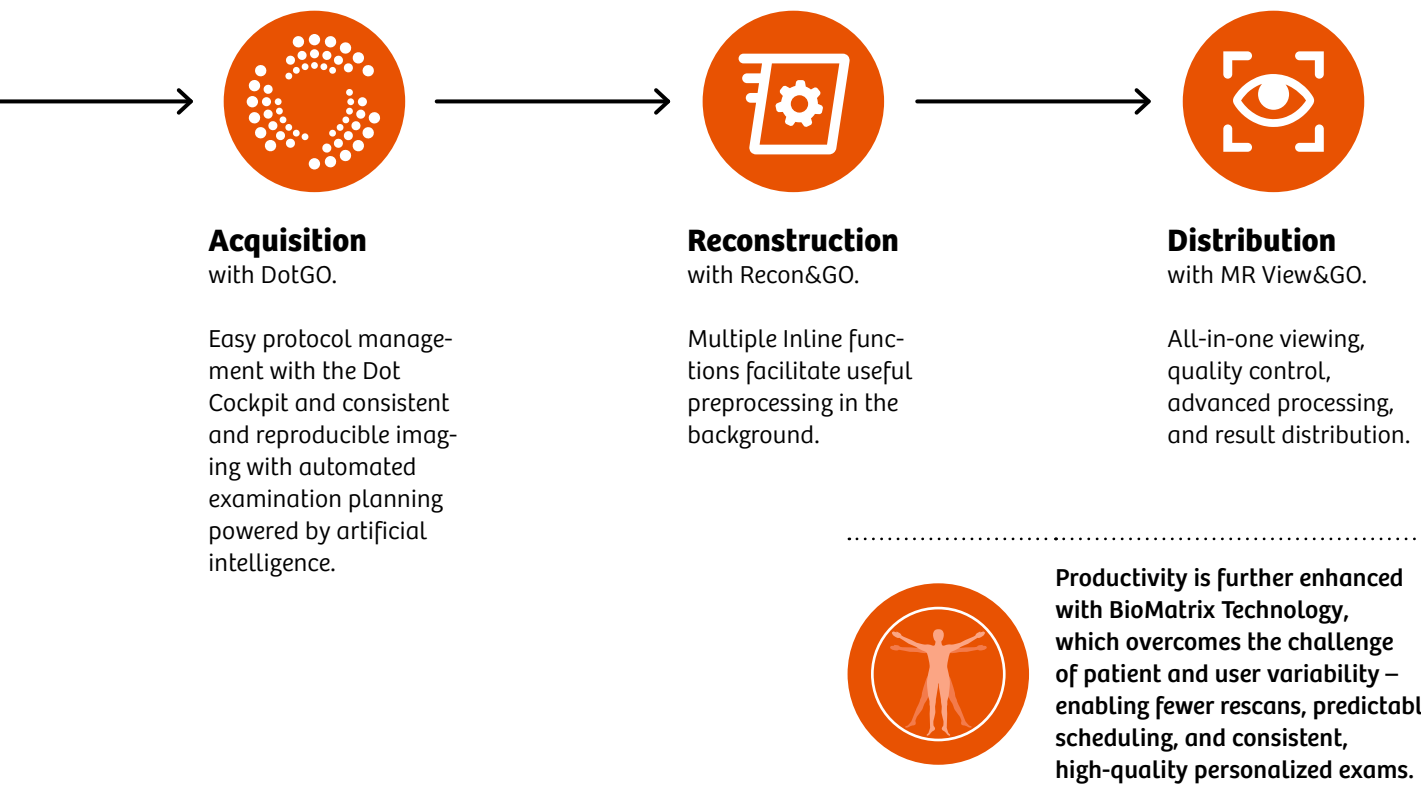


## **Preparation** with Select&GO.

Touch panels with the  
intelligent BioMatrix  
BodyModel.

GO technologies accelerate workflow beyond scan time reduction, enabling higher throughput and robustness in clinical routine.

GO technologies consist of four main components, each contributing to a specific aspect of workflow optimization:



This multistep approach makes routine imaging simple and fluid, even for challenging patient conditions. GO technologies powered by Artificial Intelligence and BioMatrix enable routine push-button, high-quality imaging, while reducing total workflow time.

Spine examinations, for example, can pose a challenge as a result of varying anatomies, such as scoliosis and kyphosis. This can often cause delays and lead to diminished image quality.

**See how GO technologies help to accelerate the workflow and drive consistency and robustness in spine examinations.**



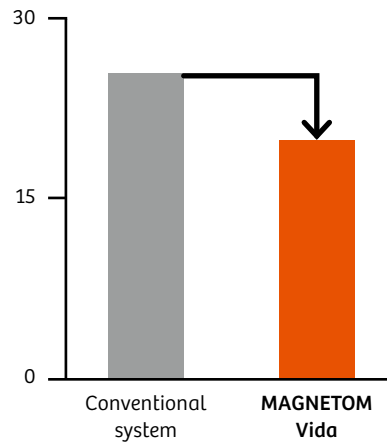
### **Preparation with Select&GO:**

BioMatrix Select&GO enables exam positioning with one touch on the display – by anyone, on any patient. The intelligent body model will correctly center the region to be examined, allowing support staff to set up the patient while the technician prepares the scan.



### **Acquisition with DotGO:**

An intuitive Dot workflow with automatic placement of the imaging slices, e.g. using AI-powered AutoAlign Spine, turns whole-spine imaging into a push-button exam. User guidance and scan assistance save time. New technologies such as CoilTilt and CoilShim reduce the need for rescans in the critical head/neck region.

Total workflow for whole-spine exam  
(in minutes)

**20% faster  
spine exams<sup>5</sup>**



### Reconstruction with 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 with Inline Spine Labeling, multi-station exams are composed, and Inline MPRs can be calculated without user interaction.



### Distribution with MR View&GO:

Dual screens allow the user to control scans on the left monitor while checking the results on the right monitor in real time. Steps such as generating computed high b-value images or 3D reconstructions of the plexus can be easily performed directly at the scanner.

# Simultaneous Multi-Slice TSE<sup>4</sup>

Accelerate anatomical imaging.



Simultaneous Multi-Slice speeds up imaging significantly – through the simultaneous excitation and readout of multiple slices. Now we expand its footprint introducing it for TSE.

Significantly accelerate anatomical imaging and make complete MSK exams almost twice as fast.

Combined with Simultaneous Multi-Slice for DWI, achieve significant time savings from head to toe.

**Up to 50%  
scan time  
reduction for  
complete  
MSK exams<sup>5</sup>**



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**Without SMS, TA 3:10 min**

PD TSE FS, 0.3 x 0.3 x 3 mm  
PAT 2



**SMS 2, TA 1:35 min**

PD TSE FS, 0.3 x 0.3 x 3 mm  
PAT 2

3a00a0549



**Without SMS, TA 1:50 min**

T2 TSE, 0.4 x 0.3 x 3 mm  
PAT 2



**SMS 3, TA 0:45 min**

T2 TSE, 0.4 x 0.3 x 3 mm  
PAT 2





## Embrace new 3T clinical capabilities

MAGNETOM Vida will help institutions gain access to patients previously excluded from MRI because of their medical condition or the exam's prohibitively complicated nature.

Advanced MR imaging techniques like cardiac MRI or whole-body MRI provide key information for earlier treatment decisions and serve as early prognostic markers. To make them a reliable clinical reality, technical, user-, and patient-dependent challenges have to be met. With its patient-focused technologies and Inline Compressed Sensing applications, MAGNETOM Vida turns challenges into opportunities.

