SiemensHealthineers
Siemens-Healthineers

Naar aanleiding van uw toegevoegde functionele eisen vinden wij als Siemens Healthineers de **MAGNETOM Altea** uitermate geschikt voor de afdeling radiologie in het Rode Kruis Ziekenhuis te Beverwijk.

De MAGNETOM Altea is voorzien van de allernieuwste (Siemens Healthineers unieke) BioMatrix-technologie. Het uitgangspunt daarbij is dat de patiënten allen unieke, individuele kenmerken hebben. Deze verschillen in fysiologie en anatomie – en de manier waarop er (patiënt)interactie plaats heeft met het MRI-systeem – veroorzaken normaliter verschillen in beeldkwaliteit. De BioMatrix-technologie helpt u om dit effect c.q. deze ongemakken te bestrijden. In plaats ervan uit te gaan dat de patiënt zich aanpast aan de techniek, zorgen de BioMatrix-systemen met BioMatrix-technologie automatisch voor een aanpassing van de techniek aan de patiënt. Het resultaat: optimale beeldkwaliteit!

Enkele voorbeelden van BioMatrix-technologie zijn de (optionele) sensoren, die geïntegreerd zijn in (de coils van) het systeem. Deze BioMatrix Sensoren 'kijken' naar de ademhaling (respiratory sensor), de beweging van het hart (beat sensor) en de beweging van het hoofd (kinetic sensor). Zij zorgen voor bewegingsvrije beelden zonder dat de patiënt zich hoeft aan te passen aan het systeem (de patiënt kan bijvoorbeeld 'gewoon' blijven doorademen). Meer informatie over deze techniek vindt u in de bijlage "BioMatrix Technology".

Zowel de **MAGNETOM Altea** als de **MAGNETOM Lumina** beschikken over slice-specifieke mogelijkheden voor shimming (al dan niet ingebouwd in de spoelen), waardoor de beeldkwaliteit sterk en op individueel niveau verbeterd wordt. Dit zelfs als het hoofd van de patient in een gekantelde headcoil is gepositioneerd.

Inhoud

MAGNETOM Altea

Hoofdconfiguratie

Item nr.	Productnr	Omschrijving	Aantal
1	14461700	MAGNETOM Altea - System	1
2	14468946	BioMatrix Technology #Al,Lu	1
3	14460161	MR General Engine #BM	1
4	14456321	Brain Dot Engine #Am,Se,Vi,So,Lu,Al	1
5	14461775	DotGO Routine Package #BM	1
6	14441748	Quiet Suite #T+D	1
7	14460162	Tim Whole Body Suite #Vi,Lu,So,Al	1
8	14460227	Tim Planning Suite #BM	1
9	14456329	syngo TimCT FastView #BM	1
10	14460160	Advanced Diffusion #BM	1
11	14456327	WARP & Advanced WARP #BM	1
12	14456323	Inline Composing syngo	1
13	14456281	syngo Expert-i	1
14	14461701	Tim [180x32] XJ-Gradient #Al	1
15	14468980	Coil Package Tim [180x32] #1.5T	1
16	14461702	BioMatrix Table #Al	1
17	14461706	Pure White Design #Al	1
18	14456270	PC Keyboard US English #BM	1
19	14430463	Neuro Perfusion Package	1
20	14418596	SWI	1
21	14416862	TWIST syngo	1
22	14461541	UltraFlex Small 18	1
23	14461619	Turbo Suite Essential	1
24	14461556	Peripheral Angio 16 #So,Al	1
25	14460424	Breast BI 7 #So,Al	1
26	14460204	Accessory Breast BI 7 70cm	1
27	14460422	UltraFlex Large 18 #1.5T	1
28	14456282	Positioning Aids Shoulder&Ankle #BM	1
29	14441849	Diffusion Tensor Imaging #T+D	1
30	14416952	Coil Storage Cart #T+D,Ez	1
31	14456241	Separator 60kW/75kW #BM	1
32	11155025	MRT Pat.Stretcher, hight adjustable	1
33	14437955	teamplay Basic	1
34	NL2:APPL.DAY.MR	User instructions Siemens systems	8

Totaalprijs (netto), exclusief btw

Optioneel

Item nr.	Productnr	Omschrijving	Aantal
35	10847259	MIPM TeslaM3 Basic	1
36	10847262	MIPM TeslaM3 Remote Monitor	1
		Cardiac opties	
37	14416926	Cardiac Dot Engine #T+D	1
38	14468984	Advanced Cardiac incl. PSIR #Al,Lu	1
39	14441747	MyoMaps #1.5T	1
40	08464740	Flow Quantification #Tim	1
		Mamma biopsie opties	
41	14461559	Breast Biopsy #BM	1
42	14456224	Biopsy Starter Kit #BM	1
43	14456225	CC-Compression Unit #BM	1
44	14416948	Patient Supervision TV #T+D	1
45	14405351	Patient TV wall support	1
46	14468958	Innovision #BM	1
47	14469017	Turbo Suite Excelerate #BM	1
48	14469020	Turbo Suite Excelerate Support	1

Alternatieven

Item nr.	Productnr	Omschrijving	Aantal	Meerprijs (netto) exclusief btw
		Alternatief (groep)		
49	14461703	BioMatrix Dockable Table #Al	1	
		Vervangt basis:		
50	14461702	BioMatrix Table #Al	1	
		Meerprijs:		

Voorwaarden en Condities

MAGNETOM Altea

MAGNETOM Altea is the new 1.5T Open Bore system that gives you full confidence to deliver the productivity, reproducibility, and patient satisfaction that you demand in MRI. Powered by our premium MR technology, MAGNETOM Altea combines our unique BioMatrix technology with the new syngo MR XA software platform and our exclusive Turbo Suite to fundamentally transform care delivery for the better.
System Design
- Short and open appearance (157 cm total system length cover-to-cover and 70 cm Open Bore Design) to reduce patient anxiety and claustrophobia
- Whole-body superconductive Zero Helium Boil-Off 1.5T magnet
- Weight-optimized magnet technology based on high performance 3T and 7T magnet design
- Actively Shielded water-cooled Siemens gradient system for maximum performance

Tim 4G (Total imaging matrix in the 4th generation) for excellent image quality and speed with Siemens unique DirectRX technologyenabling all digital-in/digital-out design and Dual-Density Signal Transfer Technology

Push-button exams with GO technologies
Select&GO
DotGO
Recon&GO
MR View&GO

Tim Application Suite allowing excellent
head-to-toe imaging for
- Neuro
- Angio
- Cardiac
- Body
- Onco
- Breast
- Ortho
- Pediatric
- Scientific

Further included
- High performance host computer and measurement and reconstruction system
- Patient communication including headphones
- syngo MR software including
- Turbo Suite Essential
- 1D/2D PACE
- BLADE
- Phoenix
- Inline Diffusion
- MDDW (Multiple Direction Diffusion
Weighting)
- CISS
- DESS
- TGSE
- Offline Composing


SIEMENS
Healthineers
MAGNETOM Aera

Productdetails

Productnaam: MAGNETOM Altea - System

Item nr: 1

Product nr: 14461700

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The system includes:

BioMatrix Technology
In order to meet the requirements of the changing healthcare market, Tim® is now further enhanced with the ability to address patient biovariablity: Evolving from Total imaging matrix, BioMatrix® technology addresses the intrinsic biovariability in humans.

BioMatrix can adapt to all patients and their anatomic individuality, to make MRI more predictable and consistent for all patients, even the critical ones. BioMatrix can accelerate the workflow, without compromising quality of care by assisting interactions between the patient and the user, to improve MRI cost-effectiveness and patient outcomes.

BioMatrix anticipates, adapts and accelerates to embrace human nature.

Tim 4G
Tim 4G provides excellent image quality and speed in MRI combined with increased patient comfort and optimized workflow efficiency. Only one patient setup, no repositioning, no changing of coils. Ultra-light-weighted coils with high density of coil elements for maximized patient comfort and increased SNR. Feet-first positioning reduces claustrophobia. Tim 4G with its 4G flexibility, 4G accuracy and 4G speed brings image quality and acquisition speed to a new level.

Magnet:
- Short 145 cm long (157 cm with covers), whole-body superconductive 1.5T magnet with active shielding (AS) technology with counter coils
- External Interference Shielding (E.I.S.)
- Excellent homogeneity enabled magnet design which allows for a cylindrically optimized homogeneity volume resulting in higher image quality (50 × 50 × 45 cm^3 DEV, typ. 2,8 ppm based on the 24-plane plot method)
- Temperature sensors with real time correction algorithm for unmatched long-term stability at 70 cm
- The magnet has a typical Helium boil-off rate of 0 l/yr during typical, undisturbed clinical operation depending on the sequences used and examination time, and provided the system is serviced in regular intervals.
- It has an integrated magnet cooling system.
- The combination of standard active shim with 3 linear channels (1^{st} order) and 5 nonlinear channels (2nd order) and passive shim allows for maximized magnetic field homogeneity and consistent high image quality for a wide range of applications
- Integrated Eco-Power technology to save around 30% of energy during standby of the system.

