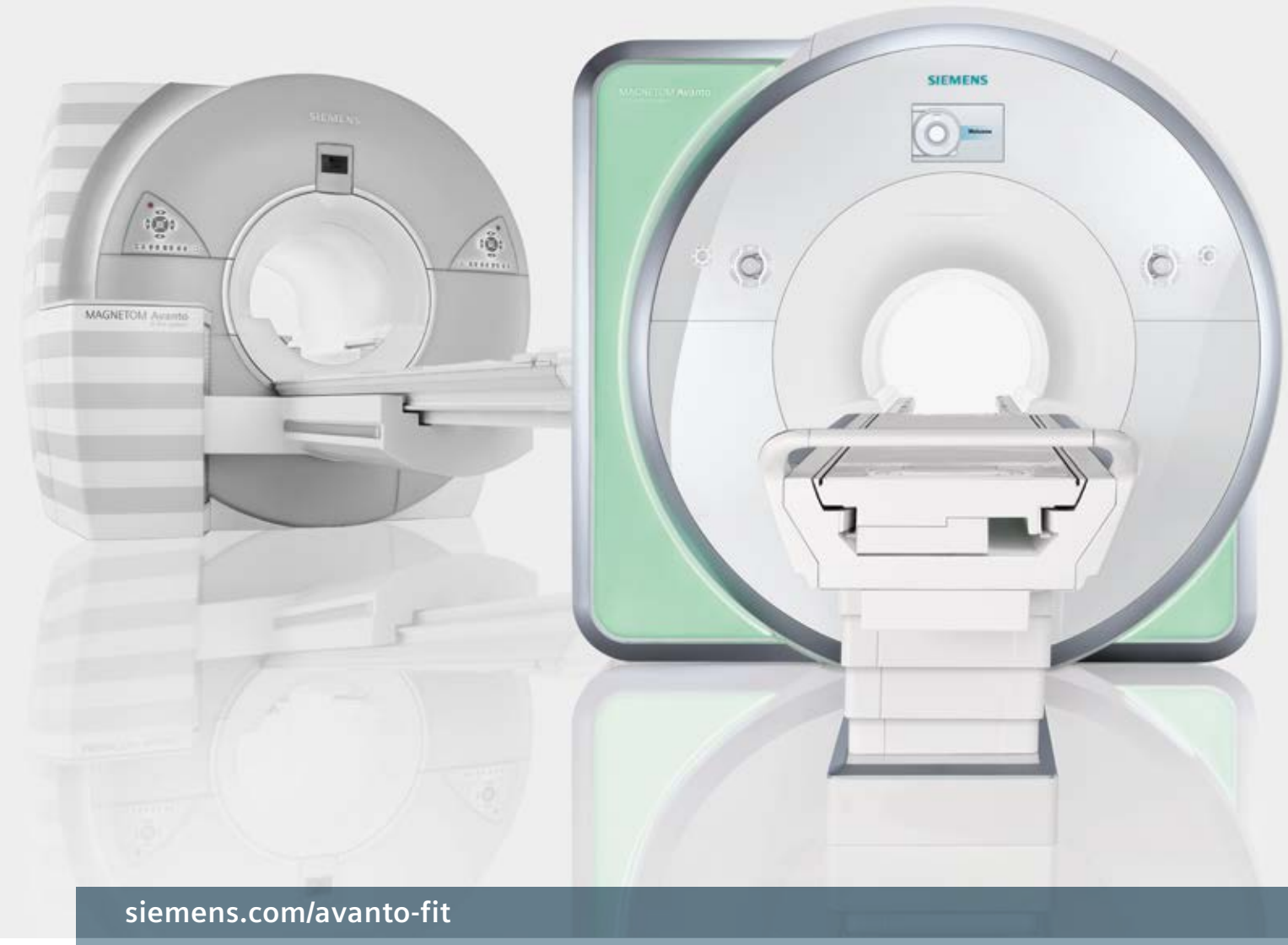
SIEMENS



siemens.com/avanto-fit

MAGNETOM Avanto^{fit}

Upgrade your MAGNETOM Avanto to the new MAGNETOM Avanto^{fit}

Uncover what lies behind Siemens’ leading MRI technology.

Upgrade your MAGNETOM Avanto to the new MAGNETOM Avanto^{fit}

The landmark in 1.5T imaging

Tim Technology

Deliver exceptional image quality and speed in MRI

DotGO Workflow

Go for consistent results, efficiently

Trendsetting Applications

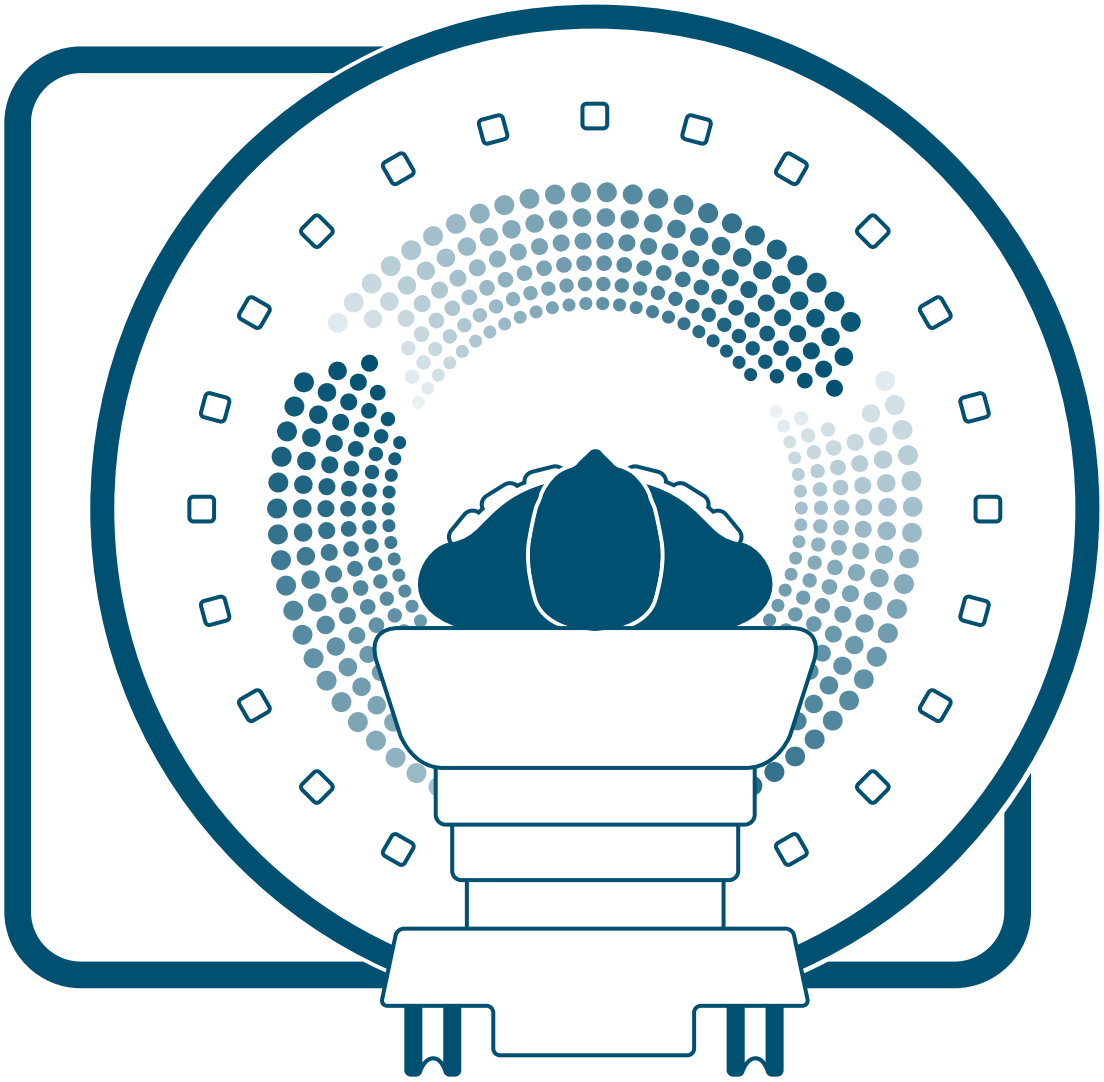
Expand your MRI services

Life Design

Maximize patient friendliness and investment protection

The DNA of Siemens MRI

An intensifying demographic shift, the rise of chronic diseases, patients turning into consumers, the pace of innovation, and a broader access to medical imaging across the globe lead to a constantly growing number of examinations, including MRI. At the same time this development raises central questions for you as healthcare- and us as



equipment-provider alike: How to manage volume growth with limited resources? How to control costs without compromising quality of care? How to expand services in either established or growing markets? How to continuously strive for clinical excellence in the interest of patients despite economic restraints?

Siemens MR provides answers to these questions by offering a unique combination of MRI technology, software and clinical applications, supporting you in turning these challenges into opportunities.

Upgrade your MAGNETOM Avanto to the new MAGNETOM Avanto^{fit}

Across clinical fields the demand for faster, more accurate, and more patient friendly MRI examinations is growing. The upgrade of MAGNETOM Avanto to MAGNETOM Avanto^{fit} helps you attract more referrals and gain more clinical confidence through its improved image quality. It increases patient satisfaction by reducing breath hold times and by increasing scan speed.

All in one, it opens up new opportunities for service lines with the new applications and coils available.

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MAGNETOM Avanto^{fit} at a glance

Less than
1 minute
exam-time variation[2]

- Routine tasks automated with DotGO workflow
- Time savings for technicians
- Greater patient focus

Up to 40%
faster MRI exams[1]

- Rapid image acquisition with Tim 4G coil technology
- Higher throughput
- Simplified exam set-up

Grow your MRI services with Body MRI

- Free-breathing, contrast-enhanced body imaging
- Always the right contrast in dynamic liver evaluation
- Non-invasive liver evaluation

Up to 97% reduction in sound pressure[5]

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

Minimized lifecycle costs

- Fast and easy installation
- Ugrade in only up to 15 working days
- No need to tear walls down for the upgrade

Your upgrade in seven steps

1

Technical room
Control unit and cooling unit cabinets are removed and replaced with new ones.

2

Operator's room
All workstations, monitors, and keyboards are removed and replaced by new ones.

5

Magnet room
All removed covers are replaced by new ones with Dot Display and Dot Control Centers. The patient table is replaced with the new Tim Table or the optional Tim Dockable Table.

6

Licenses migration
Installed licenses are migrated into *syngo*® MR E11.[12]

3

Magnet room
The Body Coil is removed and replaced with a new one. The new SQ gradients are installed.[11]

4

Magnet room
Installation of the DirectRF®, Tim's new all digital-in/digitalout design that integrates all RF transmit and receive components at the magnet for true signal purity and eliminates the analog cables.

7

Hand-over
After installation and image quality test, a comprehensive application training is held to help you get the best out of your new system.

More possibilities for your 1.5T magnet – can be completed in only up to 15 working days!

MAGNETOM Avanto
SIEMENS

Deliver exceptional quality and speed in 1.5T MRI

Reducing set-up times, simplifying coil handling, minimizing the need for rescans: all top priorities for radiology teams. Upgrading to MAGNETOM Avanto^{fit} helps you keep pace with modern day challenges, boosting process efficiency with Tim 4G – the latest generation of Siemens' integrated coil technology. Tim 4G delivers the impeccable image quality and rapid acquisition you expect from a 1.5T system. For increased accuracy, flexibility and speed.