## Embrace new 3T clinical capabilities with Inline Compressed Sensing

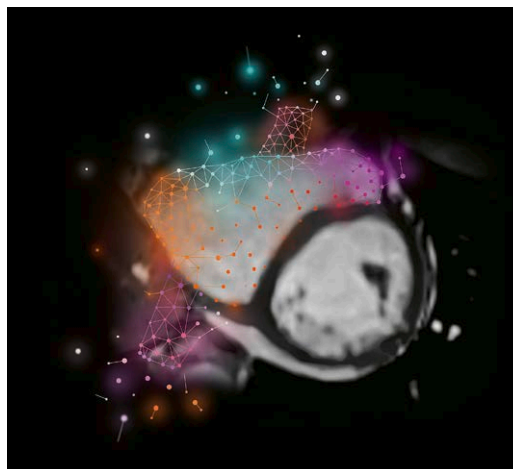
Expand the MR patient population eligible for MRI with free-breathing exams to care for patients previously excluded from MRI. Compressed Sensing can eliminate barriers by accelerating imaging, typically by a factor of 10, and can help enable abdominal and cardiac MRI for challenging patients. Dynamic liver perfusion can now be performed under free breathing, making MRI accessible to patients who are unable to hold their breath. Cardiac function evaluation can now be offered to all patients, even those with arrhythmia, providing valuable prognostic information. Inline reconstruction enabled by a powerful GPU reconstruction architecture provides immediate access to the results, freeing the scanner for further use.



### Compressed Sensing GRASP-VIBE

Dynamic contrast-enhanced imaging is a key test to characterize abdominal lesions, but can be challenging for many patients because it requires them to hold their breath several times over a short period. For patients who cannot do this, the result is often a nondiagnostic image.

Compressed Sensing GRASP-VIBE enables push-button, free-breathing examinations of liver dynamics with an extremely simplified workflow. An intelligent framework automatically recognizes the relevant phases of liver dynamics and only the clinically relevant phases are reconstructed with automatic labeling (e.g. arterial phase). Reliable dynamic contrast-enhanced imaging can now be performed for patients previously excluded from MRI.



### Compressed Sensing Cardiac Cine

MR cardiac function imaging is the gold standard for the diagnosis and prognosis in a variety of cardiac diseases, but it is time-consuming and requires a challenging number of breath-holds. Image quality for patients with arrhythmia is particularly impaired.

Compressed Sensing Cardiac Cine provides image quality and resolution equal to conventional CINE imaging in free breathing instead of 7–14 breath-holds. In combination with additional leading applications for cardiac imaging, this enables free-breathing cardiac MRI exams in high quality.

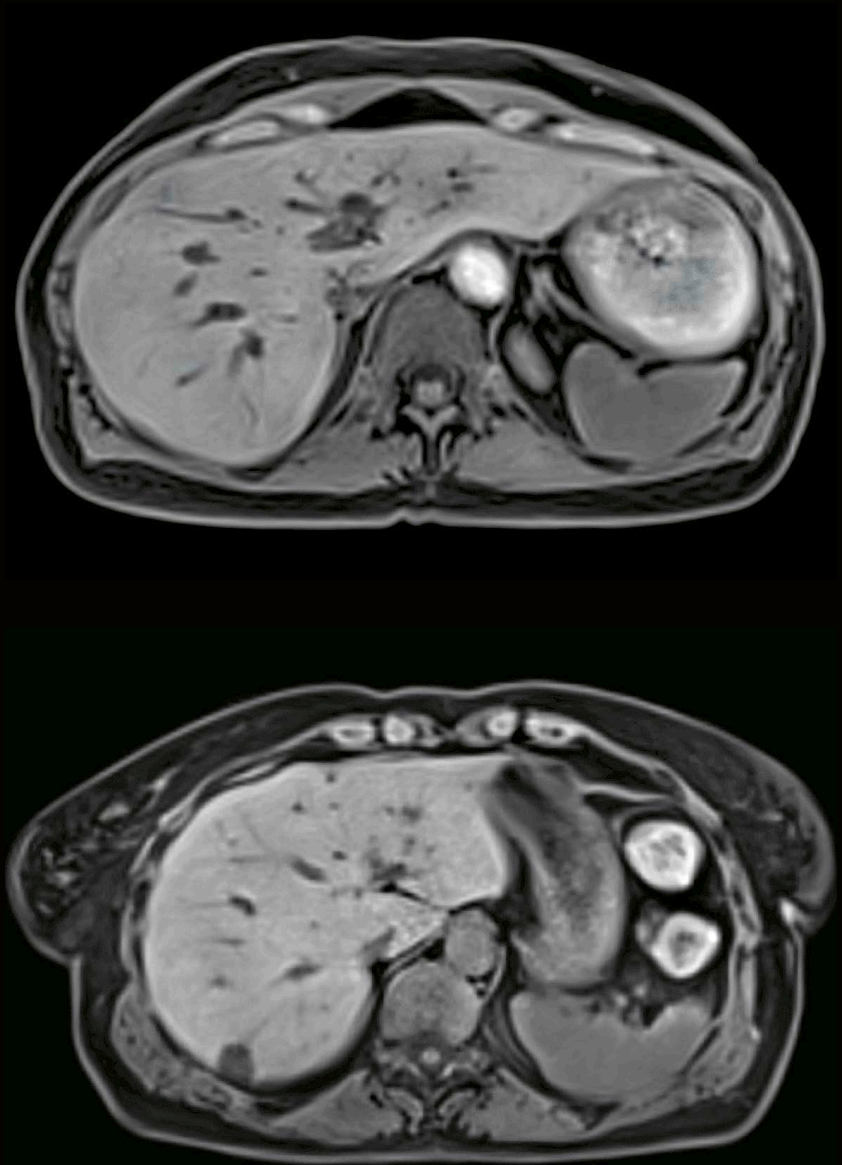
**Beyond  
speed.**

Dynamic liver perfusion can now be performed under free breathing – making MRI accessible to critical patients with limited or no breath-hold capability, dementia, or hearing impairment.

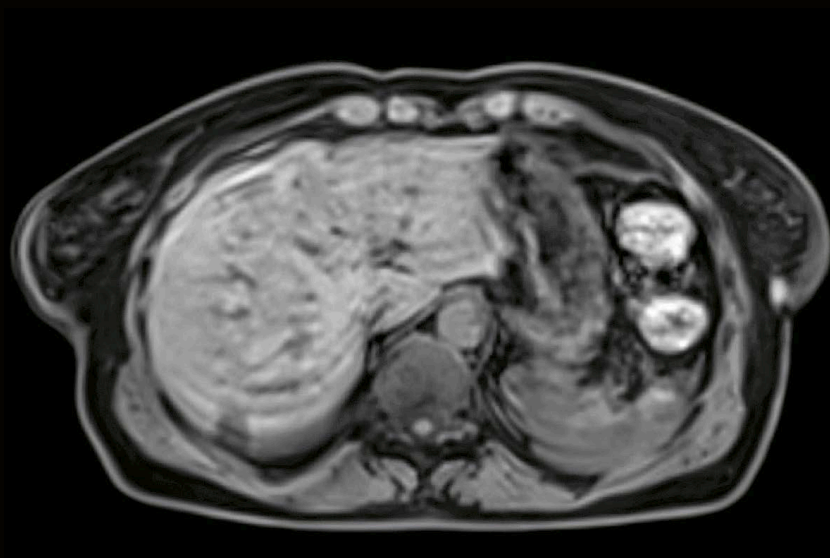
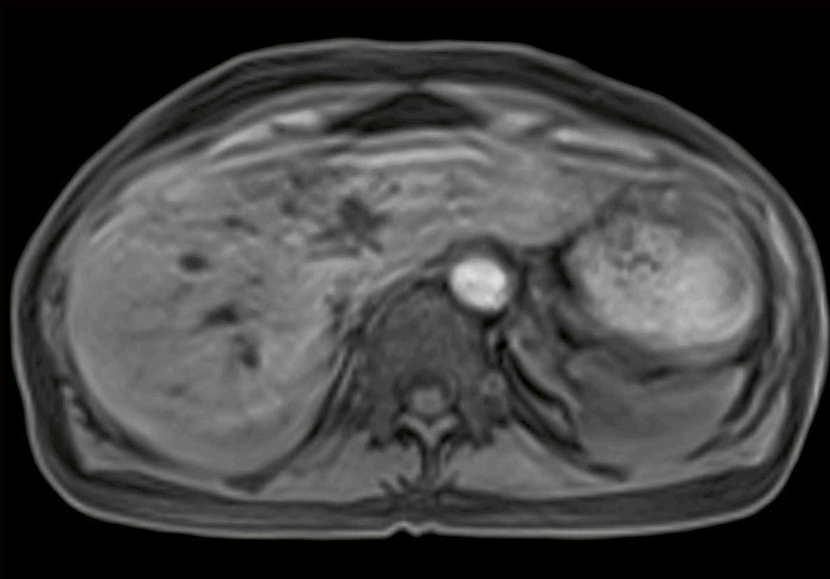
**Compressed Sensing GRASP-VIBE**