Gradient system:
- Actively shielded water-cooled world-class gradient system
- All axes force compensated for lowest vibrations and acoustic performance

DirectRF - RF Transmit/Receive System:
- Fully integrated Transmit- and Receive path in the magnet housing including extremely compact water-cooled solid state amplifier with 29.2 kW peak power

- High dynamic range
- Immediate feedback loop for real-time sequence adaptation
- Integrated no tune transmit/receive Body Coil
- The revolutionary Tim 4G technology allows connecting 204 channels (coil elements) simultaneously enabling higher SNR and iPAT in all directions. No repositioning of patients is needed even for large Field of View examinations. Dual-Density Signal Transfer enables ultra-high density coil design by integrating key RF components into the local coil.

GO technologies

Select&GO
The Select&GO interface enables fast and easy single-touch patient positioning. Correct positioning saves unnecessary wasted time for repositioning and additional adjustments, therefore shortening the total room time.
- The ergonomically designed Select&GO touch panel is integrated into the front cover on the left hand side of the patient tunnel for controlling table movement, guidance for patient setup and comfort features. The Select&GO panel is well illuminated for easy visual recognition.
- Automated table move to upmost position, to center position or Home position facilitate smooth patient preparation and will reduce table time
- Variable (6 levels) ventilation and lighting inside the magnet bore or volume adjustments are possible for increased patient comfort The Select&GO touch panel provide on board guidance for patient set up where it's needed - directly at the scanner. Information such as patient name or exam type or required patient position, guidance for ECG set up and immediate visualization of physiological curves will be provided for convenient operation.
- Almost all table control functions, including ventilation and illumination of the magnet bore, can be also controlled from the operator console for convenient operation.

DotGO
Go for consistent results, efficiently with Dot Engines.
Dot offers a customizable framework for patient personalization, user guidance and exam automation. Optimized scan strategies are provided and can be selected based on patient condition, which allow for high quality exams even when conditions change.
Integrated decision points allow the user to easily add or remove one or a group of protocols with one click. Step by step image and text guidance guides novice users even through the most complicated exams. Exam automation allows optimal timing for breathing, scanning, planning or contrast arrival. Dot can be easily customized to follow the individual standards of care.
Dot is personalized, guided and automated and designed to improve workflow efficiency and image consistency.

Dot Cockpit
The central tool to continuously build knowledge into standardized exams strategies and to make those available for every user in the MRI department. Dot Cockpit is the new starting point for every exam.

Recon&GO
The Recon&GO technology encompasses a wide range of in-line functionalities automizing reconstruction and post-processing steps to provide ready-to-read results for the radiologist. Examples are Inline ADC calculation, inline subtraction of dynamic contrastenhanced series, up to Inline Launch of advanced post-processing applications.

MR View&GO
MR View&GO is MAGNETOM Altea's all-in-one viewing and reading solution for fast and intuitive quality check and result distribution. It receives the images directly as they come on the scanner, giving the user a clear overview of the quality of images scanned, without being distracted by constant context switches. Once the images have been checked for acceptable quality, they can easily be sent to the PACS with minimal user interaction.
Beyond that, MR View&GO offers the additional advantage to perform extended post-processing, directly at the scanner. In-line launching of post-processing applications makes it possible to fully automate the evaluation of, for example, perfusion maps, permeability or cardiac function, all without additional user interaction. This makes it possible to save radiologist time by delivering quantitative, ready-to-read results, directly to the PACS.

Tim Application Suite

The Tim Application Suite offers a complete range of clinically optimized examinations for all regions. The Tim Application Suite -allowing excellent head-to-toe imaging - is provided standard on MAGNETOM Altea.

- Neuro Suite
- Angio Suite
- Cardiac Suite
- Body Suite
- Onco Suite
- Breast Suite
- Ortho Suite
- Pediatric Suite
- Scientific Suite

Neuro Suite
Comprehensive head and spine examinations can be performed with dedicated programs. High-resolution pulse sequences and motion-insensitive pulse sequences for patients which have difficulties to lay still are provided. The Neuro Suite also includes pulse sequences for diffusion imaging, perfusion imaging, and fMRI.
It includes for example:
- Fast 2D imaging with SE, TSE, GRE pulse sequences for high-resolution imaging
- BLADE for motion-insensitive TSE imaging EPI pulse sequences and protocols for diffusion imaging, perfusion imaging, and fMRI for advanced neuro applications. Diffusionweighted imaging is possible with up to 16 b-values in the orthogonal directions. For reduced distortions and homogeneous signal intensity even in the presence of challenging susceptibility interfaces and at station boundaries, SliceAdjust (slice-by-slice adjustments) can be selected.
- 3D TOF for non-contrast enhanced angiography
- 3D isotropic resolution volume imaging using T1 3D MPRAGE / 3D
- FLASH, SPACE DarkFluid, T1 SPACE and T2 SPACE pulse sequences
- High-resolution T2 SPACE pulse sequence optimized for inner ear examinations
- Double Inversion Recovery 3D pulse sequences (DIR SPACE) with two user-selectable inversion pulses for the simultaneous suppression of e.g. cerebro-spinal fluid and white matter
- MP2RAGE (Magnetization Prepared 2 Rapid Acquisition Gradient Echoes) provides homogeneous tissue contrast for segmentation and applications such as voxel-based morphometry. In combination with MapIt*, it also provides T1 mapping functionality.
- Whole-spine pulse sequences in multiple steps with software controlled table movement
- 2D and 3D MEDIC pulse sequences for T2-weighted imaging, particularly for C-spine examinations in axial orientation where reproducibility is difficult due to CSF pulsations and blood flow artifacts
- RESOLVE (Readout Segmentation Of Long Variable Echo-trains) delivers highresolution, low-distortion diffusion-weighted imaging (DWI) for accurate depiction of lesions.
- BioMatrix's CoilShim helps to reduce patient induced strongly localized B0 inhomogeneities as may arise, e.g., in the neck region.
- 3D Myelo with 3D HASTE for anatomical details
- 3D CISS (Constructive Interference in Steady State) for excellent visualization of fine structures such as cranial nerves. High-resolution imaging of inner ear
- TGSE sequence used primarily for T2-weighted imaging for shorter measurement time, decreased RF power deposition, and high-resolution imaging of the brain
- AutoAlign Head LS providing a fast, easy, standardized, and reproducible patient scanning supporting reading by delivering a higher and more standardized image quality.

Angio Suite
Excellent MR Angiography can be performed to visualize arteries and veins with or without contrast agent.
- 3D MRA pulse sequences for carotid arteries, abdominal arteries, and peripheral arteries, with short TR and TE. The strong gradients make it possible to separate the arterial phase from the venous phase.
- Dynamic MRA for 3D imaging over time Signal from Respiratory Sensor can be selected to actively trigger MR image acquisition, e.g. with NATIVE*.

Contrast-enhanced MRA

3D contrast-enhanced MRA pulse sequences for dynamic carotid, abdominal, and peripheral arteries, shortest TR and TE. The strong gradients make it possible to separate the arterial phase from the venous phase
- TestBolus workflow for optimal bolus timing and excellent image quality
- CareBolus functionality for accurate determination of the bolus arrival time and the “Stop and Continue” of the 3D ce-MRA pulse squenece after the 2D bolus control scan
- Dynamic ce-MRA for 3D imaging over time

Non-contrast-MRA and venography
- Time-of-Flight (ToF) pulse squeneces for MRA for the Circle of Willis, carotids and neck vessels; can be adapted for venography, and Breath-hold protocols for abdominal vessels
- Triggered 2D ToF sequences for non-contrast MRA in the legsMR venography and arteriography with Phase-Contrast
- TONE (Tilted optimized non-saturating excitation) techniques for improved
- Contrast-to-Noise Ratio (CNR)

Image processing tools
- Inline MIP for immediate results
- Inline subtraction of pre- and post-contrast measurements
- Inline standard deviation maps of Phase-Contrast measurements for delineation of arteries and veins

Cardiac Suite
The cardiac suite covers comprehensive 2D routine cardiac applications, ranging from morphology and ventricular function to tissue characterization. It moreover features BEAT 2D in conjunction with iPAT, T-PAT and e-PAT techniques.

Cardiac views
- Fast acquisition of the basic cardiac orientations for further examination planning
- Cardiac scouting provides users with a step-by-step procedure for the visualization and planning of typical cardiac views, e.g. based on TrueFISP or Dark Blood TurboFLASH: short axis, 4- chamber and 2-chamber views.