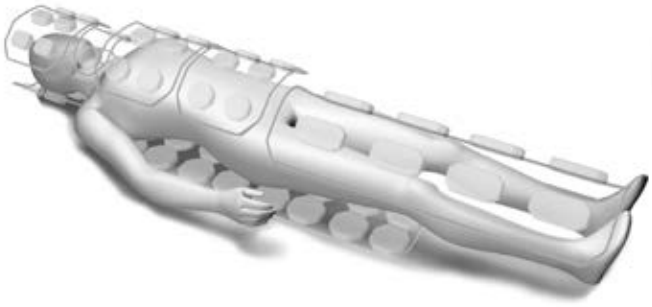
Deliver exceptional quality and speed in 1.5T MRI

with Tim 4G coil technology

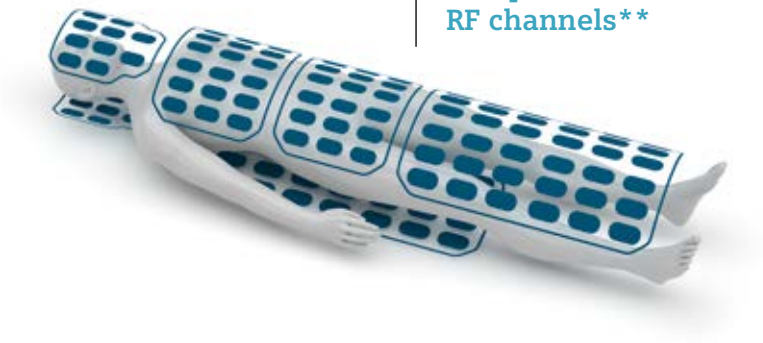
Up to **40%** increased SNR[1]

Maximum number of **204** channels*

Up to **48** independent RF channels**



MAGNETOM Avanto Tim Matrix



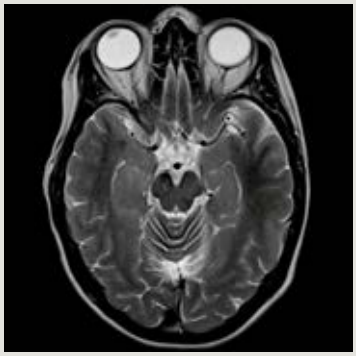
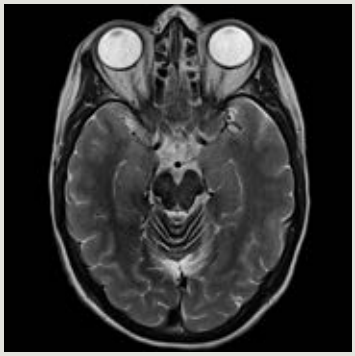
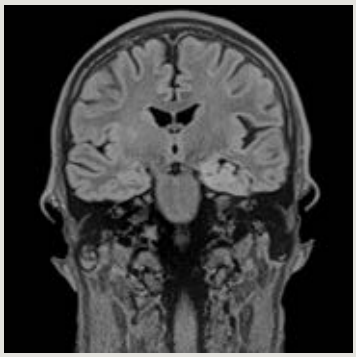
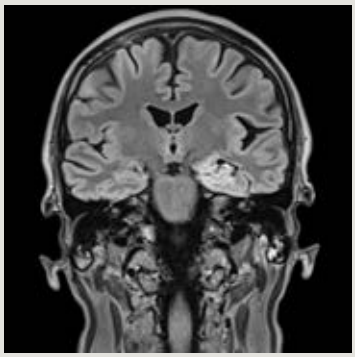
MAGNETOM Avanto[fit] Tim 4G Matrix

Flexibility, accuracy, and speed
Tim 4G enhances clinical accuracy, workflow, and patient care. The coils offer an excellent signal-to-noise ratio (SNR) and deliver superb image quality for a broad spectrum of indications, and for a wide variety of patients.

The unique Dual-Density Signal Transfer architecture enables DirectConnect® coils, which reduces set-up times by eliminating cables. The innovative open coil design increases patient comfort even further.

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

Significantly increased SNR in all body regions.

	MAGNETOM Avanto	MAGNETOM Avanto[fit]
		
T2 TSE matrix 320 SL 5.5 mm TR/TE 4170/99 TA 1:53 min		T2 TSE GRAPPA 2 matrix 512 SL 5 mm TR/TE 4500/90 TA 1:43 min MRI Spital, Maennedorf, Switzerland
		
3D SPACE Dark FLuid GRAPPA 2 matrix 256 SL 3 mm TR/TE 5000/345 TI 1800 TA 3:55 min		3D SPACE Dark FLuid GRAPPA 2 matrix 256 SL 3 mm TR/TE 5000/336 TI 1800 TA 3:06 min Hospital St. Elisabeth, Zottegem, Belgium
3D VIBE FatSat GRAPPA 3 matrix 288 SL 3 mm TR/TE 3.47/1.25 TA 13 s	3D VIBE FatSat CAIPIRINHA 4 matrix 288 SL 3 mm TR/TE 3.47/1.25 TA 12 s	Universitair Ziekenhuis, Gent, Belgium

All images acquired on the same systems
before and after the upgrade.

See the benefits of MAGNETOM Avanto^{fit} – before and after the upgrade

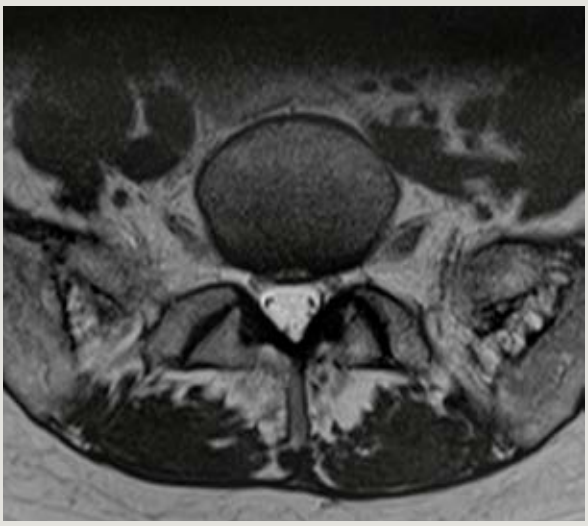
MAGNETOM Avanto

Examination time: 4 sequences – 9:19 min

T1 TSE
matrix 384
SL 4 mm
TR/TE 583/13
TA 2:22 min

T2 TSE
matrix 384
SL 4 mm
TR/TE 3330/91
TA 2:50 min

T2 TSE FatSat
matrix 384
SL 4.5 mm
TR/TE
2740/102
TA 2:09 min



T2 TSE
matrix 384
SL 4 mm
TR/TE 3800/108
TA 1:58 min

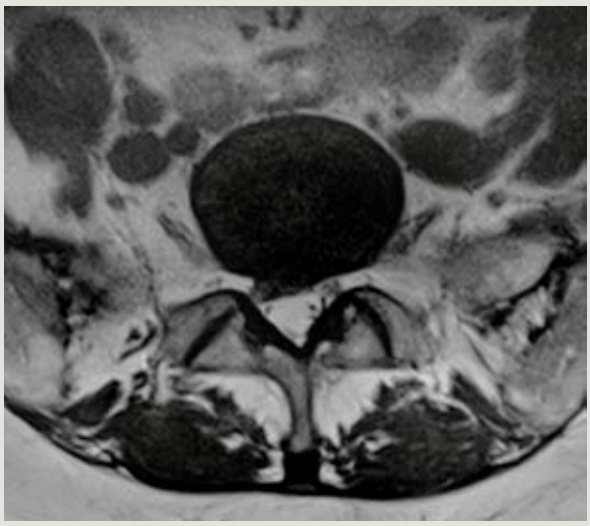
Upgrade to higher image quality, add additional sequences in one patient slot, yet achieve up to 40%[1] faster scans.

MAGNETOM Avanto[fit]
Examination time: 5 sequences – 6:52 min

T1 TSE
GRAPPA 2
matrix 384
SL 4 mm
TR/TE 583/12
TA 1:14 min

T2 TSE
GRAPPA 2
matrix 384
SL 4 mm
TR/TE 3330/87
TA 1:23 min

T2 TIRM
GRAPPA 2
matrix 320
SL 4.5 mm
TR/TE 3400/86
TI 160
TA 1:18 min



T2 TSE
matrix 384
SL 4 mm
TR/TE 3590/109
TA 1:51 min

T2 TSE
GRAPPA 2
matrix 384
SL 3.5 mm
TR/TE 3500/87
TA 1:06 min

IRM Saint Martin, Pessac, France

MAGNETOM Avanto fit
A Tim+Dot System

Go for consistent results, efficiently

Patients, referrers, radiologists – they all have a unique set of needs. Balancing their requirements, while ensuring high-quality results and keeping to schedule, is no easy task. MAGNETOM Avanto^{fit} helps you master these challenges. Integrated DotGO workflow allows you to manage and create tailored protocols and strategies. Dot Cockpit provides you with a comprehensive overview of all processes. And preconfigured Dot Engines save valuable time for standard procedures. For true flexibility, consistency and efficiency in MRI.

Go for consistent results, efficiently

with DotGO workflow

Less than
1 minute
exam-time variation[2]

88%
of MRI exams covered by Dot engines[4]

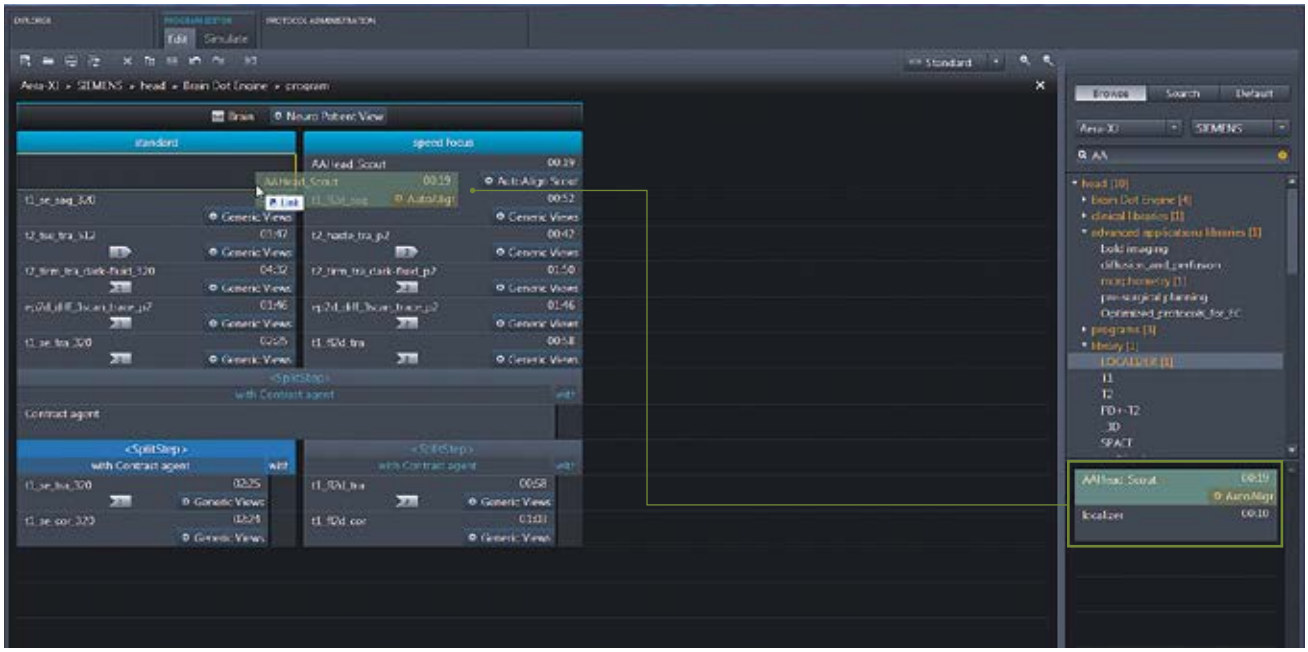
80% **better usability in MRI exam configuration**[3]

Flexibility, consistency, and efficiency
DotGO enables you to standardize your MRI operations with a comprehensive guidance system, predifined strategies and Dot engines that create reproducible, high-quality outcomes, everytime. The Dot Copckpit is a central user interface that enables fast and intuitive protocol configuration and management.