- Push-button, free-breathing liver dynamics
- Removes timing challenges in dynamic imaging and respiratory artifacts
- Outperforms Cartesian VIBE acquisition under free breathing
- Ultra-high temporal resolution enables pharmacokinetic modeling of the data

Compressed Sensing GRASP-VIBE, free breathing



Conventional VIBE, free breathing



**Enable free-breathing Cardiac MRI with our two new Cardiac applications – Compressed Sensing Cardiac Cine and PSIR HeartFreeze – and expand the patient population eligible for Cardiac MRI.**

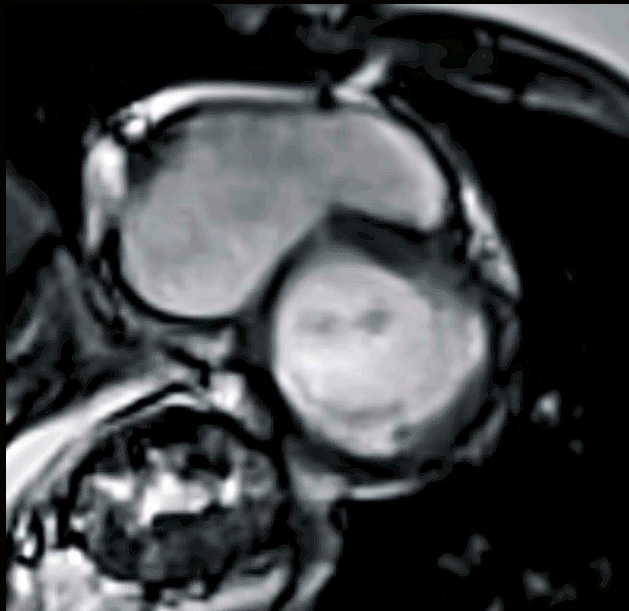
#### **Compressed Sensing Cardiac Cine**

Cardiac function evaluation can now be offered to all patients – even those with arrhythmia.

- Acquire free-breathing, high-resolution Cardiac Cine images
- Capture the whole cardiac cycle for precise quantification
- Expand patient population eligible for Cardiac MRI

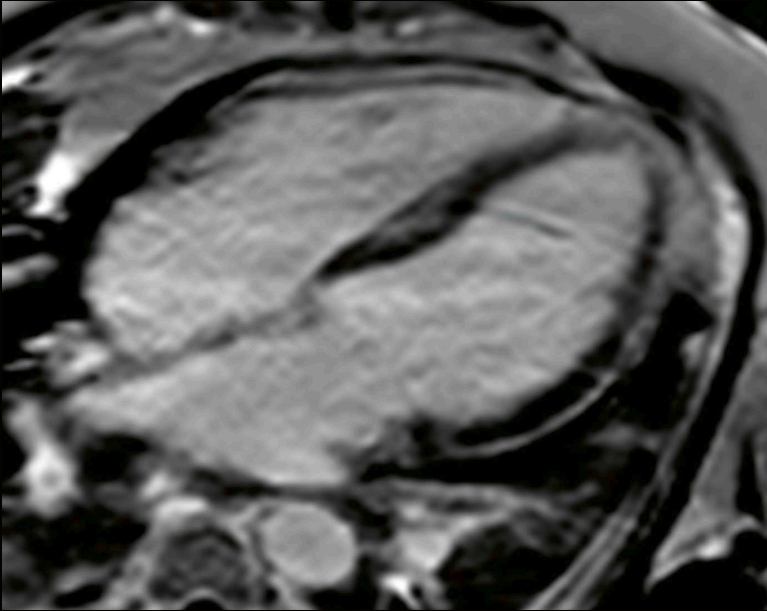


Conventional Cardiac Cine  
multiple breath-holds  
TA 2:39 min



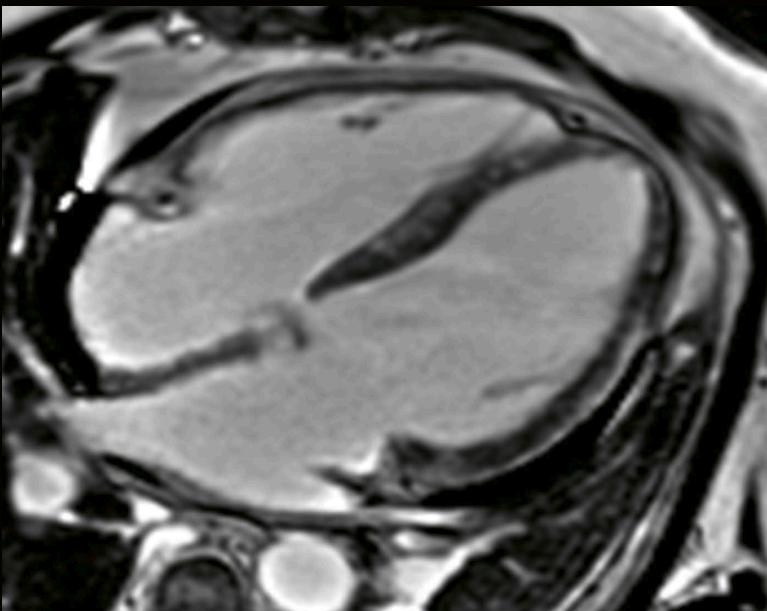
Compressed Sensing Cardiac Cine  
free-breathing  
TA 35 sec





Conventional LGE imaging  
breath-hold  
susceptible to irregular heart rate

Peking Union Medical College Hospital, Beijing, China



PSIR HeartFreeze  
free-breathing  
motion-corrected LGE

### PSIR HeartFreeze

Motion-robust, Late Gadolinium Enhancement imaging is now feasible in free breathing. With motion-corrected PSIR HeartFreeze.

*"MAGNETOM Vida with Compressed Sensing Cardiac Cine and PSIR HeartFreeze enables us to scan patients without breathing commands. We have compared the free-breathing technology to a conventional breath-hold approach and beyond time advantage, patients are more compliant and no diagnostic information is lost."*

Associate Professor Wolfgang Wüst, M.D.  
University Hospital Erlangen, Germany

Whole-body MRI has been recently proven to have great potential in supporting the treatment of oncology patients. However, it is traditionally seen as complex and difficult to perform, since it covers multiple stages and requires a high skill level to be performed consistently and efficiently.

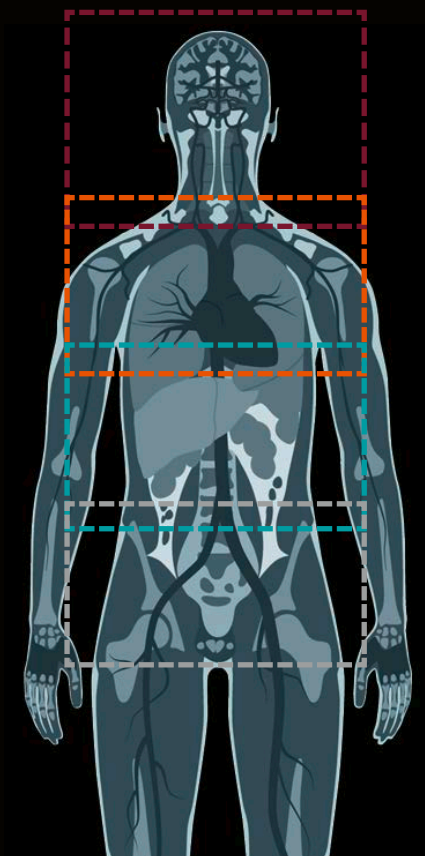
**Whole-body imaging:** Treatment and therapy guidelines are evolving just as fast as imaging technology. MRI has recently appeared in numerous guidelines around the world as the imaging modality of choice for a number of clinical questions.