BEAT
- Unique tool for fast and easy cardiovascular MR imaging
- E.g. 1 click change from FLASH to TrueFISP for easy contrast optimization
- 1-click to switch arrhythmia rejection on / off
- 1-click change from Cartesian to radial sampling to increase effective image resolution (e.g. in pediatric patients) and avoid folding artifacts in large patients

Visualization of structural cardiovascular pathologies with CMRBEAT
- Breath-hold and free breathing techniques for strong contrast between the blood and vascular structures. Dark Blood TSE and HASTE imaging are available for the structural evaluation of the cardiothoracic anatomy, including vessels or heart valves. Cine techniques (FLASH & TrueFISP) for high-resolution valve evaluation.
- Multiple contrasts such as T1- and T2-weighted imaging for use in diseases such as myocarditis (inflammation / hyperaemia), ARVD (fibrous-fatty degeneration) or acute myocardial infarction (edema)
- Dark-blood TSE with motion compensation for high-quality vessel wall imaging in small or large vessels

Tools for rapid evaluation of left or right ventricular function
- Acquisition of a stack of short-axis slices (standard: advanced segmented TrueFISP)
- Automatic adjustment of the acquisition window to the current heart rate
- Use of the Inline ECG for graphical ECG triggering setup
- Retrospective gating with cine sequences (TrueFISP, FLASH)
- Pulse sequences for whole-heart coverage
- Integration of Compressed Sensing Cardiac Cine (optional) for highest temporal and spatial resolution (segemented and realtime pulse sequences)
- Real-time imaging in case the patient is not able to hold his breath

4D imaging and tissue characterization with BEAT; pulse sequences for high-contrast and high-resolution tissue characterization
- Pulse sequences for stress and rest imaging with TurboFLASH contrast support the acquisition of multiple slices with high-resolution and arbitrarily adjustable slice orientation for each slice T-PAT and e-PAT with mSENSE and GRAPPA for advanced parallel imaging provides fast high-resolution dynamic imaging
- Segmented IR TrueFISP / FLASH with TI scout for optimization of tissue contrast

- Advanced tissue characterization with 2D phase-sensitive IR (PSIR) pulse sequences with TrueFISP and FLASH contrast. Magnitude and phase-sensitive images with one acquisition.
- Simple: no adjustment of inversion time (TI) necessary with PSIR technique
- Motion correction/averaging of multiple measurements with iPAT or tPAT accelerated single-shot TrueFISP or GRE images of the heart, for free-breathing acquisition.

Physiological Measurement Unit (PMU) - Wireless Physio Control
- Synchronizes the measurement with the physiological cycles (triggering to minimize motion artifacts caused by cardiac and respiratory movements)
- Wireless Sensors
- Wireless Vector ECG / respiration for physiologically synchronized imaging, rechargeable battery-powered - for optimized patient handling
- Physiological Signals Display
- ECG (3 channels)
- Respiration
- External Trigger Input Display

ECG Triggering:
- Acquisition of multiple slices, e.g. of the heart, at different phases of the cardiac cycle
- Excellent image quality by synchronizing data acquisition with cardiac motion
- Respiratory Triggering: Excellent image quality by synchronizing data acquisition with the respiratory motion
- External Triggering: Interface for trigger input from external sources (e.g. Patient Monitoring System) inside the examination room
- Interface for trigger input from external sources (e.g. pulse generator, trigger sources for fMRI) outside the examination room
- Optical trigger output for fMRI
- Retrospective gating for ECG, peripheral pulse, and external trigger input

Breast Suite
MR imaging provides excellent tissue contrast that may be useful in the evaluation of the breasts. Extremely high spatial and temporal resolution can be achieved in very short acquisition times by using iPAT with GRAPPA and CAIPIRINHA. Customized pulse sequences (e.g. with fat saturation or water excitation or silicone excitation), as well as flexible multiplanar visualization allow a fast, simple and reproducible evaluation of MR breast examinations.
This package includes:
- High-resolution 2D pulse sequences for morphology evaluation
- High-resolution 3D pulse sequences covering both breasts simultaneously
- Pulse sequences to support interventions (fine needle and vacuum biopsies, wire localization)
- Pulse sequences for evaluating breasts with silicone implants
- Automatic and manual frequency adjustment, taking into account the silicone signal
- Detection of the silicone signal either to suppress the silicone signal, if the surrounding tissue is to be evaluated, or to suppress the tissue signal in order to detect an implant leakage
- SPAIR - robust fat sat (robust fat suppression using an adiabatic frequency selective inversion pulse)
- DIXON - 2-point Dixon with 3D VIBE, the following contrasts can be obtained: in-phase, opposed phase, fat and water image iPAT with GRAPPA for maximum resolution in short time
- iPAT² with CAIPIRINHA that allows state-of-the-art sagittal breast imaging and further improvement of the temporal resolution in dynamic scans while maintaining spatial resolution
- Inline subtraction and MIP display
- Offline subtraction, MPR and MIP display
- REVEAL: diffusion imaging for breast exams. In pulse sequences with multiple b-values individual numbers of averages may be specified per b-value.
- RESOLVE: Diffusion-weighted, readout-segmented (multi shot) EPI sequence for high-resolution susceptibility-insensitive DWI of the breast
- RADIANT: Ultrasound-like reconstruction around the nipple

The Breast Suite also includes:
***syngo* VIEWS (Volume Imaging with Enhanced Water Signal)**

- Bilateral - both breasts are examined simultaneously
- Axial - the milk ducts are directly displayed
- fat-saturated or water-excited - fat complicates clinical evaluation and is suppressed
- Near-isotropic 3D measurement - the same voxel size in all three directions for reconstruction in any slice direction
- Submillimeter voxel - highest resolution for precise evaluation

Body Suite

The Body Suite is dedicated to clinical body applications. Ultra-fast high resolution 2D and 3D pulse sequences are provided for abdomen, pelvis, MR Colonography, MRCP, dynamic kidney, and MR Urography applications.
2D PACE technique makes body imaging easy, allowing for multibreath- hold examinations as well as free breathing during the scans.
Motion artifacts are greatly reduced with 2D PACE Inline technology.
This package includes:

- Free breathing 2D PACE applications with 2D HASTE (RESTORE) and 2D / 3D TSE- it is possible to use a phase navigator, which measures respiratory induced off-resonance effects. The positioning can be done automatically for most pulse sequences.
- Optimized fast single shot HASTE pulse sequences and highresolution
- 3D pulse sequences based on SPACE and TSE for MRCP and MR Urography examinations
- REVEAL: diffusion imaging for abdomen and whole body exams.
- For reduced distortions and homogeneous signal intensity even in the presence of challenging susceptibility interfaces and at station boundaries, SliceAdjust (slice-by-slice adjustments) can
- be selected.
- In pulse sequences with multiple b-values, individual numbers of averages may be specified per b-value. Inline calculation of ADC maps, exponential ADC maps and inverted b-value images can be selected. Inline calculation (extrapolation) of high b-values (up to b=5000 s/mm²) is possible.
- Signal from Respiratory Sensor can be selected to actively trigger MR image acquisition.

ABDOMEN:

2D:

- T1 (FLASH) breath-hold scans with and without FatSat (SPAIR, Quick FatSat, in- / opp-phase)
- T2 (HASTE, TSE / BLADE, EPI) breath-hold scans with and without FatSat (SPAIR, FatSat, STIR)
- T1 (TFL) triggered scans (2D PACE free breathing) in- / opp-phase T2 (HASTE, TSE / BLADE, EPI) triggered scans (2D PACE free breathing) with and without FatSat (SPAIR, FatSat, STIR) as well as HASTE- and TSE-multi-echo
- Optimized fast single-shot HASTE pulse sequences and highresolution pulse sequences based on SPACE and TSE for MRCP and MR urography examinations

3D:

- Dixon (VIBE 2pt-Dixon) breathhold scans, following contrasts can be obtained: in-phase, opposed phase, fat and water image
- Dynamic (VIBE and Quick-FatSat) pulse sequences with Inline motion correction for visualization of focal lesions with high spatial and temporal resolution
- Colonography dark lumen with T1-weighted VIBE
- REVEAL: Diffusion-weighted imaging of the prostate, cervix, rectum and other organs with multiple b-values. Inline calculation of
- ADC maps, exponential ADC maps and inverted b-value images can be selected. Inline calculation (extrapolation) of high bvalues (up to b=5000 s/mm2) is possible.

PELVIS:

- High-resolution T1, T2 pelvic imaging
- Isotropic T2 SPACE 3D pulse sequences
- Dynamic volume examinations with 3D VIBE

THORAX:

- High-resolution T1, T2 thorax imaging
- Motion-insensitve pulse sequences (BLADE, HASTE)
- TrueFISP pulse sequences for imaging of respiratory mechanics
- Dynamic imaging with TWIST (optional), TWIST-VIBE (optional)
- Non-contrast-enhanced vessel visualization with SPACE pulse
- sequences

- STIR pulse sequences for the evaluation of lymph nodes
- Diffusion-weighted imaging with REVEAL

Onco Suite
MR imaging provides excellent soft-tissue differentiation, multiplanar capabilities,
and the possibility of selectively suppressing specific tissue, e.g. fat or water. The Onco Suite features a collection of pulse sequences and evaluation tools that may be used for a detailed assessment of a variety of oncological conditions.