Call the patient by their name, easily check the coil set-up or ECG-electrode positioning on the Dot Display without going to the console room.

The Explorer and editor in one interface. Easy navigation and shortcuts.

Drag & drop from the sidebar in Editor



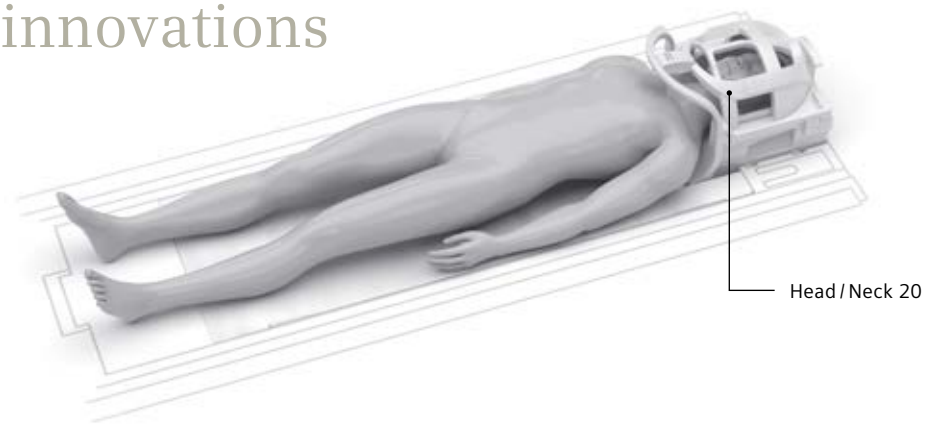
SIEMENS
MAGNETOM Avanto

Expand your MRI services

Demographic change, demand for innovation and a rise in chronic diseases call for new MRI solutions. MAGNETOM Avanto^{fit} latest head-to-toe hardware and software advances offer an unparalleled range of clinical services that make day-to-day operations smoother, faster and more efficient for radiologists, patients, and management. The upgrade of your MAGNETOM Avanto is designed to make you fit for the future. Its unique Life Design features increase comfort and satisfaction, increase efficiency and offer greater investment protection.

Expand your MRI services

with the latest head-to-toe innovations



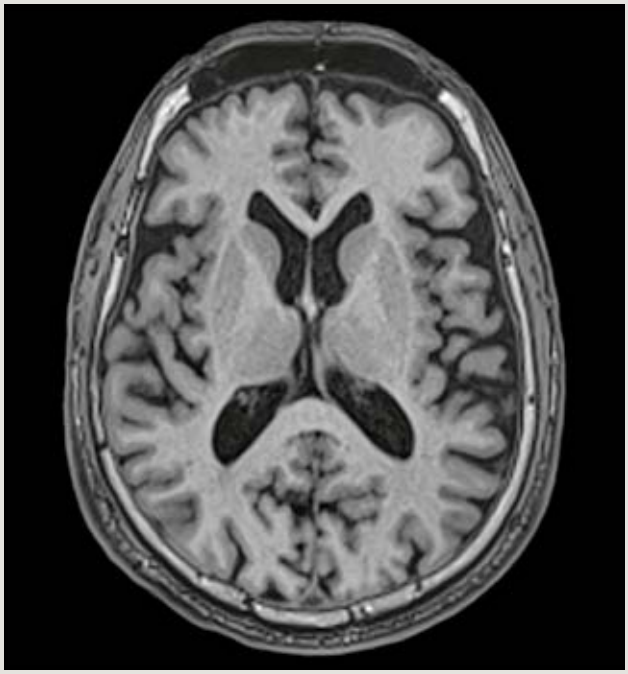
Head / Neck 20

It offers an excellent signal-to-noise ratio (SNR) and delivers superb image quality for a broad spectrum of indications in the head and neck region, and for a wide variety of patients. The innovative open coil design increases patient comfort even further.

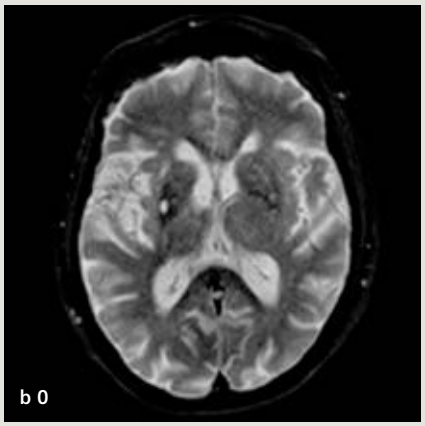
Brain Dot Engine

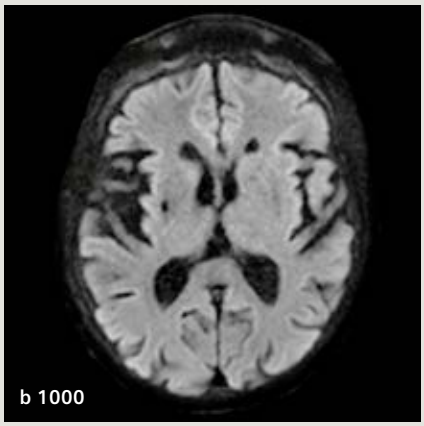
It increases the efficiency and reproducibility of brain exams. Exam strategies enable fast adaptation to varying patient conditions. With AutoAlign and AutoCoverage, radiology teams benefit from standardized image positioning. All DotGO functionalities together help to achieve consistently high-quality results and more predictable exam times for efficient scheduling.

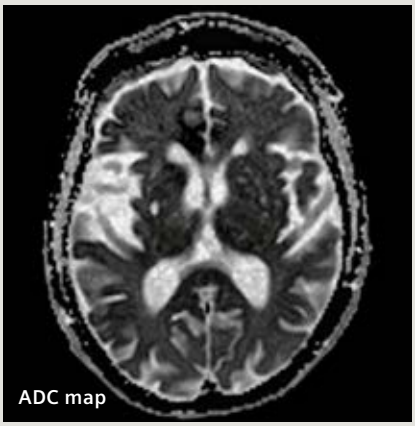
3D T2 SPACE
GRAPPA 4
matrix 256
SL 1 mm
TR/TE
3000/385
TA 2:40 min



3D T1 MPRAGE
GRAPPA 2
matrix 256
SL 1 mm
TR/TE 2200/2.86
TI 900
TA 4:49 min



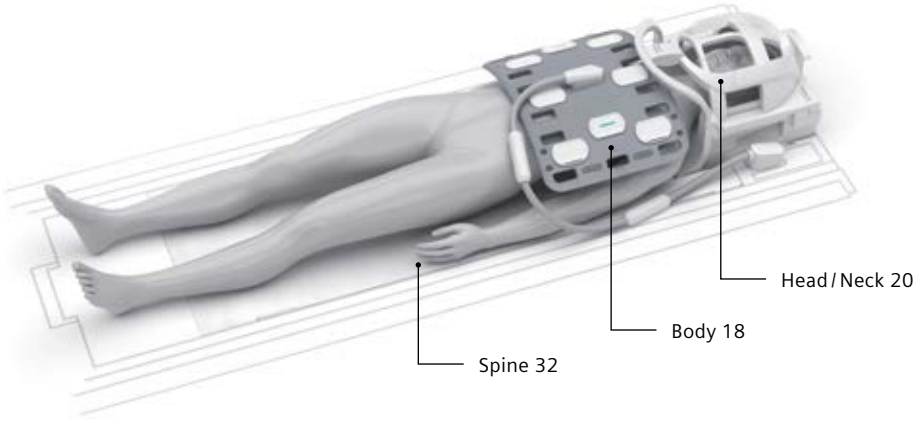




RESOLVE
GRAPPA 2
matrix 160
SL 5 mm
TR/TE 4500/66
TA 2:03 min

RESOLVE: High-quality, high-resolution DWI even in body regions strongly affected by susceptibility artifacts.

Goethe University Hospital, Frankfurt, Germany



Head / Neck 20, Body 18, Spine 32

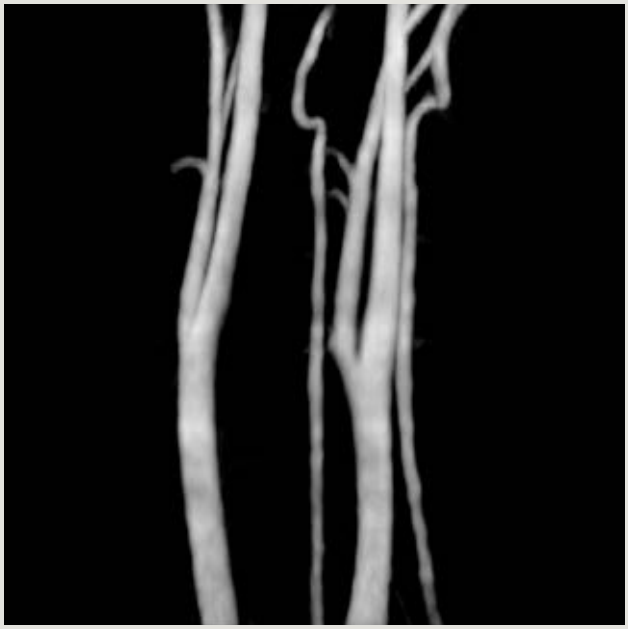
The combination of the these coils generates a seamless imaging Field of View from the heart to the top of the head to handle examinations of the carotid arteries or brachial plexus, with ease.

Angio Dot Engine

The timing of contrast injection and scanning is commonly regarded as the most challenging aspect of an angiographic exam. The Angio Dot Engine helps in performing consistent high-quality angiographic single- or multistation examinations.