MAGNETOM Vida with BioMatrix Technology will open up possibilities to serve new patient populations, enabling customers to efficiently perform reproducible follow-up exams for response assessment according to MET-RADS-P in patients with metastatic disease.

The new **Whole-Body Dot Engine** ensures highly reproducible exams and reduces planning and execution of complex whole-body studies to a few clicks in minimal and predictable time slots. Simply select which regions need to be measured and then configure a few patient-specific settings. AutoCoverage and AutoPositioning as part of the guided workflow ensure that all stages are consistent and overlap properly. Images are automatically composed once all data has been acquired.

**Diffusion-weighted imaging (DWI)** is a key component to whole-body imaging; however, it can be time-consuming and prone to anatomy-related artifacts. BioMatrix Tuners utilizing **SliceAdjust** for DWI make it possible to adapt shim parameters for individual slices rather than a global volume. The result: high-quality and reproducible diffusion imaging with excellent SNR, empowered by the strongest gradients in its class.

After acquiring the whole-body data, the **extended postprocessing capabilities** of MR View&GO makes it possible to prepare complex oncology cases directly at the scanner and send them to PACS ready to read. With the inline launch capability of the MR Oncology engine on *syngo* MR XA platform, prior examinations can be prefetched and registered with the newly acquired data. ROIs can be easily propagated to the new data sets, providing quantitative information about the treatment response.



General Parameters		Breath-Hold Parameters													
Exam Strategy	Standard	Breath-Hold Capability	20 s												
Focus Adaption	BH + AutoCoverag	Auto Breath-Hold Commands	German (German) ...												
Auto Bolus Detection	✓	Pause Between Breath-Holds	10 s												
Auto ROI	✓	<b>Coverage</b>  <table border="1"> <thead> <tr> <th>Body Part</th> <th>Setting</th> </tr> </thead> <tbody> <tr> <td>Head</td> <td></td> </tr> <tr> <td>Chest</td> <td>Focus</td> </tr> <tr> <td>Abdomen</td> <td>Focus</td> </tr> <tr> <td>Pelvis</td> <td>Focus</td> </tr> <tr> <td>Legs</td> <td>FastView</td> </tr> </tbody> </table>		Body Part	Setting	Head		Chest	Focus	Abdomen	Focus	Pelvis	Focus	Legs	FastView
Body Part	Setting														
Head															
Chest	Focus														
Abdomen	Focus														
Pelvis	Focus														
Legs	FastView														

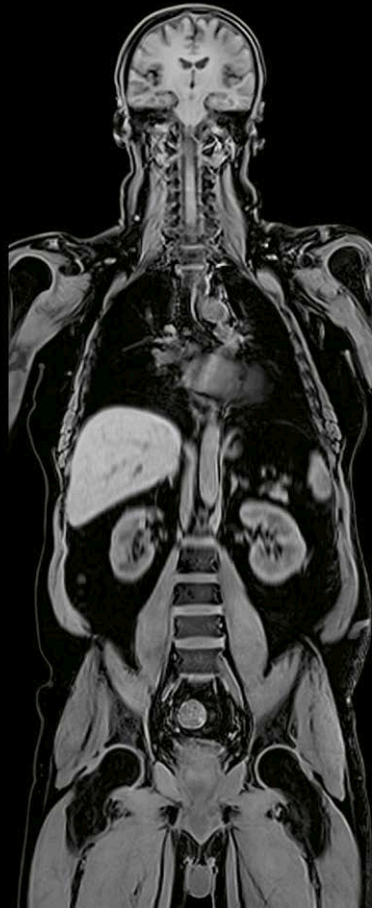
**Whole-Body Dot Engine:**  
intuitive and guided workflow

## Whole-body MRI from head to pelvis in 25 minutes<sup>6</sup>

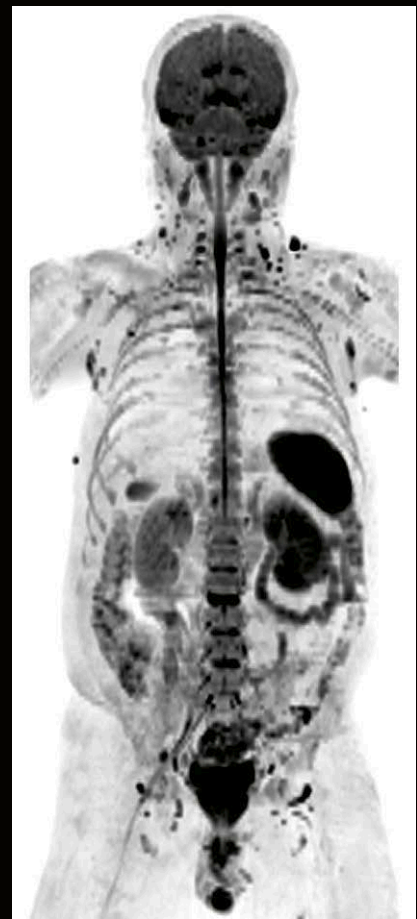
The new Whole-Body Dot Engine reduces the planning and execution of complex whole-body exams to a few clicks by simply selecting which regions need to be scanned, whether a focus region should be investigated, and setting a few patient-specific settings, e.g. breath-hold capability.



High-resolution T2w STIR images



T1w VIBE images with excellent fat suppression



Distortion free whole-body DWI with SliceAdjust



Extended preprocessing capabilities enable further time savings. OncoCare, for example, allows treatment response over time with ADC histograms.



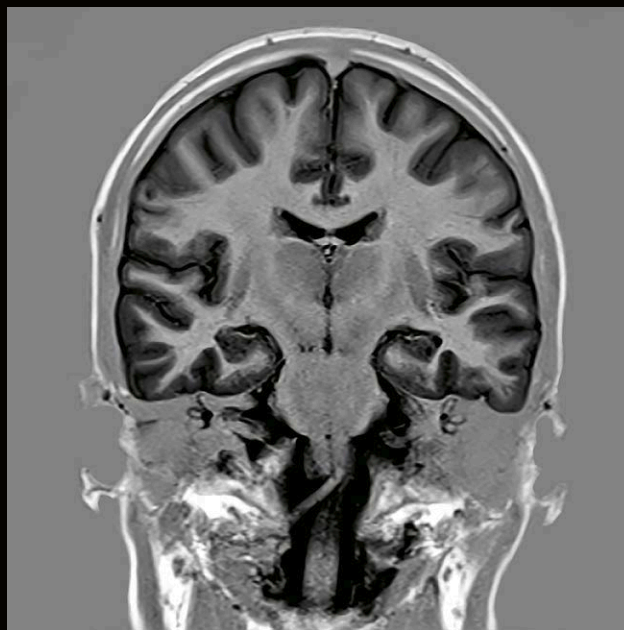
## Neurology

Ultra-fast, high SNR head and neck imaging with the tiltable BioMatrix Head/Neck 20 and the BioMatrix Head/Neck 64