General features:
- STIR TSE, HASTE, and FLASH in-phase and opposed-phase pulse sequences for highly sensitive visualization of focal lesions
- Dynamic imaging pulse sequences for assessment of the kinetic behavior of tissue
- Quantitative evaluation and fast analysis of the data with colorized Wash-in, Wash-out, Time-To-Peak, Positive-Enhancement- Integral, MIP-time and combination maps with Inline technology
- Display and analysis of the temporal behavior in selected regions of interest with the included MeanCurve postprocessing application.
- This includes the capability of using additional datasets as a guide for defining regions of interest even faster and easier than before.
- REVEAL: Diffusion-weighted imaging with multiple b-values. In pulse sequences with multiple b-values, individual numbers of averages may be specified per b-value. Inline calculation of ADC maps, exponential ADC maps and inverted b-value images can be selected. Inline calculation (extrapolation) of high b-values (up to b = 5000 s / mm2) is possible. For reduced distortions and homogeneous signal intensity even in the presence of challenging susceptibility interfaces and at station boundaries,
- SliceAdjust (slice-by-slice adjustments) can be selected.
- RESOLVE: high-resolution, low-distortion diffusion-weighted imaging (DWI). In pulse sequences with multiple b-values, individual numbers of averages may be specified per b-value. Inline calculation of ADC maps, exponential ADC maps and inverted bvalue images can be selected. Inline calculation (extrapolation) of high b-values (up to b=5000 s / mm2) is possible.

Prostate:
- Dedicated prostate pulse sequences for a variety of clinical scenarios
- T1-weighted 3D VIBE pulse sequences with high temporal resolution (VIBE, TWIST (optional) and TWIST-VIBE (optional)) allow time course evaluation
- Prostate spectroscopy (3D CSI (optional) volume scan) with up to 8 sat bands (suppression of water and fat signal)

Whole-body imaging:
- TSE STIR pulse sequences for head-to-toe and head-to-pelvis imaging
- Dedicated pulse sequences for focus regions head, neck, thorax, abdomen and pelvis
- Diffusion-weighted imaging with REVEAL including SliceAdjust

OrthoSuite
Ortho Suite is a comprehensive collection of pulse sequences for joint and spine imaging.

This package includes:
- 2D TSE pulse sequences for PD, T1, and T2-weighted contrast with high in-plane resolution and thin slices
- 3D MEDIC, 3D TrueFISP pulse sequences with water excitation for T2-weighted imaging with high in-plane resolution and thin slices
- High-resolution 3D VIBE pulse sequences for MR Arthrography (knee, shoulder, and hip)
- 3D MEDIC, 3D TrueFISP, 3D VIBE pulse sequences with Water Excitation having high isotropic resolution optimized for 3D postprocessing
- T1 and PD SPACE 3D imaging with high isotropic resolution, optimized for post-processing Single-step, and multi-step pulse sequences
- Excellent fat suppression in off-center positions, e.g. in the shoulder due to high magnet homogeneity
- Dynamic TMJ pulse sequence (different joint positions)
- Multi Echo SE sequence with up to 32 echoes for T2 mapping

- High-resolution 3D DESS (Double Echo Steady State): T2 / T1- weighted imaging for excellent fluid-cartilage differentiation
- 2-point Dixon technique for fat and water separation - Turbo Spin Echo sequence
- WARP - 2D TSE sequence combining optimized high-bandwidth pulse sequences and View Angle Tilting (VAT), tailored to reduce susceptibility artifacts caused by orthopedic MRConditional implants. This helps in evaluation of soft tissue in proximity of the implants. Available pulse sequences include T1- weighted, T2-weighted, proton density and STIR contrast.
- Advanced WARP enables the reduction of gross artifacts (i.e. through-plane artifacts) caused by large MR-Conditional* implants. It contains the 2D TSE based SEMAC technique and is especially useful in the case of hip and knee joint replacements.
- Available pulse sequences include T1-weighted, proton density and T2 TSE STIR contrast.

Pediatric Suite
Tissue relaxation times and examination conditions in pediatrics are very different compared to those of adults. The reasons for these differences range from developing tissues, body size and faster heart rates to non-compliance with breathhold commands. Pulse sequences can be easily adapted for imaging infants.

Scientific Suite
The Scientific Suite supports scientific users by providing easy access to application-specific data for further processing and advanced image calculus.
- Support of USB Memory sticks
- Anonymization of patient data
- Easy creation of AVIs and screen snapshots to include in presentations or teaching videos
- Export of tables, statistics and signal time courses to communal exchange formats like e.g. tabulated text files (MeanCurve, Spectroscopy evaluation, DTI evaluation)
- Advanced image calculus including, addition, subtraction, multiplication, and division of images

This *syngo* software version provides security settings to protect the scanner against known security threats.
- User management with authentication to prohibit unauthorized access
- Privileges to grant rights and define functionality based on user/role Hardened operating system and restricted network communication
- Whitelisting (Embedded Control) against manipulation of scanner software
- Security Delivery process to frequently distribute security updates Option to protect customer pulse sequences trees against unauthorized modifications
- Audit trail to log system and data access by the defined users and service
- Support of customers to implement their security policy including compliance with HIPAA (Health Insurance and Accountability Act)

The sequences, features and techniques for acquisition and reconstruction included in the Tim Application Suite are described in detail below.

Sequences
Spin Echo family of sequences:
- Spin Echo (SE) - Single, Double, and Multi Echo (up to 32 echoes); Inversion Recovery (IR)
- 2D / 3D Turbo Spin Echo (TSE) - Restore technique for shorter TR times while maintaining excellent T2 contrast; TurboIR: Inversion Recovery for STIR, DarkFluid, T1 and T2, TrueIR
- 2D TSE with multiple average - it is possible to acquire T2-weighted TSE images during shallow breathing, in a time efficient manner
- 2D / 3D HASTE (Half-Fourier Acquisition with Single-Shot Turbo
- Spin Echo) - Inversion Recovery for STIR and DarkFluid contrast
- SPACE for 3D imaging with high isotropic resolution with T1, T2, PD, and DarkFluid Contrast
- 2D Optimized high bandwidth TSE (T1, T2, and PD weighted and STIR) with WARP for the reduction of susceptibility artifacts caused by MR Conditional metal* implants.

Gradient Echo family of sequences:

- 2D / 3D FLASH (spoiled GRE) - dual echo for in- / opposed phase imaging 3D VIBE (Volume Interpolated Breathhold Examination) - quick fat saturation; double echo for in-phase / opposed phase 3D imaging; DynaVIBE: Inline 3D elastic motion correction for multi phase data sets of the abdomen; Inline Breast Evaluation
- 2D / 3D MEDIC (Multi Echo Data Image Combination) for high-resolution T2 weighted orthopedic imaging and excellent contrast
- 2D / 3D TurboFLASH - 3D MPRAGE; single shot T1 weighted imaging e.g. for abdominal imaging during free breathing
- 3D GRE for field mapping
- 2D / 3D FISP (Fast Imaging with Steady State Precession)
- 2D / 3D PSIF - PSIF Diffusion
- Echo Planar Imaging (EPI) - diffusion-weighted; single shot SE and FID e.g. for BOLD imaging and perfusion-weighted imaging; 2D / 3D Segmented EPI (SE and FID)
- RESOLVE (Readout Segmentation Of Long Variable Echo-trains) delivers high-resolution, low-distortion diffusion-weighted imaging (DWI) for accurate depiction of lesions.
- ce-MRA sequence with Inline subtraction and Inline MIP
- 2D / 3D Time-of-Flight (ToF) Angiography - single slab and multi slab; triggered and segmented
- 2D / 3D Phase Contrast Angiography
- BEAT Tool - TrueFISP segmented; 2D FLASH segmented; Magnetization-prepared TrueFISP (IR, SR, FS); IR TI scout; Retrogating

Standard Fat/Water Imaging
- Fat and Water Saturation. Additional frequency selective RF pulses used to suppress bright signal from fatty tissue. Two selectable modes: weak, strong
- Quick FatSat
- SPAIR: robust fat suppression for body imaging using a frequency selective inversion pulse
- Fat / Water Excitation. Spectral selective RF pulses for exclusive fat / water excitation
- Dixon technique for fat and water separation - available both based on VIBE (2 point Dixon)

Standard Techniques
- True Inversion Recovery to obtain strong T1-weighted contrast
- Dark Blood inversion recovery technique that nulls fluid blood signal
- Saturation Recovery for 2D TurboFLASH, gradient echo, and T1- weighted 3D TurboFLASH with short scan time (e.g. MPRAGE)
- Freely adjustable receiver bandwidth, permitting studies with increased signal-to-noise ratio
- Freely adjustable flip angle. Optimized RF pulses for image contrast enhancement and increased signal-to-noise ratio
- MTC (Magnetization Transfer Contrast). Off-resonance RF pulses to suppress signal from certain tissues, thus enhancing the contrast. Used e.g. in MRA
- Analysis Tools for addition, subtraction, division, multiplication, calculations of ADC maps and b-value images
- Image Filter
- 3D post-processing MPR, MIP, MinIP, VRT
- Data storage of images on CD / DVD with DICOM viewer
- Export of cine AVI files on external media
- Selectable centric elliptical phase reordering via the user interface
- Inversion Recovery to nullify the signal of fat, fluid or any other tissue
- Multiple Direction Diffusion Weighting (MDDW) - diffusion tensor imaging measurements can be done with multiple diffusion-weightings and up to 12 directions for generating data sets for diffusion tensor imaging.
- WARP - 2D TSE sequence combining optimized high-bandwidth protocols and View Angle Tilting (VAT), tailored to reduce susceptibility artifacts caused by orthopedic MR-Conditional* implants.
- Advanced WARP - 2D TSE based Slice Encoding for Metal Artifact Correction (SEMAC) technique for the reduction of through-plane distortions from large MR conditional* implants.