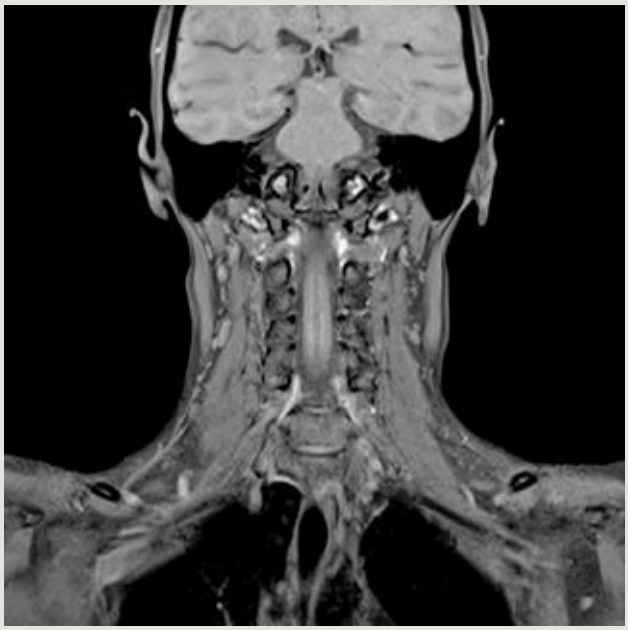
It provides visualization of arterial and venous timing windows using a test bolus technique. Additionally Inline Composing saves time and effort by automatically composing multiple anatomical or angiographic images.[2]

Shorten acquisition times and get higher detail of smaller vessels and anatomy in 3D.



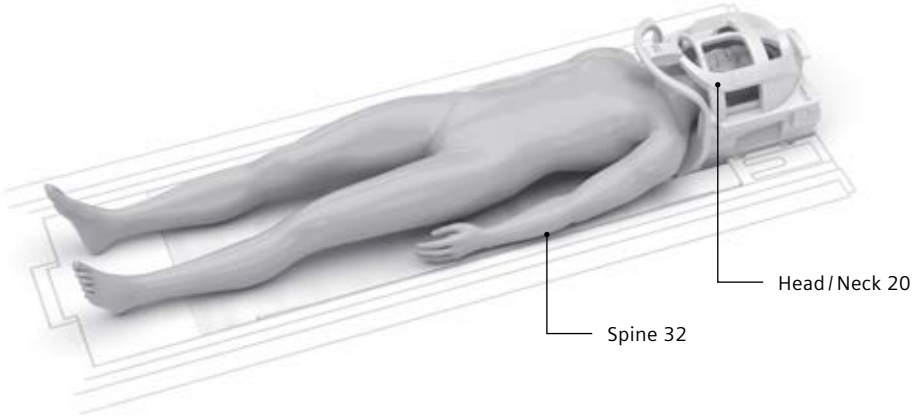
Clínica Creu Blanca, Barcelona, Spain

3D FLASH
ToF, MIP
matrix 320
SL 1 mm
TR/TE 23/4.6
TA 5:43 min



T1 TSE
Dixon water
GRAPPA 2
matrix 320
SL 4 mm
TR/TE 671/13
TA 4 min

3D FLASH
VRT
GRAPPA 3
matrix 384
SL 0.9 mm
TR/TE 3.2/1.1
TA 17 s



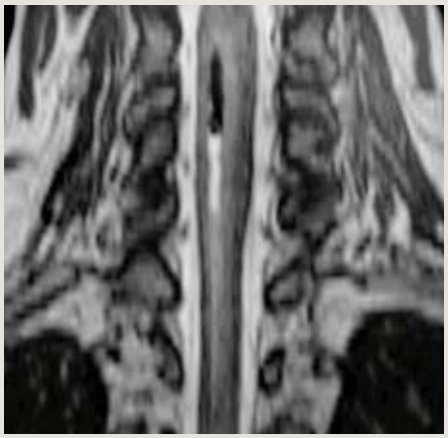
Head / Neck 20, Spine 32

The neck part combines high SNR with an open, patient-friendly design. This enables excellent cervical spine and neck imaging for a wide variety of patients and indications. By combining the head / neck coils with the integrated spine coils, it is possible to image further down the vertebrae at any time during the exam.

Spine Dot Engine

It optimizes cervical, thoracic, and lumbar spine imaging for a wide range of patients and conditions. Automation features such as AutoAlign and AutoCoverage enable consistent positioning independent of the spine curvature. Automated spine labeling enhances reading efficiency and helps to avoid false positive diagnosis that would lead to incorrect treatment. It includes WARP[13] for a precise diagnosis of patients with MR-conditional metal implants.

T1 TSE
2 steps
GRAPPA 2
matrix 448
SL 3.5 mm
TR/TE 570/10
total TA 5:43 min

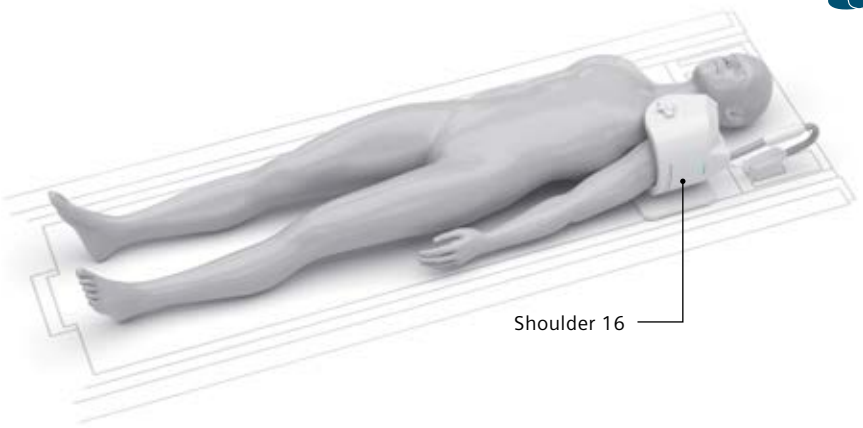


3D T2 SPACE
MPR, isotropic
GRAPPA 3
matrix 384
SL 0.9 mm
TR/TE 1000/128
TA 3:13 min

WARP
T2 TSE, VAT
matrix 512
SL 3 mm
TR/TE 4600/131
TA 2:22 min

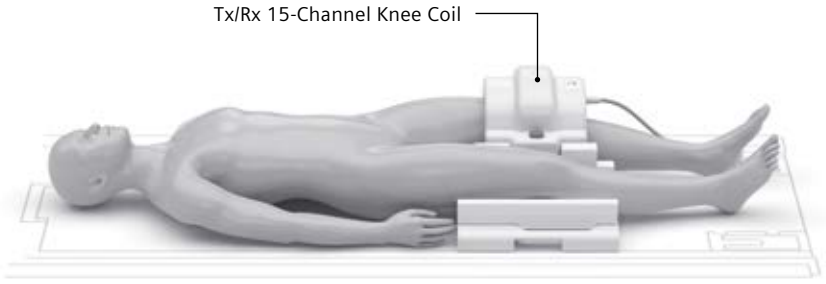
WARP: It integrates different techniques tailored to reduce susceptibility artifacts caused by MR-conditional metal implants[13] and allows for improved soft tissue evaluation.

Hospital St. Elisabeth, Zottegem, Belgium



Shoulder 16

It offers the industry's highest number of coil elements for shoulder imaging, making it possible to achieve outstanding image quality and speed. To accommodate a greater number of patient shapes and sizes, the coil is available in two versions (small and large).

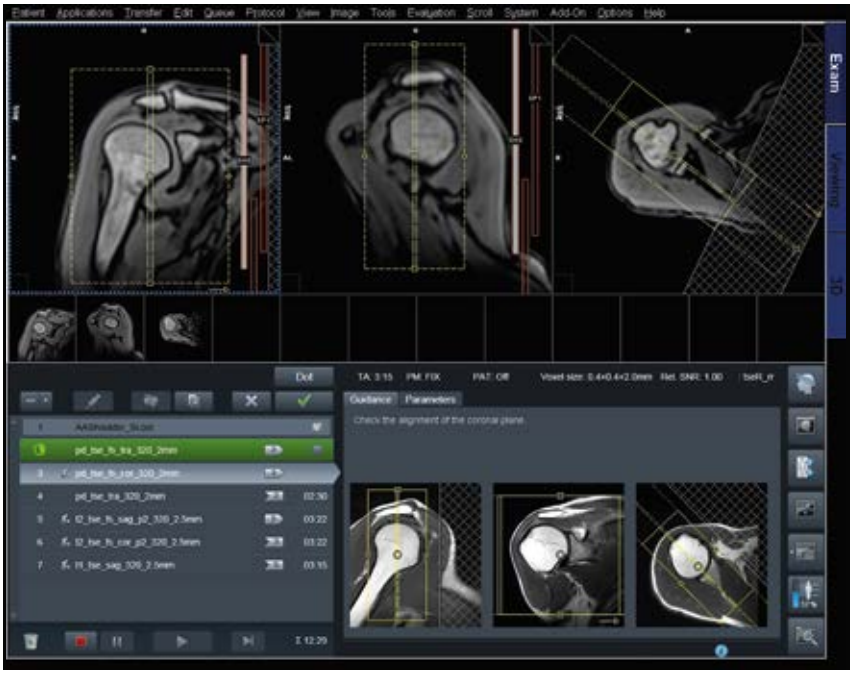


Tx/Rx 15-Channel Knee Coil

It enables parallel imaging in any direction to power 2D and 3D knee exams with excellent resolution and fast exam times. It accommodates a wide variety of patients.

Large Joint Dot Engine

It helps to provide increased consistency and efficiency in shoulder, hip, and knee examinations. AutoAlign and AutoCoverage for these regions deliver high reproducibility in positioning. And by offering easy one-click adaptation to different patient conditions, Dot's Exam Strategies maintain excellent image quality for all patients. Functionalities such as BLADE and Advanced WARP help reduce common artifacts in MSK imaging caused by motion and metal implants[13].



Pristine orthopedic images obtained after the fit Upgrade.

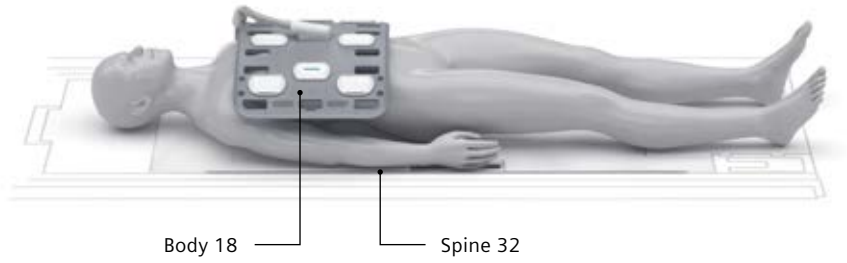
BLADE
T2 TSE SPAIR
matrix 384
SL 3.5 mm
TR/TE 3700/64
TA 3:42 min

Images acquired on the same system.

Hospital St. Elisabeth,
Zottegem, Belgium

T1 TSE
GRAPPA 2
matrix 448
SL 4 mm
TR/TE 450/12
TA 1:16 min

Advanced WARP
PD TSE, SEMAC
GRAPPA 3
matrix 384
SL 3 mm
TR/TE 3500/34
TA 3:05 min

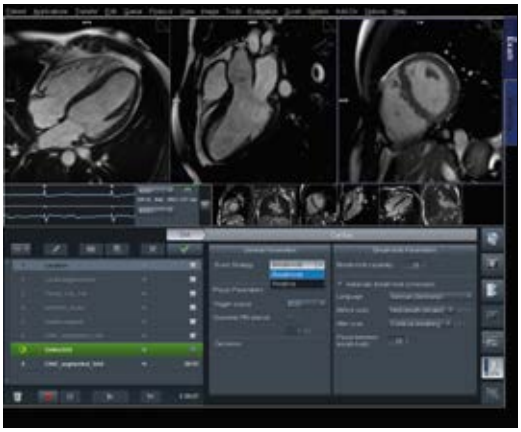


Body 18, Spine 32

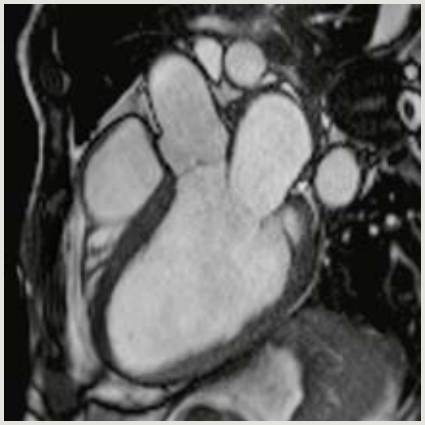
Respiratory and cardiac motion creates challenges when imaging the chest and heart. By combining Body coils with the integrated spine coils, it is possible to form a high-channel body array – enabling excellent SNR and increased parallel imaging factors in any direction. The result is ultra-fast acquisition times for chest and heart imaging.