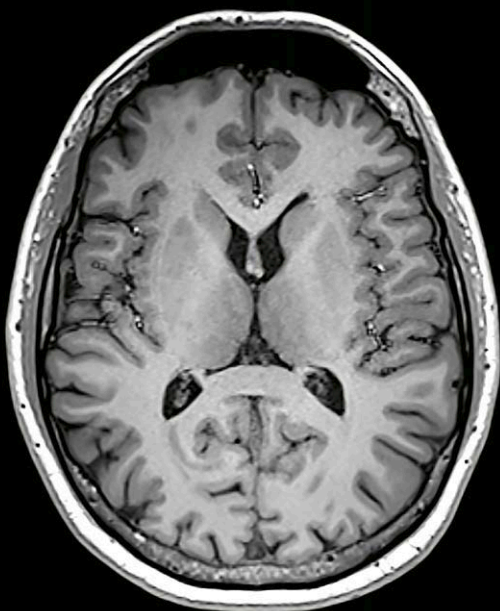
300000088

T2 TSE, TA 3:49 min  
BioMatrix Head/Neck 20

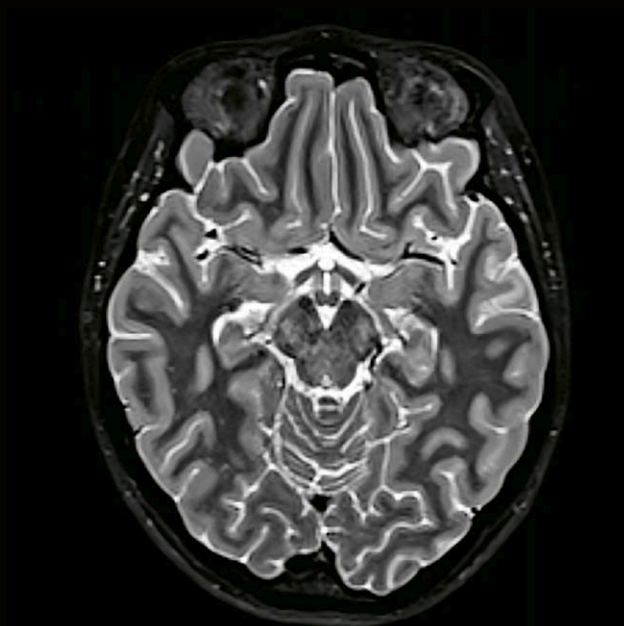


30000165

T1 TSE Inversion Recovery, TA 2:47 min  
BioMatrix Head/Neck 20



T1 MPAGE, TA 3:51 min  
BioMatrix Head/Neck 64

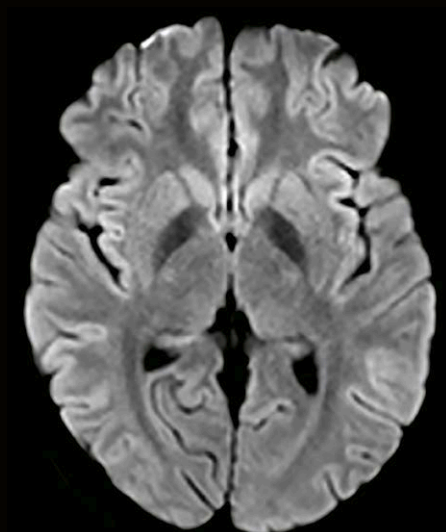


300000088

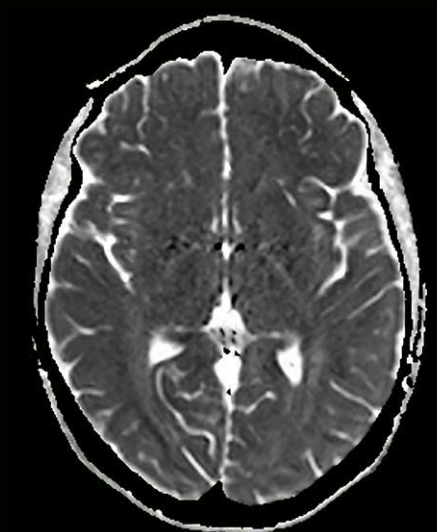
T2 SPACE STIR, TA 3:31 min  
Ultra-thin 0.86 mm slices achievable with  
BioMatrix Head/Neck 64



300000165



**RESOLVE**  
4scan trace  
BioMatrix Head/Neck 20



ADC map

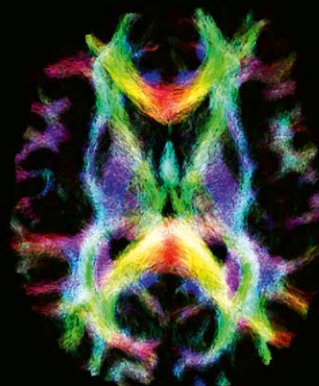
## RESOLVE

Outstanding diagnostic performance with sharp, high-resolution DWI and DTI of the brain and spine – standard with MAGNETOM Vida.

300000041

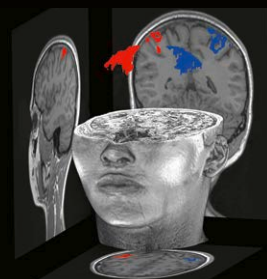


DTI fibertracking 64 directions, postprocessed with Neuro 3D



DTI fibertracking,  
256 directions,  
postprocessed with  
syngo.via Frontier TDI  
prototype<sup>6</sup>

300000292



BOLD imaging, post-  
processed with Neuro 3D

300000262

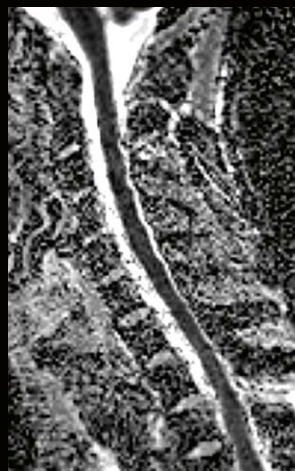
## Head/Neck and Spine imaging

Achieve high quality head/neck and spine imaging for all patients and conditions.

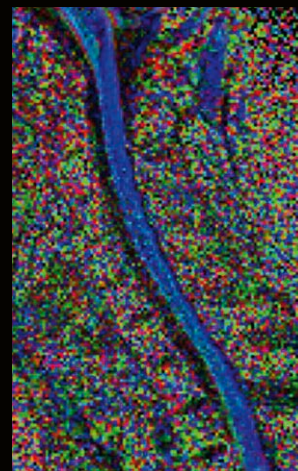
In the new BioMatrix Head/Neck coils, CoilShim technology helps prevent repeat scans due to significantly improved fat saturation and better DWI quality.



RESOLVE with CoilShim  
18° coil tilt, DTI 6 directions  
BioMatrix Head/Neck 20,  
BioMatrix Spine 32



ADC map



Color Fractional  
anisotropy map

VL\_011

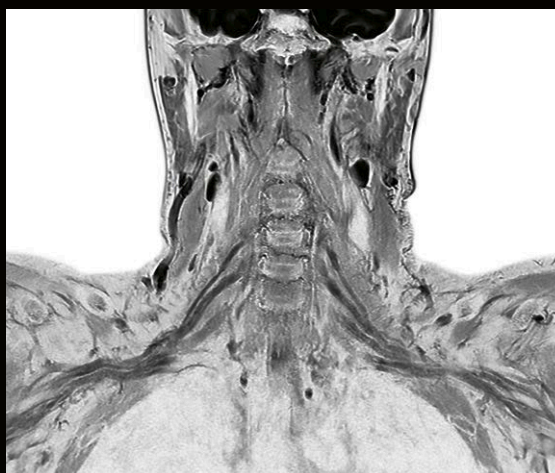
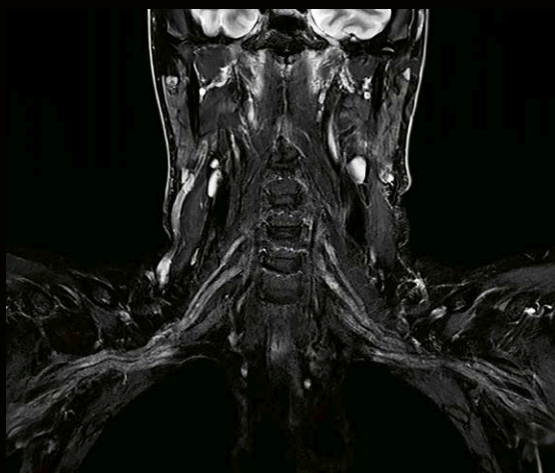
MR Angiography of the carotids  
1.2 x 1.0 x 1.0 mm<sup>3</sup>  
TA 17 sec  
BioMatrix Head/Neck 20,  
BioMatrix Spine 32

*Radiologie München Harlaching,  
Munich, Germany*



300000156

300000039



Imaging of the brachial plexus with 3D T2 SPACE  
 1.0 x 1.0 x 1.0 mm<sup>3</sup>  
 TA 3:57 min  
 BioMatrix Head/Neck 64

Whole spine T2  
 3 stations  
 TA 6:11 min  
 BioMatrix Spine 32,  
 BioMatrix Head/Neck 64

*Benson Radiology  
 City West practice,  
 Adelaide, Australia*



Whole spine T1  
 3 stations  
 TA 6:08 min  
 BioMatrix Spine 32,  
 BioMatrix Head/Neck 64

*Benson Radiology  
 City West practice,  
 Adelaide, Australia*



300000180



## Orthopedics

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

The Shoulder Shape 16 is a new ultra-high element density coil with innovative, flexible patient adaptive design.