Standard techniques for Flow Artifact reductions
- LOTA (LongTerm Data Averaging) technique to reduce motion and flow artifacts
- Pre-saturation techniques using RF saturation pulses to suppress flow and motion artifacts
- Tracking SAT bands maintain constant saturation of venous and/or arterial blood flow eg. for 2D/3D sequential MRA
- TONE (Tilted Optimized Non-saturating Excitation - variable excitation flip angle to compensate inflow saturation effects in 3D MRA - selectable on desired flow direction and speed

- GMR (Gradient Motion Rephasing). Sequences with additional bipolar gradient pulses, permitting effective reduction of flow artifacts

Standard Motion Correction
- BLADE - improves image quality by minimizing and correcting for the effects of motion during an MR sequence acquisition. e.g. head, spine, orthopedic imaging and the abdomen
- 1D PACE (Prospective Acquisiton CorrEction) allows examination of patients with free breathing
- 2D PACE (Precise Motion Correction) detects and corrects respiratory motion eg of the heart or liver
- PSIR HeartFreeze (Phase-Sensitive Inversion Recovery) - Motion correction/averaging of multiple measurements with iPAT or tPAT accelerated single-shot TrueFISP or GRE images of the heart, for free-breathing acquisition

MAGNETOM Altea runs on *syngo* MR XA11 software that offers an acquisition workplace with a large 16:10 24" monitors, one keyboard and one mouse.
The MR acquisition workplace provides environments for scheduling, scanning and basic quality assurance as well as viewing, basic and advanced post-processing, and data handling (Export, Import, Transfer, Record to media). The acquisition workplace can host one MR View&GO for viewing, basic postprocessing, and data distribution and up to three post-processing applications in parallel.
For faster data transfer and reduced storage demand *syngo* MR XA11 uses the DICOM Enhanced MR Image format for its scanning result.
Features like Online Help, DICOM MPPS autocomplete, inline technologies, and scan@center additionally support the workflow.

Patient Communication
- The intercom system includes an ergonomically designed patient
- communication unit for desktop positioning on the *syngo*
- Acquisition Workplace and pneumatic headphones for the
- patient.
- It controls emergency table stop, volume control of speaker and headphones in the examination room, volume control of speaker in the control room, response to the patient's activation of the assistance-call button and provides a connection to an external audio system (external audio system is not included in the basic unit) for music playback.

Computer System
The PC-based computer system uses the intuitive *syngo* MR user interface and allows the usage of up to 3 advanced *syngo*.via applications at the scanner workplace.
High-performance host computer:
- Intel Xeon processor ≥ E5-1650 (6 core)
- Clock rate ≥ 3.5 GHz
- Main Memory (RAM) ≥ 64 GB
- SSD ≥ 480GB
- DVD-R writer for CD-R (approx. 4000 images 2562 DICOM Standard, ISO 9660) and DVD-R (approx. 25 000 images 2562
- DICOM Standard, ISO 9660) storage of DICOM data or other data like AVI files
- Electronic mouse
- One high-resolution 24" color LCD flatscreen monitors with 1920 x 1200 pixel display, integrated gamma correction for optimum display of radiographic grayscale images and automatic backlight control for longterm brightness stability.

Installation
- The relatively light-weight design of MAGNETOM Altea eliminates in most cases the need for structural building reinforcements and also facilitates installation in upper floors.
- The compact integrated design allows for short installation times and reduces the required space to less than 28 sqm (302 sq. ft.) for the entire installation. The minimum room height clearance is only 2.40 m (7' 10").
- MAGNETOM Altea allows siting of the system without a dedicated computer room - no additional cooling or floor requirements.
- MAGNETOM Altea combines state-of-the-art performance with peace of mind. High system availability is ensured by the expert - highly trained Siemens MR service engineers
- Your Siemens service contract (not included in the basic unit) offers a comprehensive range of benefits such as Uptime Remote Diagnostics for improved productivity and maximum uptime.

Productnaam: BioMatrix Technology #Al,Lu

Item nr: 2

Product nr: 14468946

The new and unique BioMatrix technology addresses the different aspects of patient bio-variability. It is based on three
technological clusters:
- BioMatrix Sensors address patient physiology, in order to anticipate challenges
- BioMatrix Tuners address patient anatomy, in order to adapt to all patients, especially critical ones.
- BioMatrix Interfaces address user interaction with the patient, to accelerate the workflow in the face of patient variability.

BioMatrix Sensors anticipate challenges before they happen.
Respiratory sensors (optional) are integrated in the BioMatrix Spine coils and measure the patient's respiratory signal in head-first and feet-first position. The sensor loops measure the change in impedance resulting from the shift of the tissue and organs during the inhaled and exhaled phase of the patient's respiration as soon as the patient is lying on the table (optional).

BioMatrix Tuners – adapt to all patients, even critical ones.
The BioMatrix Tuners are CoilShim (optional) and SliceAdjust.
BioMatrix's CoilShim helps to reduce patient induced strongly localized B0 inhomogeneities by generating the respective anatomy-specific B0 field with 4 independent shim channels built into the system. Calculation and fine-tuning of local CoilShim currents integrated into global shim algorithm.
BioMatrix Head/Neck 20 tiltable with CoilShim (optional) has local shim elements integrated into the posterior part, addressing patient induced B0 distortions in the neck region.
BioMatrix SliceAdjust enables precise slice-by-slice tuning of resonance frequency, transmitter voltage, and first order B0-shim and B1-shim. For whole-body diffusion, the SliceAdjust technology helps to avoid station boundaries and apparent broken spine artifacts as well as to preserve the SNR for whole-body diffusion.

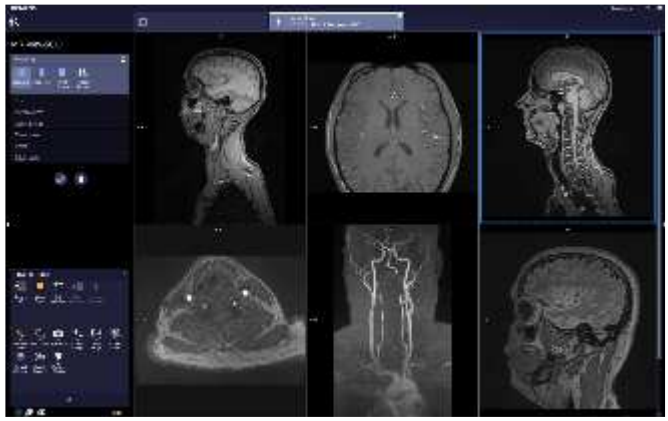
BioMatrix Interfaces – accelerate workflow without compromising quality of care
The BioMatrix body model, leveraged by the Select&GO panel on the front of the system, is able to derive the precise location of the organs based on the patient's individual characteristics. With a single touch, the technologist can quickly position the body part of interest at the isocenter and start the examination.

Productnaam: MR General Engine #BM

Item nr: 3

Product nr: 14460161

syngo.MR General Engine extends Numaris/X by adding dedicated worflows and tools for routine and advanced reading of MR examinations.
A generic MR Basic workflow is provided, as well as specific MR Neurology, MR Prostate Reading, MR Breast Reading, and MR Cardio-Vascular workflows.



Main functionalities of *syngo*.MR General Engine:

- MR Basic workflow with Easy Reading mode for easy, fast, and intuitive MR reading, based on single-click and drag&drop interactions:
  - single-click interaction to navigate through the series
  - intelligent layout adaptation to compare series together
  - single-click fusion between different contrasts
- MR Cardio-Vascular Workflows: Cardiac Reading, Angio Single Station, Angio Multi Station, Angio TimCT and Angio TWIST
- MR Evaluation tools: Subtraction, MeanCurve, Image Filter, 2D/3D Distortion Correction. ADC and b-value tool (for extrapolated b-values), Multiplication, Division, Addition, Elastic Motion Correction.Workflow optimized report templates.

Scope of delivery:
syngo.MR General Engine software package with MR Radiology workflows, MR Cardio-Vascular workflows and MR Evaluation for a workstation-based server.