Cardiac Dot Engine

It helps standardize cardiac MR exams enabling adenosine stress MRI in less than 30 minutes[3] consistently, streamlining case reading and reporting. With AutoAlign Heart you benefit from fully automated slice positioning in 2-, 3-, and 4-chamber views facilitating consistent slice positioning for morphology, function, and tissue characterization, even for longitudinal studies.

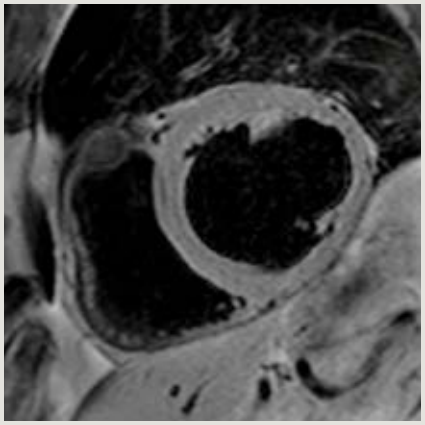


TrueFISP cine retro
GRAPPA 2
matrix 192
SL 6 mm
TR/TE 36.1/1.2
TA 3 x 7.26 s



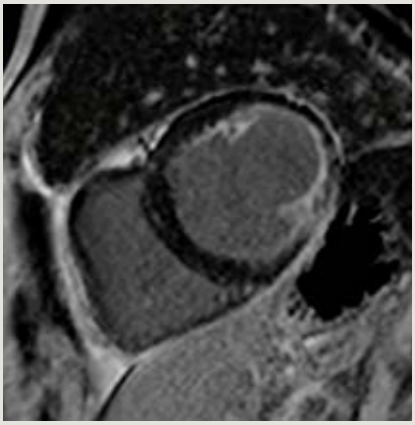
Function

T2 TSE FatSat
Dark Blood
GRAPPA 2
matrix 256
SL 6 mm
TR/TE 1934/62
TA 9.73 s



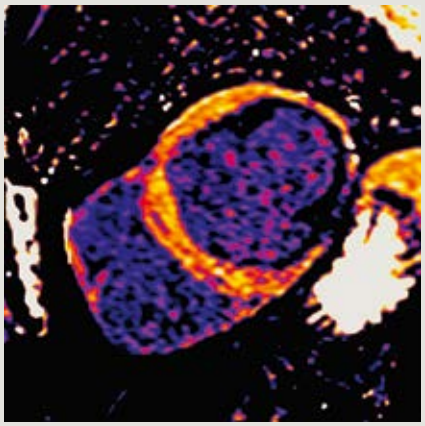
Morphology

FLASH IR
PS recon
GRAPPA 2
matrix 256
SL 8 mm
TR/TE 773/3.2
TI 365
TA 12.46 s



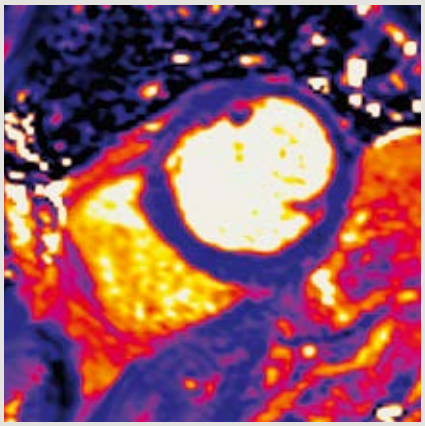
Viability

TrueFISP
GRAPPA 2
matrix 256
SL 8 mm
TR/TE 379/1.1
TA 1:28 min



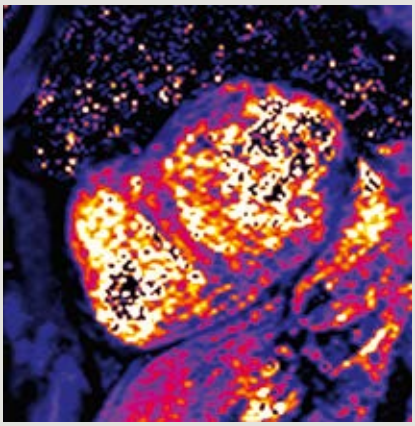
T1 map

TrueFISP
GRAPPA 2
matrix 192
SL 8 mm
TR/TE 215/1.1
TA 1:21 min



T2 map

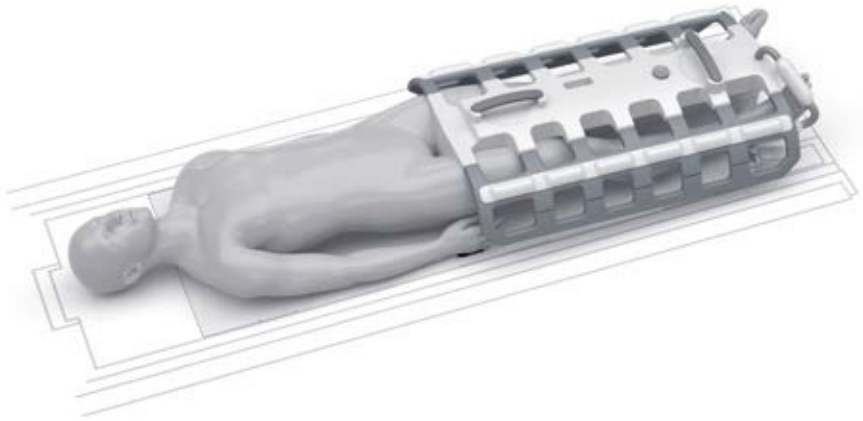
FLASH FatSat Dark Blood
matrix 256
SL 8 mm
TR/TE 897/2
TA 2:04 min



T2* map

MyoMaps: Benefit from inline myocardial quantification, detect normally missed global, diffuse, myocardial pathologies (T1 Map), better depict cardiac edema (T2 Map), and improve early detection of iron overload (T2* Map) with MyoMaps, based on Siemens' unique HeartFreeze.

All images: Klinikum Wels, Grieskirchen, Austria



Peripheral Angio 36, Body 18, Spine 32

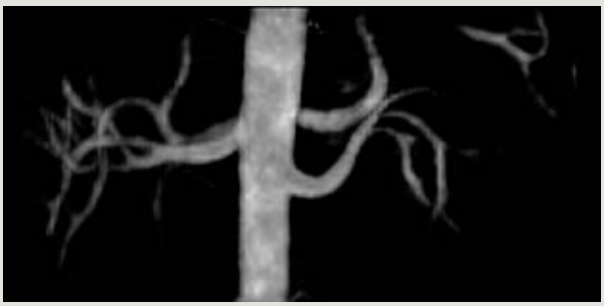
The combination of high-density coils results in excellent image quality and speed for contrast and non-contrast angiographic studies.

Angio Dot Engine

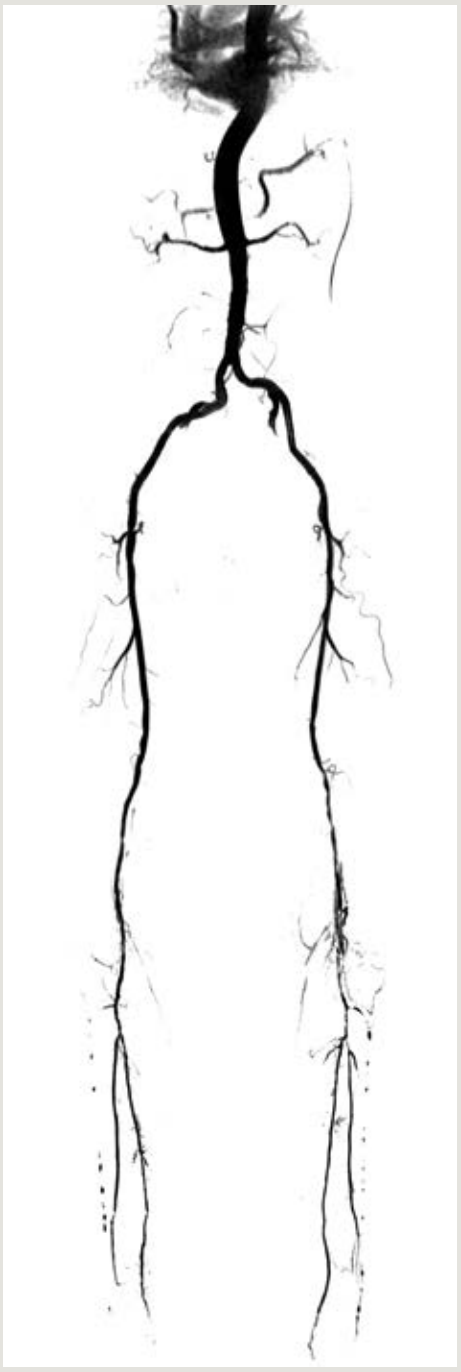
The timing of contrast injection and scanning is commonly regarded as the most challenging aspect of an angiographic exam. The Angio Dot Engine helps in performing consistently high-quality angiographic single- or multi-stationexaminations, by providing visualization of arterial and venous timing windows using a test bolus technique.
Additionally Inline Composing saves time and effort by automatically composing multiple anatomical or angiographic images.

NATIVE: provides noncontrast enhanced 3D MRA with high spatial resolution, especially valuable for imaging renal arteries.

QISS: provides noncontrast peripheral MRA at comparable accuracy to contrast-enhanced MRA[6]. Both are sound alternatives for patients with severe renal insufficiency.