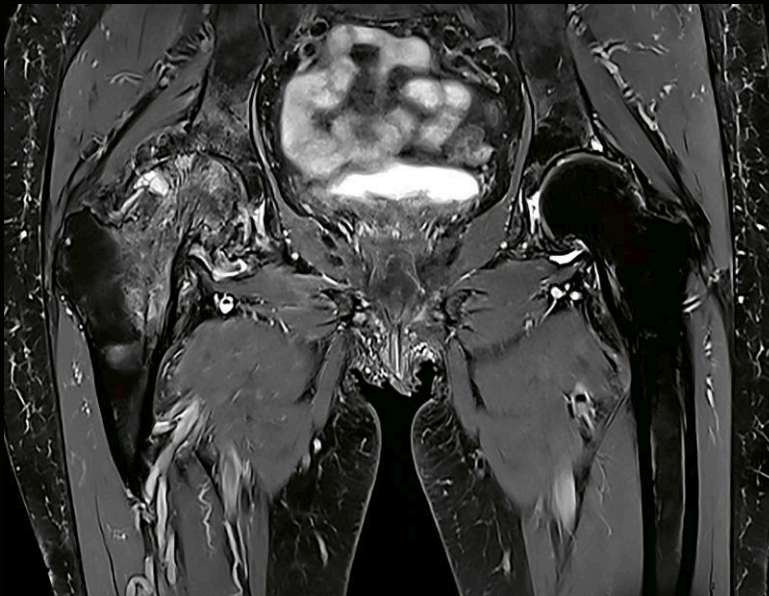


PD FatSat  
Shoulder Shape 16, TA 3:14 min



T1 TSE  
Shoulder Shape 16, TA 2:20 min

300000053



High-resolution hip imaging with ultra-high-density Body 30

*Radiologie München Harlaching, Munich, Germany*



300000147

The large FoV of MAGNETOM Vida enables long-bone exams in one step, with excellent fat saturation and image homogeneity.



PD TSE  
50 cm z-FoV  
TA 4:02 min  
Body 18, BioMatrix Spine 72



T1 TSE  
50 cm z-FoV  
TA 4:04 min  
Body 18, BioMatrix Spine 72

300000021

## Orthopedics

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

New UltraFlex coils for ultra-high-density orthopedic imaging with the flexibility to apply in various anatomical regions.

0.40 x 0.57 x 2.00 mm<sup>3</sup>  
TA 3:28 min  
UltraFlex Large 18

*Radiologie München Harlaching,  
Munich, Germany*



300000071

UltraFlex coils allow for high-resolution unilateral hip imaging at small Field-of-View.

0.35 x 0.48 x 3.0 mm<sup>3</sup>  
TA 3:37 min  
UltraFlex Large 18



VI\_012



The new Tx/Rx Knee 18 offers high-resolution knee imaging with a larger coil opening to accommodate a broader patient population.

*Benson Radiology  
City West practice,  
Adelaide, Australia*



PD TSE  
3.75 x 4.69 x 3.00 mm<sup>3</sup>  
TA: 2:48 min  
Tx/Rx Knee 18



PD TSE FatSat  
2.99 x 2.38 x 3.00 mm<sup>3</sup>  
TA: 2:22 min  
Tx/Rx Knee 18

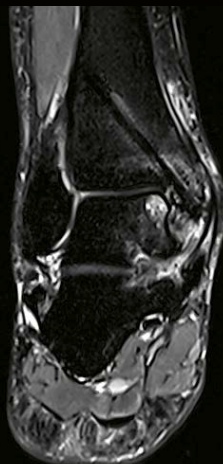
300000200

### Advanced WARP<sup>9</sup>

Artifact reduction techniques enable the correction of image distortions allowing for more accurate assessment of tissue surrounding orthopedic implants.

Advanced WARP comes standard with MAGNETOM Vida.

*Radiologie München Harlaching,  
Munich, Germany*



Advanced WARP  
View Angle Tilting



Advanced WARP  
SEMAC

← Orthopedic implant

300000159

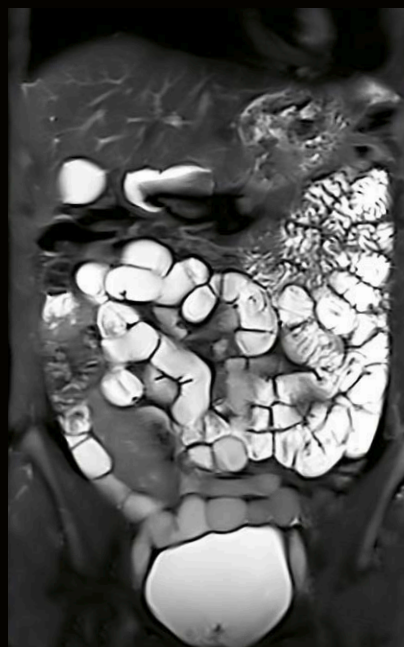
## Body imaging

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

Full abdominal coverage from liver dome down to the pelvis allow for comprehensive oncological scans in one station with excellent quality.



3D VIBE Dixon Water, 50 cm z-FOV  
Body 18, BioMatrix Spine 72



Large FoV and homogeneous fat saturation  
for SELLINK imaging

*Radiologie München Harlaching, Munich, Germany*

300000091

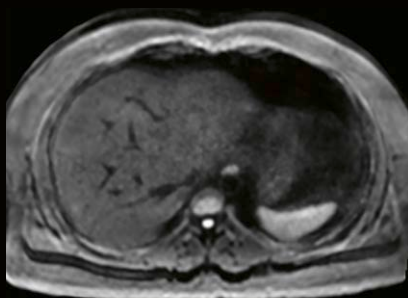
High-resolution MRCP  
using T2 SPACE with  
the Body 30

*Radiologie München  
Harlaching, Munich,  
Germany*

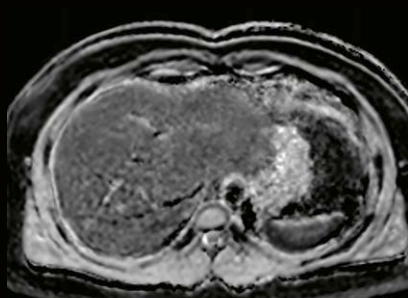


300000115

b 800



ADC map



### Simultaneous Multi-Slice significantly reduces acquisition time for abdominal diffusion

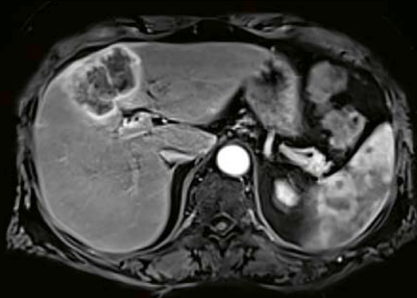
Diffusion accelerated with Simultaneous Multi-Slice

SMS 2  
TR: 2700 ms  
TE: 55 ms  
2.8 x 2.8 x 5.0 mm<sup>3</sup>  
TA: 2:08 min  
Body 18, BioMatrix Spine 72

Diffusion without Simultaneous Multi-Slice

TR: 6900 ms  
TE: 44 ms  
2.8 x 2.8 x 5.0 mm<sup>3</sup>  
TA 5:07 min  
Body 18, BioMatrix Spine 72

3a0000166



Early arterial phase



Late arterial phase

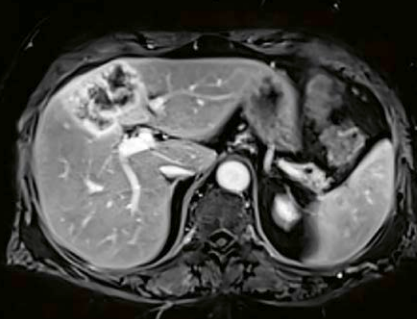
### Compressed Sensing GRASP-VIBE

High-resolution liver dynamics in free breathing permits expanding the patient population eligible for abdominal MRI.