Productnaam: Brain Dot Engine #Am,Se,Vi,So,Lu,Al

Item nr: 4

Product nr: 14456321

The Brain Dot Engine provides guided and automated workflows customizable to the site specific standards of care for general brain examinations. The Brain Dot Engine supports the user in achieving reproducible image quality with increased ease of use and time efficient exams.
The brain workflow can be personalized to the individual patient condition and clinical need. Several predefined strategies are included, which can be easily selected with one click. They can be changed at any time during the brain workflow.

Protocols tailored for use of contrast media are integrated.
- Standard: Standard examination with 2D protocols
- Resolution focus: Examination with 3D protocols (with e.g. SPACE) for detailed views
- Speed focus: Examination with fast 2D protocols (with e.g. HASTE) for further speeding up the exam
- Motion insensitive: Examination with *syngo* BLADE protocols
- to minimize and correct for the effects of motion automatically

Step-by-step user guidance is seamlessly integrated. Example images and guidance text are displayed for each individual step of the scanning workflow. Both - images and text - are easily configurable by the user.

Easy positioning of the patient with AutoPosition. The patient is automatically placed at the isocenter without any laser marking required.

AutoAlign Head provides automated, positioning and alignment of slice groups to the anatomy, relying on multiple anatomical landmarks. Besides basic brain positioning, AutoAlign Head computes reference position for several other brain structures such as the inner ear, the orbits and the optic nerve.

Automatic real-time calculation of trace-weighted images and ADC maps with Inline Diffusion Technology.

Easy rerun or repeat with functionality allows for reduced table time. Alternatively an exam can be repeated with a changed strategy.

The Brain Dot Engine as all Dot engines can be modified by the user to their individual standard of care.

Productnaam: DotGO Routine Package #BM

Item nr: 5

Product nr: 14461775

The DotGO Routine Package includes both:
- Spine Dot Engine and
- Large Joint Dot Engine.

As a package they offer a comprehensive set of workflows with guidance and automation, for standardized image quality in Spine and MSK MR imaging.
The Spine Dot Engine provides the functionality of Inline Composing and Tim Planning Suite for streamlining workflows in all spine imaging. Tools, such as auto-positioning and vertebral recognition with AutoAlign Spine, AutoCoverage and Spine Labelling support and optimize reproducibility for your cervical, thoracic and lumbar spine imaging for all clinical indications.
The Large Joint Dot Engine enhances standardization of the knee, hip and shoulder workflows and optimizes reproducible image quality by incorporating automation tools, such as anatomically based auto-positioning (AutoAlign). Dedicated imaging techniques, such as Advanced WARP, are included and can help to expand the access of diagnostic MRI to a broader range of patient types.

Spine Dot Engine:
The Spine Dot Engine provides optimized cervical, thoracic and lumbar spine imaging for patients of all conditions.
Spine Dot Engine provides the functionality to simplify your spine workflow by providing tools to reduce examination times, achieve optimal image quality, and assist you during reading.

- User guidance step-by-step
- AutoPosition
- AutoAlign Spine with intervertebral disc detection
- AutoCoverage
- AutoSatPosition
- Initial and interactive snapping
- AutoLabeling of vertebrae
- Automatic curved multiplanar reconstructions of 3D datasets

The Spine Dot Engine includes:

- Tim Planning Suite
- Inline Composing
- *syngo* WARP Susceptibility Artifact Reduction
  syngo WARP integrates different techniques tailored to reduce susceptibility artifacts caused by orthopedic MR-conditional metal implants. 2D TSE sequence combining optimized high-bandwidth protocols and View Angle Tilting (VAT) technique, tailored to reduce susceptibility artifacts caused by orthopedic MR-conditional metal implants. This helps in evaluation of soft tissue in proximity of the implant. Available protocols include T1- weighted, T2-weighted, proton density and STIR contrast.

Large Joint Dot Engine:
Large Joint Dot Engine optimizes image quality of knee, hip and shoulder scans by proposing the most appropriate protocols according to the examination strategy chosen for the specific patient. It ensures reproducible image quality and streamlines large joint examinations to the greatest extent.

Dot Exam Strategies
The workflow can be personalized to the individual patient condition and clinical need. The Large Joint Dot Engine comes with the following predefined strategies, which the user can select according to patient conditions or change at any time during the workflow, when conditions change:

- Image quality: Achieve highest image quality in a reasonable scan time with 2D and 3D protocols.
- Speed focus: Examine patients in the shortest possible time with protocols being accelerated to the maximal extent.
- Motion artifact reduction: Compensate for the effects of motion, e.g. with motion insensitive *syngo* BLADE protocols.
- Artifacts reduction: Reduce susceptibility artifacts, using *syngo* WARP.

AutoAlign

- Automated, localizer based positioning and alignment of slice groups to the anatomy, relying on anatomical landmarks. Providing fast, easy, and reproducible patient scanning and supporting the reading by consistently delivering high image quality with a standardized slice orientation.

Inline MPRs - Automatic multiplanar reconstruction for 3D datasets

- The Multi Planar Reconstruction (MPR) tool uses the position information from the AutoAlign algorithm and can be easily configured to automatically generate any required 2D images from high-resolution 3D acquisitions.

Guidance View

- Step-by-step user guidance is seamlessly integrated.
- Example images and guidance text are displayed for each individual step of the scanning workflow.
- Both images and text are easily configurable by the user

syngo WARP - Susceptibility Artifact Reduction

- *syngo* WARP integrates different techniques tailored to reduce susceptibility artifacts caused by orthopedic MR-conditional metal implants. 2D TSE sequence combining optimized high-bandwidth protocols and View Angle Tilting

(VAT) techniques. This helps in evaluation of soft tissue in proximity of the implant. Available protocols include T1-weighted, T2-weighted, proton density and STIR contrast.

Advanced WARP:

- Advanced WARP application consists of SEMAC, a technique to reduce gross metal artifacts (i.e. through-plane artifacts) caused by big orthopedic implants. The main clinical applications are in hip and knee joint replacements. Available protocols include T1-weighted, T2-weighted, proton density and STIR contrast.

Customization

The Large Joint Dot Engine can be modified by the user to their individual standard of care.

- Add/remove protocol steps
- Change guidance content (images and text)
- Change or add Dot exam strategies
- Add clinical decision points
- Add/remove parameters in the parameter viewing card

New with SW syngo XA11A:

GOKnee3D - push-button 10-minute knee exam

GOKnee3D is a 10-minute, push-button examination for diagnostic imaging of the knee developed and clinically validated by the US board certified MSK radiologists at John Hopkins University Hospital. GOKnee3D exam consists of AutoAlign localizer in the knee, PD weighted contrast and T2 weighted contrast with fat suppression. The AutoAlign technology provides a push-button functionality and ensures consistency in imaging. The 3D protocols are high-resolution and isotropic, enabled by SPACE sequence with CAIPIRINHA technique.

Productnaam: Quiet Suite #T+D

Item nr: 6

Product nr: 14441748

Quiet Suite enables complete, quiet examinations for neurology and orthopedics with at least 70% reduction in sound pressure levels.

Effective noise reduction is achieved through Quiet Suite by targeting the main source of MRI noise - rapid switching in the gradient coils. Quiet Suite consists of QuietX, an intelligent algorithm which effectively reduces noise through summation of gradients and reduction of slew rates while keeping timing parameters within the same range. QuietX has been enabled for TSE, SE and GRE sequences for T1, T2 and DarkFluid contrasts. Within the TSE-sequence, the parameter “Echo-spacing” allows the user to further lower the gradient slew-rates. QuietX has also been enabled for susceptibility and diffusion-weighted imaging and these sequences are available with the SWI and Advanced Diffusion licenses (not available for MAGNETOM ESSENZA), respectively. The automated algorithm runs in parallel to normal protocol handling. All features and contrasts of the TSE, SE, and GRE sequences remain available.

In addition, Quiet Suite contains PETRA, a 3D T1 UTE sequence. The PETRA sequence allows for even lower gradient switching. With its unique gradient trajectories, no acoustic noise associated with gradient switching is generated during a PETRA scan. Residual noise may arise due to radio frequency switching.

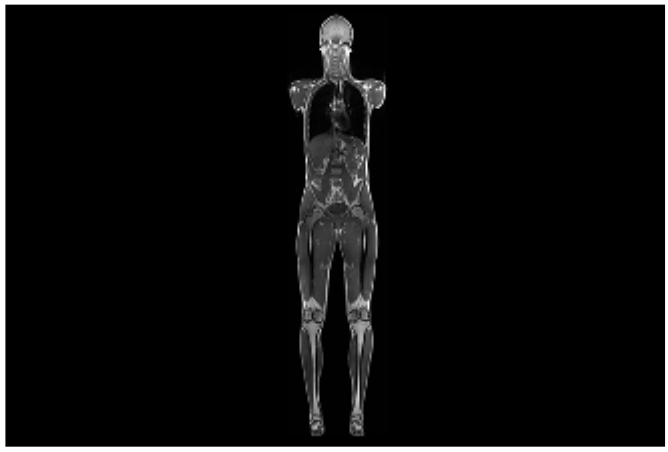
With Quiet Suite, optimized quiet protocols for imaging the brain and large joints are also provided.