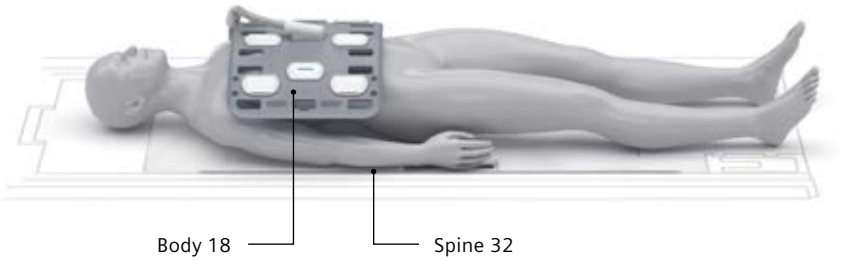


3D TrueFISP FatSat, MIP
NATIVE
GRAPPA 2
matrix 256
SL 1.1 mm
TR/TE 1293/1.5
TA 5:57 min



3D FLASH, MIP
3 steps
GRAPPA 2
matrix 416
SL 1.6 mm
TR/TE 3/1
total TA 57 s

Clínica Creu Blanca, Barcelona, Spain

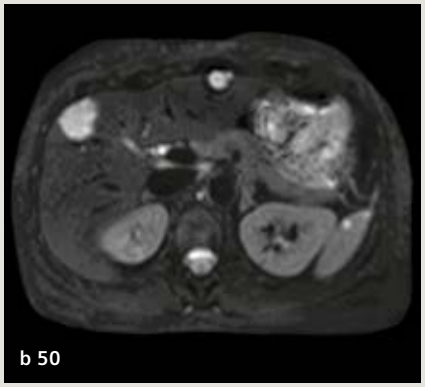


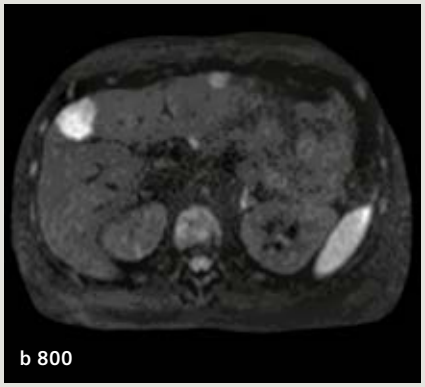
Body 18 or Body 30, Spine 32

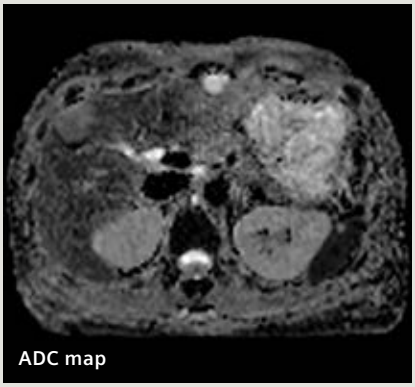
The body and spine coils form a high-channel body array and can be easily extended in z-direction by adding a second Body coil. SlideConnect® reduces set-up times to improve the patient experience even further.

Abdomen Dot Engine

It is designed to deliver consistent image quality for morphology and perfusion. Various functionalities such as optimized bolus timing, integrated voice commands, and decision points lead to robust and consistent image quality, in particular in comprehensive examinations such as of the liver.





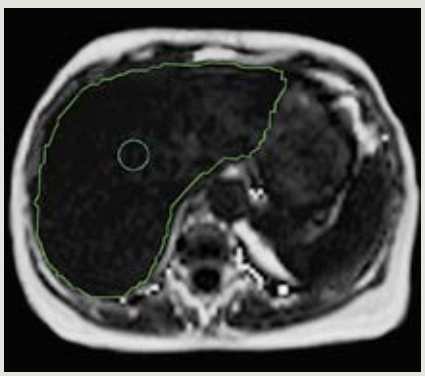


Diffusion
GRAPPA 2
matrix 192
SL 6 mm
TR/TE 5500/73
TA 3:44 min

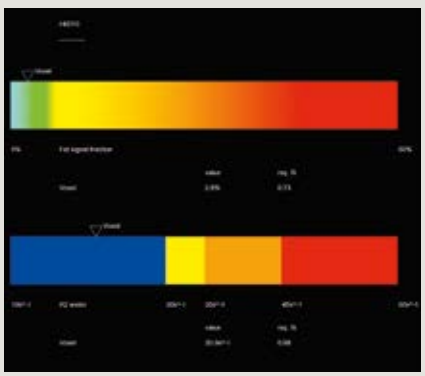
3D VIBE Dixon water
CAIPIRINHA 5
matrix 320
SL 3 mm
TR/TE 6.66/2.39
TA 22 s

LiverLab: Evaluating the iron and fat content of the liver is an important step in monitoring early stages of liver diseases. As steatosis and haemotomachrosis are becoming more prevalent in industrialized countries, the demand for liver evaluation is growing. LiverLab offers a non-invasive evaluation of iron and fat content, with automatic liver segmentation, potentially reducing the need for biopsy.

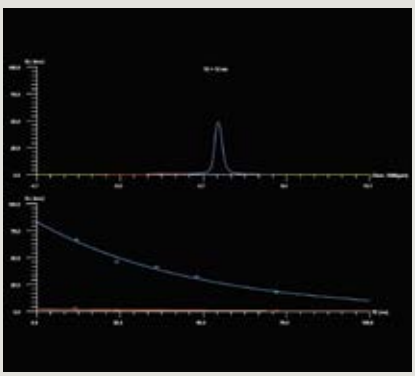
Hospital St. Elisabeth, Zottegem, Belgium



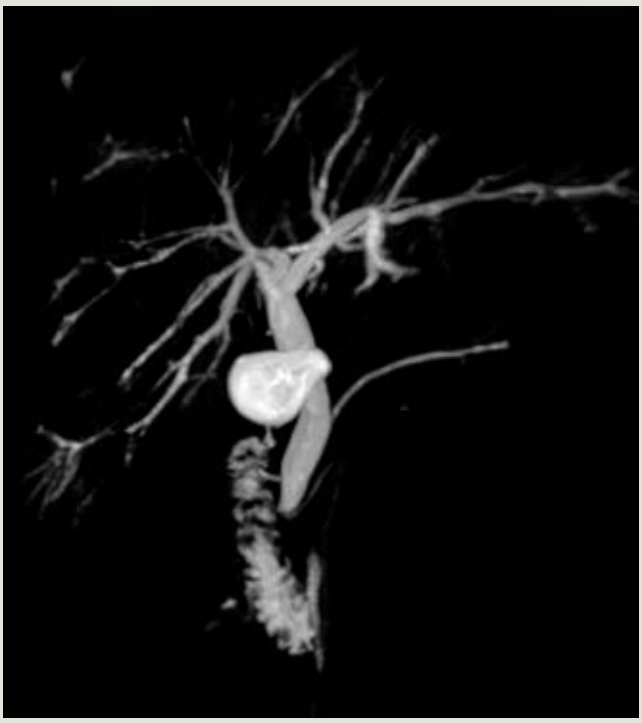
6 point, Dixon fat, Region of Interest



Histogram



Spectroscopy, spectrum

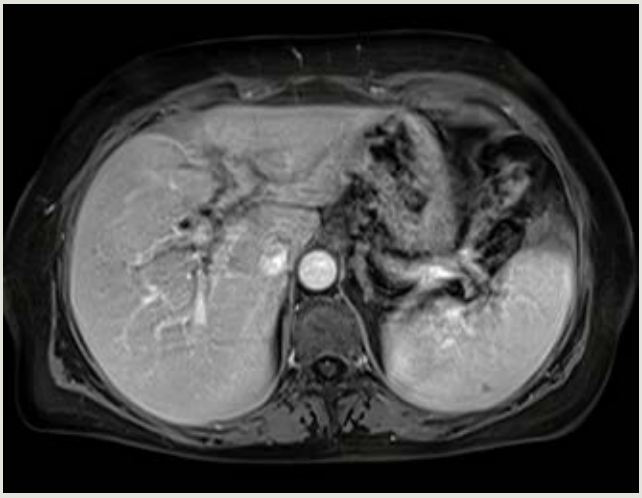


With a fit upgrade it is possible to obtain a pristine image with improved fat saturation in the abdominal region.

3D T2 SPACE FatSat, MIP
GRAPPA 2
matrix 384
SL 1 mm
TR/TE 4571/509
TA 5:06 min

Clínica Creu Blanca, Barcelona, Spain

Breath-hold

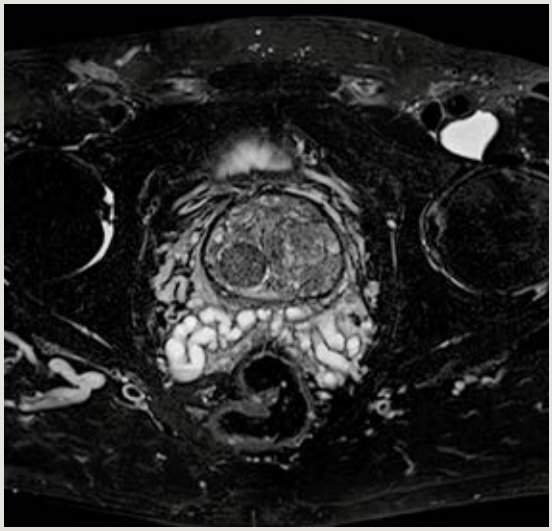


3D VIBE FatSat
GRAPPA 2
matrix 320
SL 4 mm
TR/TE 4.42/1.76
TA 17 s

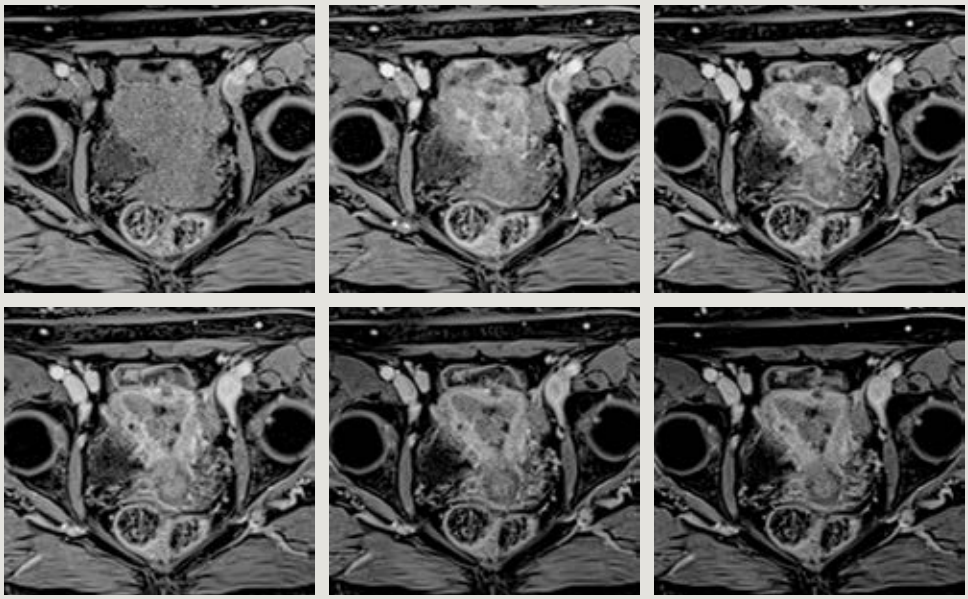
Free breathing

StarVIBE SPAIR
matrix 320
SL 3 mm
TR/TE 3.23/1.6
TA 2:29 min

Hospital St. Elisabeth, Zottegem, Belgium

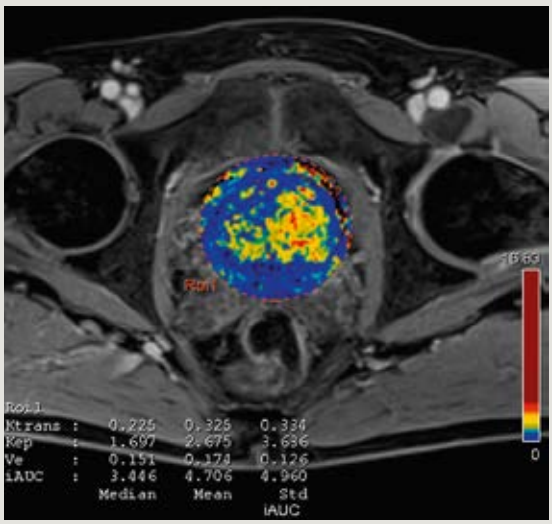


T2 TSE FatSat
GRAPPA 3
matrix 384
SL 3 mm
TR 4220
TE 106
TA 2:48 min



TWIST-VIBE
Dixon water, dynamic
CAIPIRINHA 4
matrix 160
SL 3 mm
TR/TE 6.3/2.4
TA 6.4 s/phase

Tissue 4D Evaluation
iAUC map



FREEZEit: MRI exams of the abdominal region have become increasingly difficult due to contrast timing challenges and breathing motion. FREEZEit, combining TWIST-VIBE and StarVIBE sequences, makes MRI faster and more robust, overcoming previous limitations and significantly pushing the boundaries of what's possible.