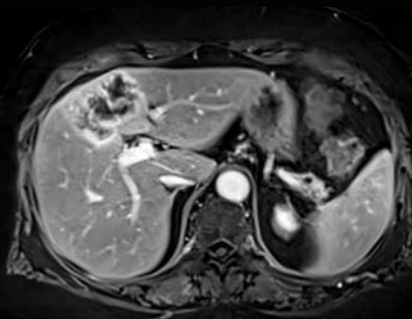
Patient case on the left demonstrates good quality and robustness even in an obese patient.

1.6 x 1.6 x 3.0 mm<sup>3</sup>  
8.4 sec/phase  
Body 18, BioMatrix Spine 32

Saarland University Medical Center,  
Homburg, Germany



Portal-venous phase



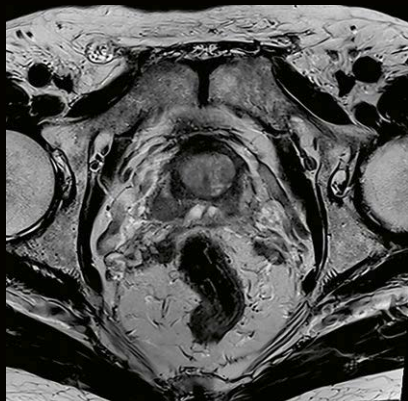
Delayed phase

3a0000078

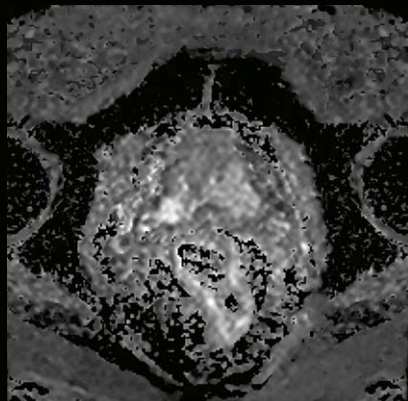


## Men's health

Comprehensive prostate exam according to PI-RADS v2 in less than 13 min acquisition time



T2 TSE  
Body 30, BioMatrix Spine 72



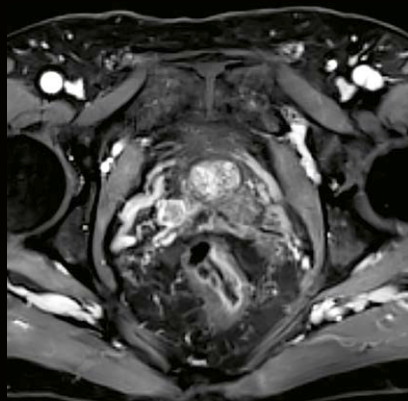
Diffusion calculated b1400



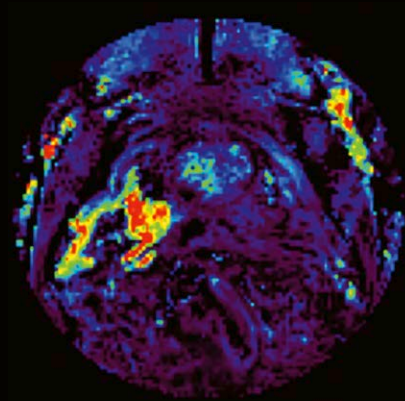
ADC map

### Compressed Sensing GRASP-VIBE

Ultra-high spatial and 2 second temporal resolution in prostate dynamics.



Compressed Sensing GRASP-VIBE

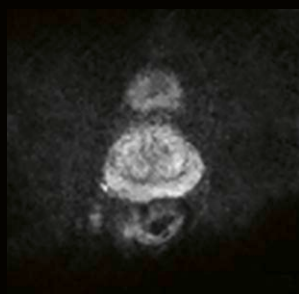


Perfusion evaluation with Tissue4D

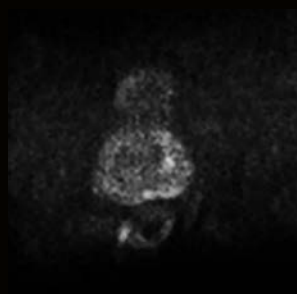
University Hospital  
Freiburg, Germany

### RESOLVE

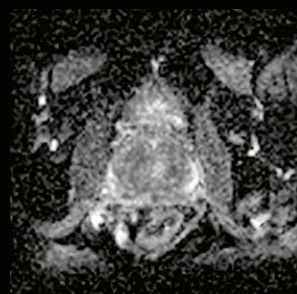
Experience outstanding diagnostic performance with sharp, high-resolution DWI in the prostate with reduced blurring and susceptibility artifacts.



RESOLVE b800  
Body 30, BioMatrix Spine 72



RESOLVE b1500



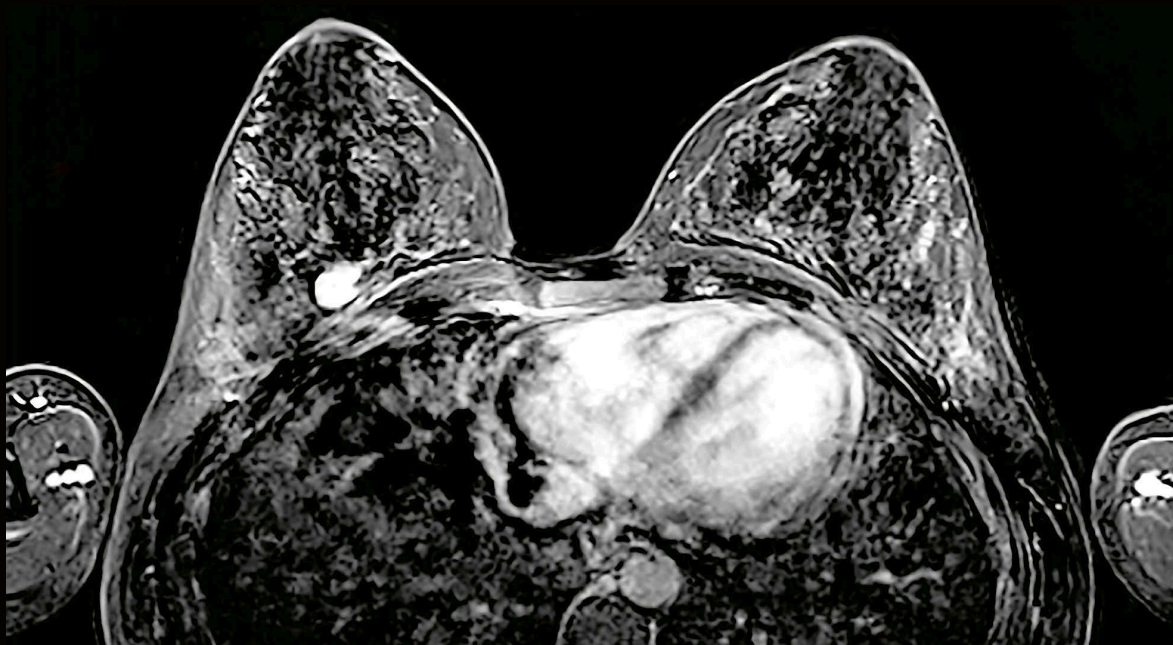
RESOLVE ADC map

300000179

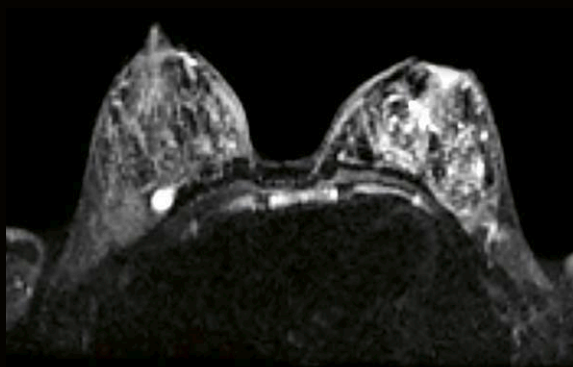
300000190

## Women's health

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



Dynamic T1 VIBE DIXON  
0.85 x 1.07 x 1.5 mm<sup>3</sup>  
TA 1:08 min  
Breast 18



RESOLVE b800  
Breast 18



RESOLVE ADC map

300000045



## Cardiology

Expand the patient population eligible for Cardiac MRI with trendsetting applications.