Productnaam: Tim Whole Body Suite #Vi,Lu,So,Al

Item nr: 7

Product nr: 14460162

Tim Whole Body Suite puts it all together. This suite enables table movement for imaging of up to 205 cm (6' 9") FoV without compromise. In combination with Tim's newly designed ultra-high density array higher spatial and temporal resolution can be achieved along with unmachted flexibility of any coverage up to Whole Body.
For faster exams and greater diagnostic confidence.



Tim and the Tim Whole Body Suite enable for true whole body MR scanning for head-to-toe imaging. Whole body imaging with highest image quality without patient repositioning and without the need to change a single coil, not even once, this means whole body imaging without compromise.

The Tim Whole Body Suite features:

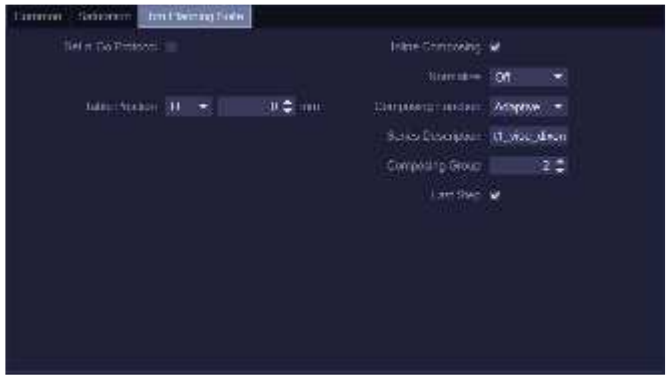
- The all-new Tim Table or Tim Dockable Table enable a full Field-of-View with coverage up to 205 cm (6' 9"). The table top has the same length as the standard system without whole body capabilities. Additional free space is required at the rear part of the magnet to ensure, that the table movement is not limited by the rear wall.
- Table movement to its full extent can be remotely controlled from the operator console either by the operator or by sequence protocols.
- Protocols and programs for whole body MR angiography and morphology e.g. for metastasis visualization and preventive care examinations.
- Whole body MR Angiography is possible with high speed, high resolution and high image contrast on the entire volume combining high speed gradients and iPAT.
- The large FoV of 205 cm supports the assessment of metastases distribution in the body with sequences such as TIRM (Turbo Inversion Recovery).

Productnaam: Tim Planning Suite #BM

Item nr: 8

Product nr: 14460227

With the Tim Planning Suite, multiple regions in the entire body can be examined in a minimum of time through measurement planning on a single FoV of any desired size.



The dedicated Tim Planning Suite user interface has been optimized for these comprehensive measurement requirements. Set-n-Go protocols for entirely automated examinations in each body region in one work step are available. For example, for orthopedic, oncological or angiographic imaging.

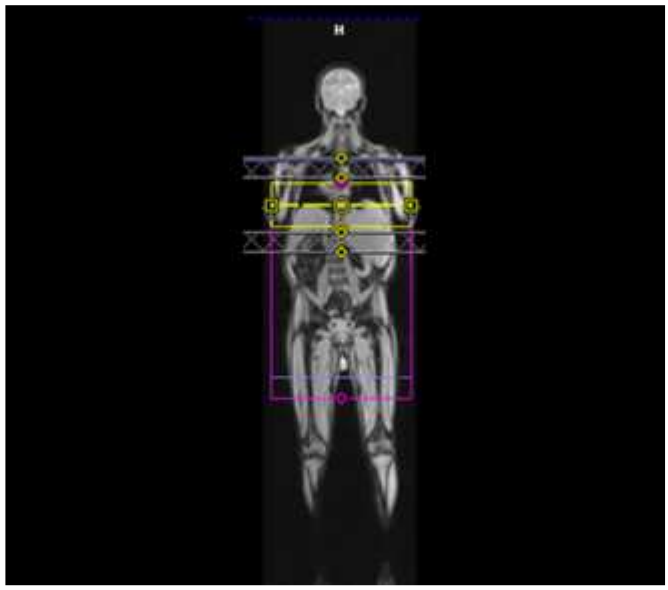
- Easy planning on a FoV of any desired size (up to 205 cm).
- Planning of multiple steps simultaneously, e.g. on a whole-body image, with only one Set-n-Go protocol - which includes several steps.
- Tim Planning Suite UI: Dedicated user interface and exclusive tools for effective and smooth working on a large FoV.
- Multiple slice groups with their overlap are displayed together and can be easily arranged.
- All steps can have independent sets of parameters.
- All steps are displayed together with a single mouse click.
- Easy positioning of all steps, for example, through Align FoV.
- Full support of Phoenix, thus maximum reproducibility, for example, for follow-up studies, multi-centric studies or exchange of experiences across different institutions.
- Dedicated protocols are provided for the Tim Planning Suite, for example, for orthopedic, oncological or angiograhic indications.
- It is highly recommendable to order application training!

Productnaam: syngo TimCT FastView #BM

Item nr: 9

Product nr: 14456329

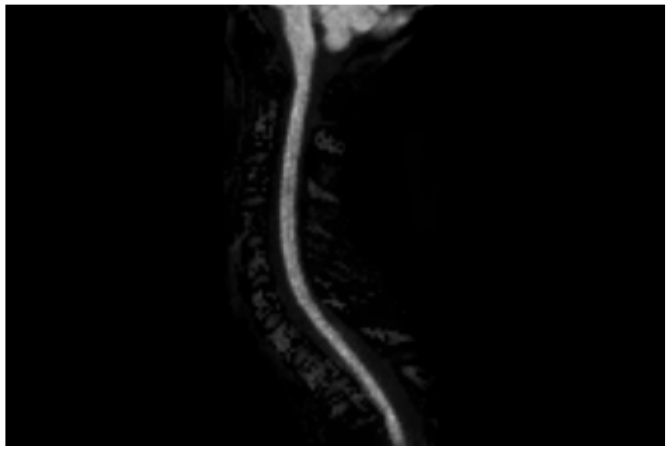
TimCT FastView is the “one go” localizer for the whole body or large body regions such as the whole spine or the whole abdomen. It acquires the complete extended Field of View in one volume with isotropic resolution. Transverse, coronal and sagittal reformats of the volume are calculated Inline and displayed for planning subsequent exams.
- Inline reconstruction of the localizer images during the scan.
- Localizing images in three planes over the maximum Field of View available for subsequent planning in all orientations.
- TimCT FastView runs without laser light positioning to further streamline the workflow for several indications.



Productnaam: Advanced Diffusion #BM

Item nr: 10

Product nr: 14460160



QuietX DWI and RESOLVE together make up the Advanced Diffusion package.

QuietX DWI enables quieter diffusion-weighted imaging of the brain with up to 70% reduction in sound pressure relative to conventional diffusion-weighted imaging. RESOLVE (Readout Segmentation Of Long Variable Echo-trains) is a multi-shot, readout segmented EPI sequence for high-resolution, low-distortion diffusion-weighted imaging (DWI). This technique is largely insensitive to susceptibility effects, providing anatomically accurate diffusion imaging for the brain, spine, breast and prostate. In combination with syngo.MR Tractography, RESOLVE enables excellent white-matter tract imaging even in regions of high susceptibility, such as the spine.

RESOLVE is a diffusion-weighted, readout-segmented EPI sequence optimized towards high-resolution imaging with reduced distortions.
The sequence uses a very short echo-spacing compared to single-shot EPI, substantially reducing susceptibility effects. A 2D-navigator correction is applied to avoid artefacts due to motion-induced phase errors. This combination allows diffusion weighted imaging of the breast, prostate (SEEit sequence for prostate DWI), brain and spine with a high level of detail and spatial precision.

Additionally, an automatic reacquisition of data with large phase errors can be used to ensure that diffusion-weighted images of the brain are not affected by CSF pulsation.

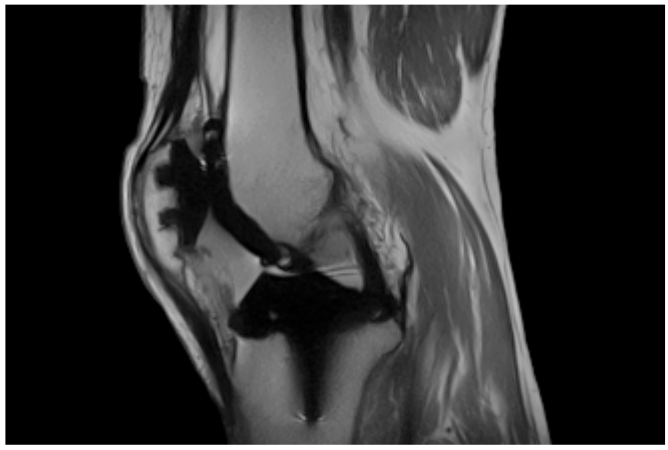
QuietX DWI protocols for the brain utilize QuietX, an intelligent algorithm which effectively reduces noise through summation of gradients and reduction of slew rates while keeping timing parameters within the same range. All features and contrasts of DWI remain available, delivering image quality comparable to a conventional single shot diffusion sequence, while providing at least 70% sound pressure reduction for increased patient comfort.