Tissue 4D: facilitates the detection of tumor tissues. It provides the standard curve evaluation and an evaluation according to a pharmacokinetic model.

Hospital St. Elisabeth, Zottegem, Belgium

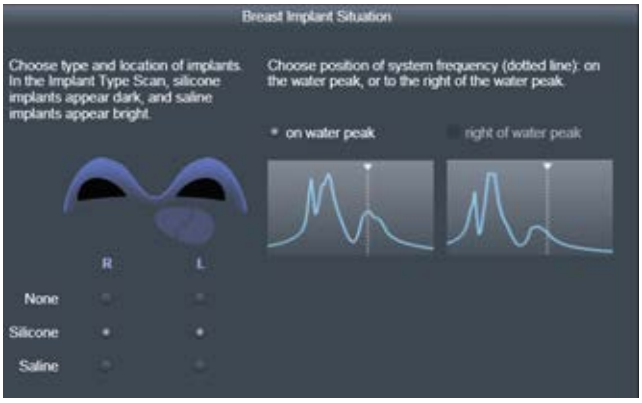
Breast 18

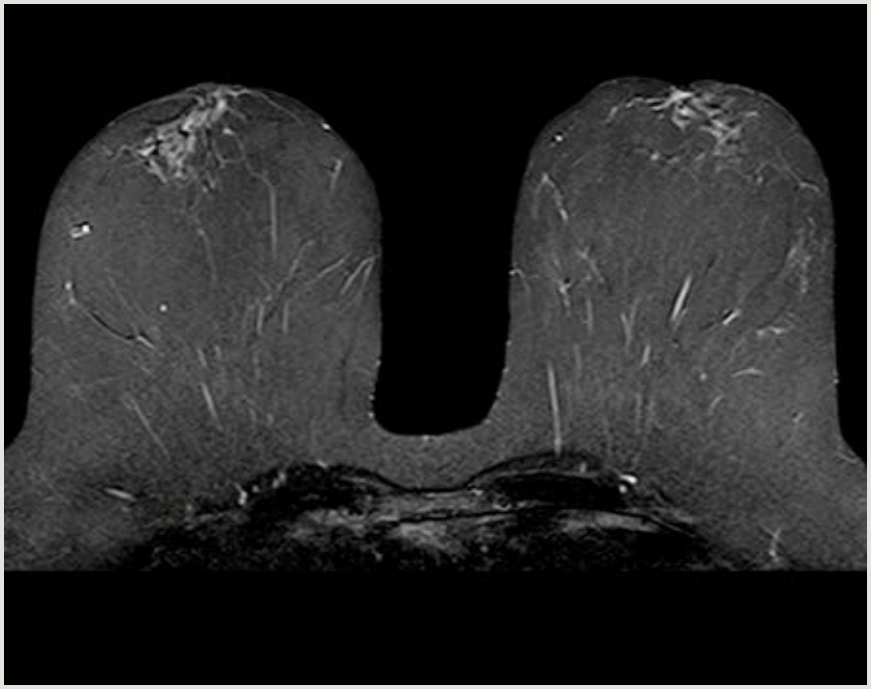
Breast coils

The number of breast MRI studies is increasing. Meet the broad spectrum of needs with dedicated breast coils for clinical imaging or biopsy guidance – combining outstanding image quality with the highest patient comfort.

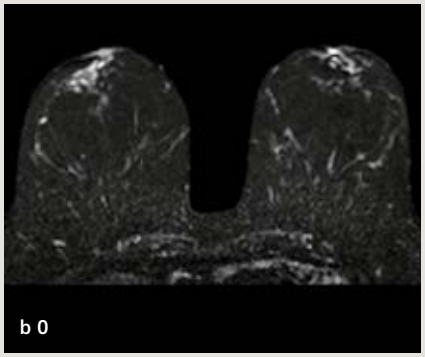
Breast Dot Engine

It provides workflows for lesion evaluation and characterization, implant evaluation, and MR-guided biopsies. Further features are: consistent and automated identification of fat, water, saline or silicone, AutoCoverage for perfusion and diffusion, AutoBolus Detection and automatic MPR calculation for high-res delayed VIEWS help to achieve high-quality results consistently, resulting in an increased certainty in breast imaging.

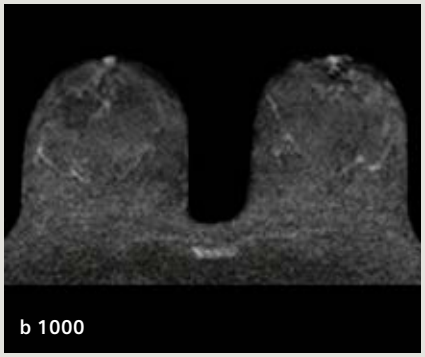




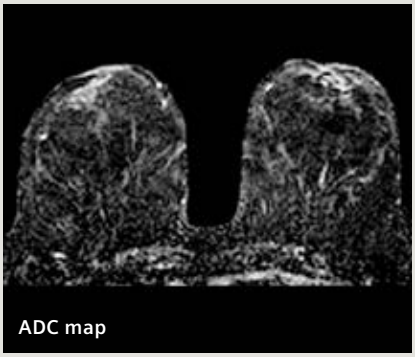
T2 TIRM
GRAPPA 2
matrix 512
SL 4 mm
TR/TE 5220/104
TI 170
TA 2:26 min



b 0



b 1000

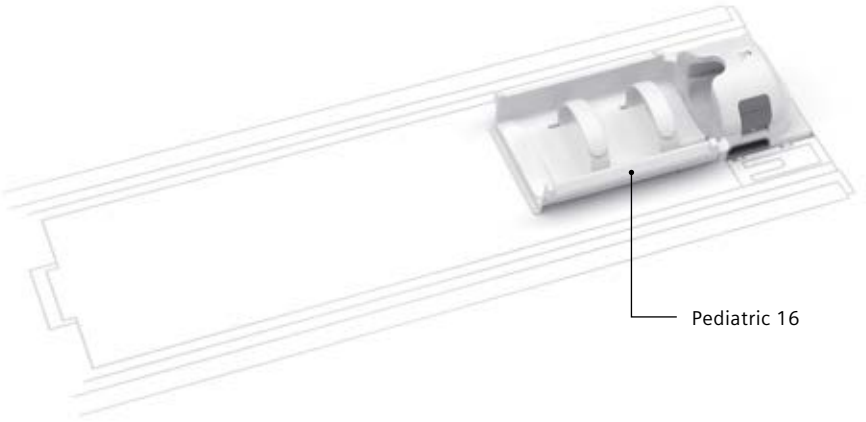


ADC map

RESOLVE
GRAPPA 3
matrix 192
SL 4 mm
TR/TE 6600/66
TA 2:40 min

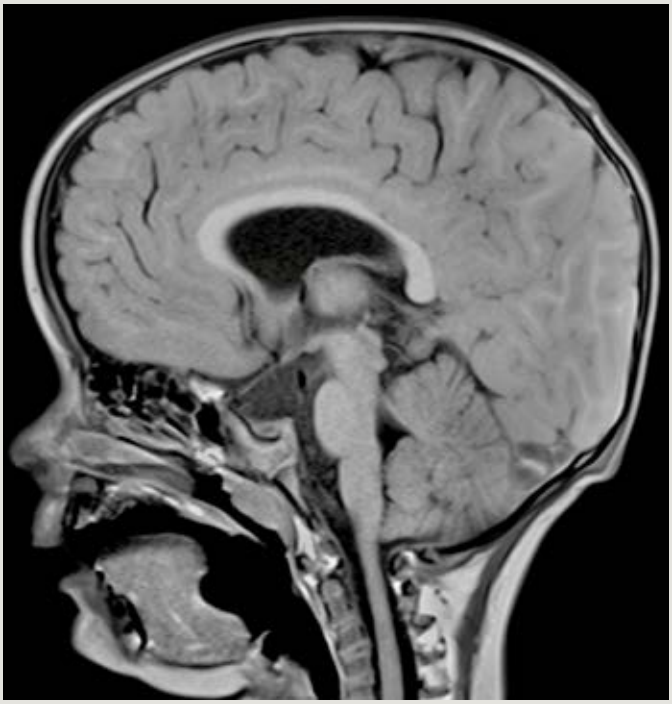
RESOLVE: High-quality, high-resolution DWI even in body regions strongly affected by susceptibility artifacts.

Hospital St. Elisabeth, Zottegem, Belgium



Pediatrics[8]

Children are not small adults – they suffer from different types of diseases, and demonstrate a distinct physiology and behavior. Lightweight, high-density Tim 4G coils such as the Body, Flex, or 4-Channel Special-Purpose coils help provide these small patients with optimal care and a high level of comfort. Expand the range of pediatric care with the Pediatric 16. This coil is specifically designed to meet the needs of children up to 18 months of age[8], and combines high-resolution head/neck imaging with safe, comfortable positioning. It can be combined with other coils to facilitate whole-body imaging.

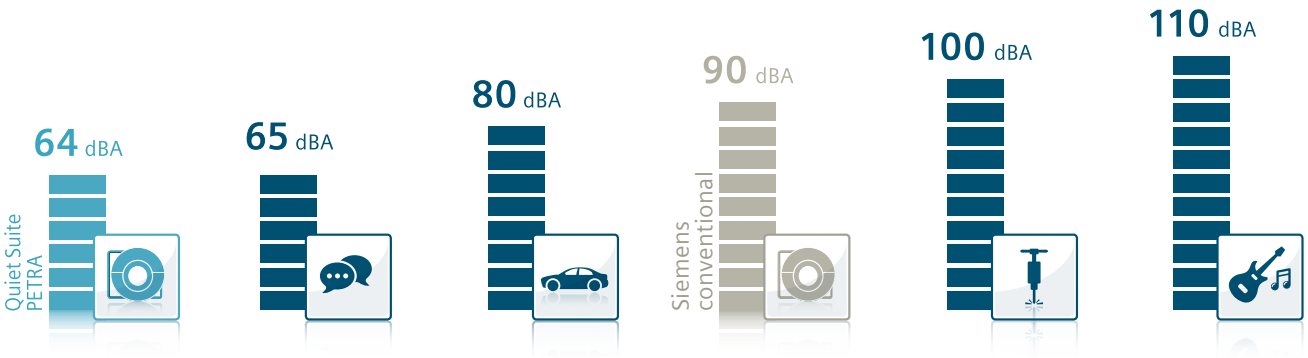


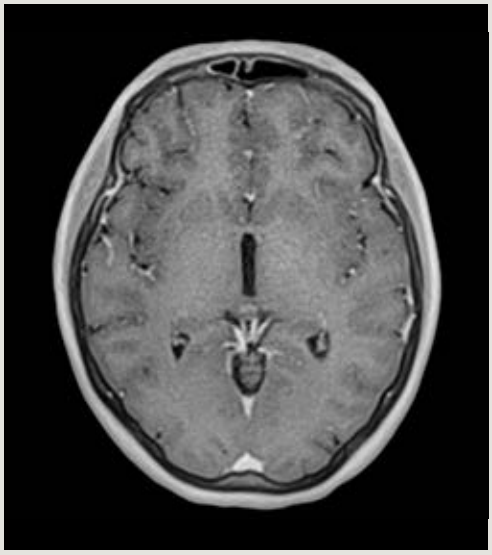
T1 SE
matrix 256
SL 5 mm
TR/TE 450/7.8
TA 3:07 min

T2 TSE
1 step
GRAPPA 2
matrix 384
SL 2 mm
TR/TE 3440/83
TA 1:12 min

With Pediatric 16 the extension of the examination from head to spine is easily done without repositioning the patient.