### Comparison of conventional and Compressed Sensing Cardiac Cine



Conventional Cardiac Cine  
multiple breath-holds, TA 2:39 min



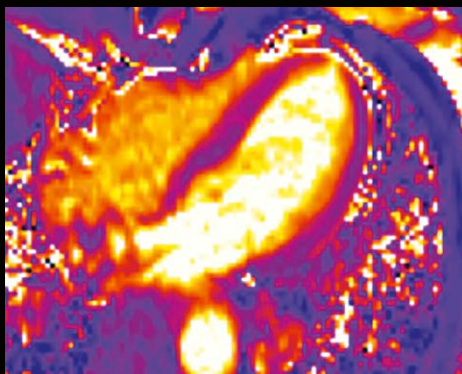
Compressed Sensing Cardiac Cine  
single breath-hold, TA 20 sec



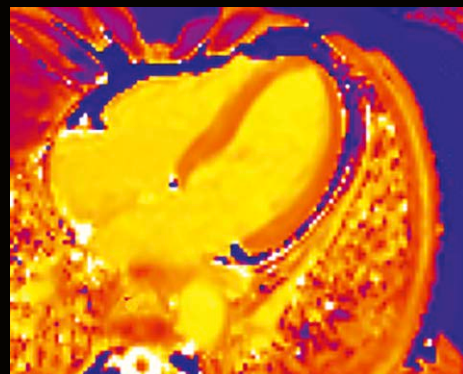
Compressed Sensing Cardiac Cine  
free-breathing, TA 35 sec

### 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.



MyoMaps T1 map



MyoMaps T2 map

300000063

### PSIR HeartFreeze

HeartFreeze motion correction technique allows imaging of late-gadolinium enhancement in free breathing.





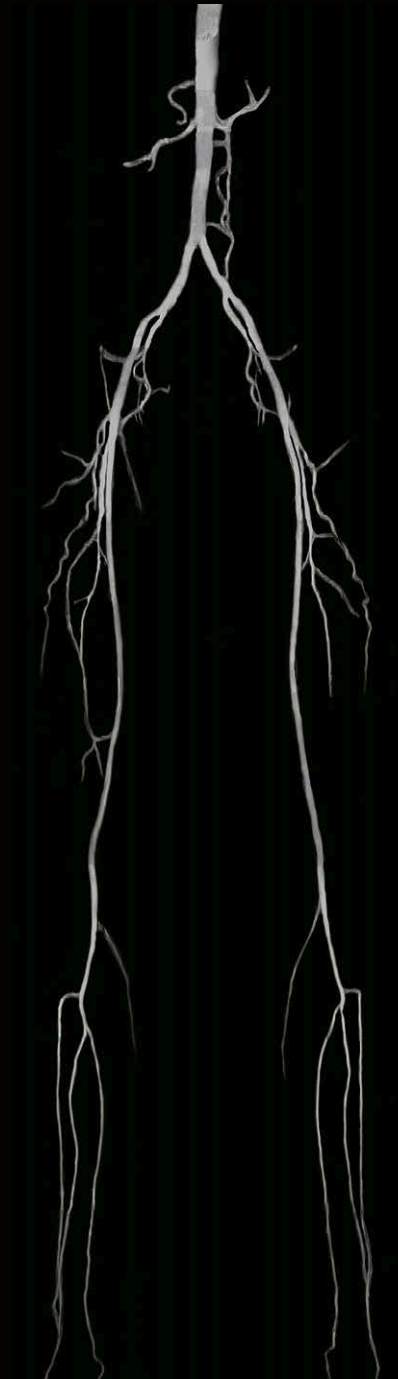
## Peripheral Angiography

High-resolution, non-contrast and contrast-enhanced angiographic techniques

Contrast-enhanced peripheral angiography in 3 steps



QISS: High-resolution peripheral angiography without contrast agent



University Hospital Erlangen, Germany

# Service and exchange

Increasing value by partnering throughout the entire equipment lifecycle



Continuously adding value and caring for your equipment, your staff,

## Equipment Maintenance & Monitoring

Reliably servicing your MRI system allows you to identify deviations from current norms to maximize equipment availability.

## Equipment Options & Upgrades

Clearly defined upgrade paths take your MRI system to the next level, extending the lifespan of your equipment.

## Education Management

Personalized education and training improves your staff's expertise as well as your equipment efficiency.

## Fleet Management

A transparent overview of your fleet allows you to manage the performance and maintenance of your Siemens Healthineers equipment, 24/7.



### **Performance Management**

An intelligible overview of your radiology and cardiology performance data helps you make prompt and well-informed decisions.

### **Asset Management & Planning**

Access to innovative medical technology and equipment throughout the entire contract life-time allows you to maximize focus on patient care.

### **Business Modelling & Financing**

Customized business and financial models address your budgetary and enterprise needs enabling you to remain more competitive.

### **Departmental Layout Optimization**

3D-Visualization and digital twin analysis create more efficient workflows and a more enjoyable working environment.

# Technical specifications

## MAGNETOM Vida Technical specifications

Field strength	3 Tesla
Bore size	70 cm Open Bore design
System length	186 cm cover to cover
System weight (in operation)	7.35 tons
Minimum room size <sup>11</sup>	31 m <sup>2</sup> /334 ft <sup>2</sup>
RF technology	
Maximum number of channels <sup>12</sup>	204, 228
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	32 <sup>4</sup> , 64, 128
Gradient strength	XQ gradients 45/200 simultaneously [2.03 MW]
	XT gradients 60/200 simultaneously [2.70 MW]
Helium consumption	Zero Helium boil-off technology





## Why Siemens Healthineers?

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<sup>13</sup>.

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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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 reserves the right to modify the design, packaging, specifications, and options described herein without prior notice. Please contact your local Siemens sales representative for the most current information.

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For accessories, please visit:  
[siemens.com/medical-accessories](http://siemens.com/medical-accessories)

1 *United Nations report by United Nations Department of Economic and Social Affairs, June 13, 2013, New York.*

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

4 *510(k) pending. Not available for sale in the U.S.*

5 *Data on file.*

6 *Values for a 196 cm person.*

7 *Compared to reconstructions with CPU alone.*

8 *Based on COCIR SRI Status Report 2015, data on file.*

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 risks. However, certain implants are approved by the governing regulatory bodies to be MR conditionally safe. For such implants, the previously mentioned warning may not be applicable. Please contact the implant manufacturer for the specific conditional information. The conditions for MR safety are the responsibility of the implant manufacturer, not of Siemens.*

10 *This website provided by Siemens AG may be used solely in accordance with the general terms and conditions of use, available prior to registration / login on the website itself.*

11 *Minimum total space requirement for magnet, electronics, and console room.*

12 *Channels (coil elements) that can be connected simultaneously.*

13 *Siemens AG, "Sustainable healthcare strategy – Indicators in fiscal 2014", pages 3-4.*

.....  
**Siemens Healthineers Headquarters**

Siemens Healthcare GmbH  
Henkestr. 127  
91052 Erlangen, Germany  
Phone: +49 913184-0  
[siemens-healthineers.com](http://siemens-healthineers.com)