Imaging is to be seen, not heard.





3D PETRA
isotropic
matrix 320
SL 0.84 mm
TR/TE 3.32/0.07
TI 1300
TA 4:02 min

Quiet Suite: Conduct complete, quiet exams for neurology and orthopedics, with up to 97% reduction in sound pressure[5]. Quiet Suite minimizes the need for sedation of certain groups of patients such as children[8] and the elderly – and all with no compromises on image quality. Because imaging is to be seen, not heard.

Scan the QR code and listen.

siemens.com/quiet-suite

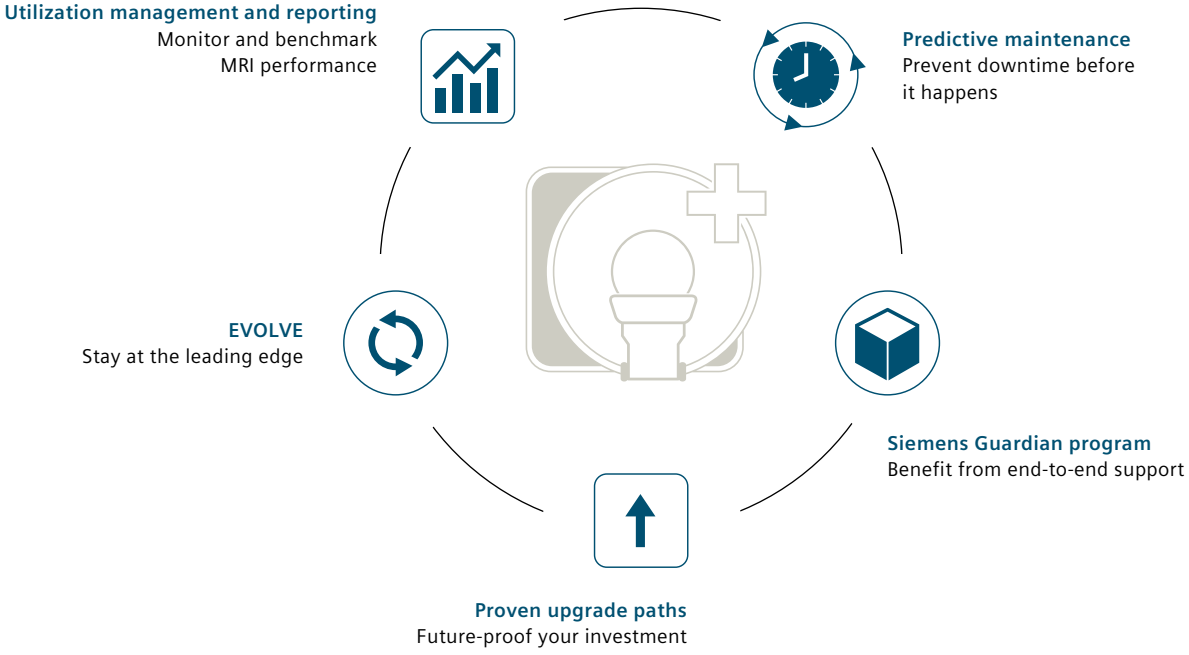
All images: Klinikum Wels, Grieskirchen, Austria

Service and collaboration

Siemens' end-to-end services ensure you stay at the leading edge of MRI technology throughout the entire system lifecycle – from installation, to operation, to upgrades, to ongoing support. Moreover, our diverse communication platforms and communities keep you up to speed on the world of MRI and enable you to share your ideas and experiences with your peers.

Service and collaboration

Comprehensive services



Utilization management and reporting
Allows you to monitor your performance and benchmark your system against other Siemens' MRI machines at any facility or organization.

Predictive maintenance
Helps minimize "lost time", enabling you to plan repairs and prevent downtime before it happens.

EVOLVE: Receive all applicable upgrades for software and the *syngo* OS, plus at least one workstation hardware upgrade within the first six years.

Siemens Guardian program

Combines many features in a single package – offering real-time system monitoring, expert advice to improve workflow efficiency, and proactive maintenance and support.

Proven upgrade paths

Help customers truly maximize their system life – and in turn, to increase their return on investment.

Service and collaboration

Peer-to-peer information

MAGNETOM World
Siemens' global MRI community offers peer-to-peer support and information. Radiologists, cardiologists, technologists, and physicists have all contributed with publications, presentations, training documents, case studies, and more – all freely available to you via this unique network. Plus, the bi-annual MAGNETOM World Summit is the ideal opportunity to share and exchange ideas.

MAGNETOM Flash
Siemens' MR customer magazine. Published quarterly, it features up-to-date clinical case studies, application tips, as well as technical and product information relevant to you. All content is carefully compiled by experts to meet the needs of today's MRI users in both clinical and research scenarios. In fact, 98.5% of readers report that MAGNETOM Flash is clinically relevant.[9]

Visit MAGNETOM World

siemens.com/magnetom-world

On MAGNETOM Flash: "An excellent and useful combination of technological and clinical articles that both keep one up to date with advances in MRI and provide practical assistance for day to day practice – good and interesting learning material."[9]

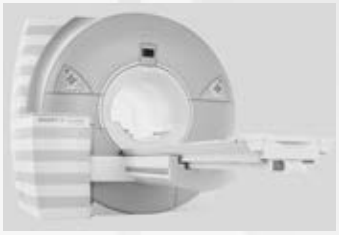
Mark Lourensz, St Vincent's Hospital,
Fitzroy, Victoria, Australia

Dot Exchange

A closed peer-to-peer online community within the Siemens Healthcare User Forum. You can register free of charge via www.siemens.com/Dot-Exchange. Share your experiences in MRI operation, upload and discuss protocol files, and engage in dialog with colleagues from all over the world. Plus, you can access a host of interesting features and articles prior to publication, and discuss the latest developments in MRI.

IDEA

IDEA[11] is an open development platform supporting the largest and most active research community in the world. It brings users from across the globe together and fosters innovation in the field of MRI. Members collaborate online at www.mr-idea.com and at the annual International Society of Magnetic Resonance in Medicine meeting, where they present and discuss new developments.

Technical specifications	Your MAGNETOM Avanto		Your new MAGNETOM Avanto[fit]
	MAGNETOM Avanto magnet	>>	MAGNETOM Avanto magnet remains
	Q Gradients 33 mT/m @ 125 T/m/s SQ Gradients 45 mT/m @ 200 T/m/s	>>	SQ Gradients 45 mT/m @ 200 T/m/s
	Tim [76x8], [76x18], [76x32]	>>	Tim 4G [204x48]
	syngo MR B or D-line	>>	*syngo* MR E11 with new advanced applications
	Without or limited Dot engines	>>	Dot Cockpit with at least 9 Dot engines

MAGNETOM Avanto^{fit}

New standard software
- DotGO Cockpit for easier protocol handling
- Quiet Suite including noise reduction sequences
- Sequences with higher acceleration (CAIPIRINHA) and improved fat saturation (DIXON)

New optional software
- New Dot Engines e.g. Spine or Breast Dot Engine
- New applications e.g. RESOLVE, Advanced WARP, FREEZEit, LiverLab, Elastography, MyoMaps, QISS
- and many more ...

New hardware
- A maximum number of 204 channels* enables large coverage and high flexibility together with a portfolio of high-density coils. Furthermore, up to 48 independent receiver channels that can be used simultaneously in one single scan and in one single FoV, each generating an independent partial image
- SQ Gradients[1] with 45 mT/m @ 200 T/m/s
- New integrated Tx/Rx Body Coil
- New high-order shim
- Fully digital with DirectRF®
- Tx/Rx real-time feedback loop for dynamic RF
- New Tim patient table for easier patient handling
- New covers

New Tim Table
- Scan range of up to 204 cm
- Can be lowered to a minimum height of 52 cm for easier patient positioning and better accessibility for geriatric, pediatric or patients with limited mobility
- Can be moved with two clicks into the isocenter

New optional Tim Dockable Table
- Increases comfort patient transport, specially for patients with limited mobility
- Fast dock/undock functionality for easier patient handling
- Fits the needs for patients up to 200 kg (441 lbs)[2]

New standard coils
Include the new Tim 4G coil technology with combines key imaging benefits: Excellent image quality, high patient comfort, and unmatched flexibility.

- Head/Neck 20
- Spine 32
- Body 18
- Flex Large 4
- Flex Small 4

New optional coils available with a Tim 4G system
- 2nd Body 18
- Body 30
- Peripheral Angio 36
- Foot/Ankle 16
- Hand/Wrist 16
- Tx/Rx Knee 15 Flare
- Tx/Rx CP Head Coil
- 4-Channel Special-Purpose
- Breast 18
- Pediatric 16
- and many more ...

New computer system for faster reconstruction
- New host computer
- New image processor

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

Uncover what is new with
MAGNETOM Avanto^{fit}.

siemens.com/avanto

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Note: Any technical data contained in this document may vary within defined tolerances. Original images always lose a certain amount of detail when reproduced.

Please find fitting accessories:
siemens.com/medical-accessories

[1] Comparison of average SNR between Tim 4G and first generation integrated coil technology

[2] Zhongshang Hospital Fudan University, CN, Abdomen Dot Engine Workflow Study. Since there is no "typical" hospital and many variables exist (hospital size, case mix, level of IT adaption, etc), there can be no guarantee that others will achieve the same result.

[3] Dot Cockpit Usability Study (2013) for Dot and non-Dot users

[4] Evaluation of 2.2 million Siemens MR exams, 2013

[5] Decibel measurements and images acquired on MAGNETOM Amira, November 2014. Data on file. Results may vary.

[6] Hodnett, Am J Roentgenol.-197(6):1466

[7] Knobloch-ClinRadiol-69-4854

[8] MR scanning has not been established as safe for imaging fetuses and infants under two years of age. The responsible physician must evaluate the benefit of the MRI examination in comparison to other imaging procedures.

[9] 2013 MAGNETOM Flash reader survey. Data on file.

[10] The product/features (here mentioned) is a development tool available under contract with Siemens. Please contact your local Siemens organization for further details.

[11] If SQ Gradients are not part of your current system configuration.

[12] Consult your local Siemens representative for further details.

[13] 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.

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