Productnaam: WARP & Advanced WARP #BM

Item nr: 11

Product nr: 14456327

WARP and Advanced WARP (SEMAC) integrates different techniques tailored to reduce susceptibility artifacts caused by orthopedic MR-conditional metal implants.



2D TSE sequence combining optimized high-bandwidth protocols and View Angle Tilting (VAT) technique helps in evaluation of soft tissue in proximity of the implant. SEMAC (Slice Encoding for Metal Artifact Correction) is a technique to correct through-plane distortions by means of additional phase encoding in slice direction. It is especially useful in the case of hip and knee joint replacements.
WARP and Advanced WARP help in evaluation of soft tissue in proximity of the implant. Available protocols include T1-weighted, T2-weighted, proton density and STIR contrast.

Main Features:
- Can be switched on in the standard TSE sequences
- For each slice, additional phase encoding is performed to better characterize the distortion
- Distorted signals are corrected by dedicated inline processing

Productnaam: Inline Composing syngo

Item nr: 12

Product nr: 14456323

Automatic anatomical or angiographic composing of multiple adjacent coronal or sagittal images for presentation and further evaluation. Composed images can be automatically loaded into Graphical Slice Positioning for scan planning purposes.

The Inline Composing option includes the following functions:
- Inline calculation of full-format images of the spine, the central nervous system or the vessel tree, for example, combined from multiple overlapping steps.
- Dedicated composing algorithms, optimized for the generation of anatomical or angiographic full-format images.
- Data sets with different FoV, resolution, matrix and slice thickness can be combined.
- Generation of full-format images from inline-computed MIPs.
- Different inline functions can be combined; e.g. in case of multiple-step angios, Inline subtraction, Inline MIP and Inline Composing can be performed fully automatically.
- Full-format acquisitions from Inline Composing are ideal for further measurement planning on large FoV, e.g. with the Tim Planning Suite.

Productnaam: syngo Expert-i

Item nr: 13

Product nr: 14456281

This software application enables remote access to the system (connected via local area network) for planning and processing.

The option is integrated in the *syngo* user interface thus enables easy access to the user interface of the *syngo* Acquisition Workplace for planning and processing support purposes.
The access is protected by appropriate security mechanisms (active enabling prior to every connection through the user present on site, password protection), in order to prevent unwanted connections.

The client software can be operated on any commercial PC with the following specification:

- Operating system: Windows 7/8.1/10
- .NET Framework version 4.5 or higher

Productnaam: Tim [180x32] XJ-Gradient #Al

Item nr: 14

Product nr: 14461701

Tim [180x32] XJ-gradients performance level
Tim 4G's RF system and innovative coil architecture enables high resolution imaging and increased throughput.
The system provides a maximum number of 180 channels (coil elements) that can be connected simultaneously. Flexible parallel imaging is achieved by the standard 32 independent RF channels that can be used simultaneously in one single scan and in one single FOV, each generating an independent partial image.

XJ - gradients
The XJ 33/125 gradients are designed for high performance and linearity to support clinical whole body imaging at 1.5T. The XJ gradients combine 33 mT/m peak amplitude with a slew rate of 125 T/m/s.
The force compensated gradient system minimizes vibration levels and acoustic noise.

High-performance measurement and reconstruction system.
Tim [180x32] performance level
BioMatrix builds on DirectRF - The all digital-in/ digital-out design integrates all RF transmit and receive components at the magnet, eliminating analog cables for true signal purity. This compact and efficient design enables a dynamic feedback control for temporal stability and power linearity.
The innovative architecture packs more coil elements in a smaller space and the system provides a maximum number of 180 channels (coil elements) that can be connected simultaneously. Advanced iPAT capabilities and SNR are enabled by the 32 independent RF channels that can be used simultaneously in one single scan and in one single FOV, each generating an independent partial image.
An additional benefit of multiple coil elements and receiver channels is improved performance in multi-directional, i.e. three dimensional, high-speed, high-resolution iPAT in the head-feet, anterior-posterior or left-right directions.

XJ gradients
Siemens XJ gradients provide actively shielded, water cooled worldclass gradients. All axes are force-compensated.

The XJ gradients have:

- Maximum gradient amplitude of 33 mT/m, per axis, i.e. 57 mT/m vector summation gradient performance,
- Maximum slew rate 125 T/m/s per axis, i.e. 216 T/m/s vector summation,
- Minimal rise time 264 µs, from 0 to 33 mT/m amplitude
- Maximum output voltage for each of the gradient axes 2000 V
- Maximum output current for each of the gradient axes 625 A
- Separate cooling channels that simultaneously cool primary and secondary coils allow the application of extremely gradient intensive techniques in a new class of performance.
- 100% duty cycle for fast and demanding techniques such as ultrashort TE MRA in continuous operation, thin slice single breath-hold liver studies and EPI imaging techniques (all optional in appropriate clinical packages).
- Variable Field-of-View selection from 0.5 cm to 50 cm (up to 50 cm in z direction) for optimal coverage and highest spatial resolution in diagnostic imaging. The minimum slice thickness in 2D and 3D is 0.1 mm and 0.05 mm, respectively.
- Acquisition of sagittal, transverse, coronal, single oblique and double oblique slices with highest resolution.
- The extremely compact water-cooled gradient amplifier features a modular expandable design with excellent linearity and pulse reproducibility. It is digitally controlled and has very low switching losses due to ultrafast solid state technology.

Computer system
High-performance measurement and reconstruction system
- Intel Xeon Processor ≥ 2 x E3-1275v5 (4 core)
- Clock rate of ≥ 3.6 GHz
- Main memory (RAM) of 48 GB
- SSD for raw data ≥ 480 GB
- SSD for system software ≥ 240 GB
- Parallel Scanning and Reconstruction of up to 12 data sets
- Reconstruction speed
  - 16949 recons per second (256 x 256 FFT, full FoV)
  - 78431 recons per second (256 x 256 FFT, 25 % recFoV)

The combination of host computer and the measurement and reconstruction system offers a truly powerful imaging system designed for large image matrix sizes of up to 1024 x 1024. The unrestricted multitasking capability allows time-saving parallel scanning and reconstruction.

Productnaam: Coil Package Tim [180x32] #1.5T

Item nr: 15

Product nr: 14468980

This package includes:
- Head/Neck 16 DirectConnect
- BioMatrix Spine 24
- BioMatrix Body 12
- Flex Large 4
- Flex Small 4
- Flex Coil Interface

Tim 4G & BioMatrix Coils
The coils in the standard coil package combine the new BioMatrix functionalities CoilShim and Respiratory Sensor with the Tim 4G coil technology with Dual-Density Signal Transfer, DirectConnect and SlideConnect technology. The result are key imaging benefits: Excellent image quality, high patient comfort, and unmatched flexibility.

The Tim 4G & BioMatrix coils are designed for highest image quality combined with easy handling. The high coil element density increases SNR and reduces examination times. DirectConnect and SlideConnect™ technology reduce patient set up time significantly.
The coils are designed with the patient in mind. Light weight coils with an open design ensure highest patient comfort resulting in better patient cooperation and image quality. No coil changing with multi-exam studies saves patient setup- and table time.

AutoCoilSelect for dynamic, automatic, or interactive selection of the coil elements within the Field of View fastens the exam preparation at the host.
All coils are time-saving “no-tune” coils.
A comprehensive set of pads for comfortable and stable patient positioning together with safety straps are included.

Head/Neck 16 Direct Connect
The 16-channel coil with its 16 integrated pre-amplifiers ensures excellent signal-to-noise ratio. The unique DirectConnect technology allows users connecting the 16 coil elements of the Head/Neck 16 without cables. The patient friendly open design allows for maximum patient comfort which is supported in addition by a look-out mirror for claustrophobic patients. The high channel coil is iPAT compatible in all directions.
The open and light design of the upper coil part increases patient comfort and is removable for easy patient handling. The lower coil part may remain on the table for most of the examinations and can be used without the upper part .The Head/Neck 16 and Spine 24 are smoothly integrated into the patient table, thus enabling high flexibility in imaging and fewer coil changes and easy handling when switching patients. The Head /Neck 16 coil is equipped with two removable cushioned head stabilizers for stable and comfortable patient positioning.
The Head/ Neck 16 can be used for applications like head examinations, neck examinations, MR Angiography, combined head/neck examinations or for imaging of the TMJ (temporomandibular joints).
Typically combined with the Spine 24 and Body 6 or Peripheral Angio 36 but also other combinations e.g. with flexible coils like
the Flex Large 4 are possible.

BioMatrix Spine 24
The 24-channel coil with its 24 integrated pre-amplifiers ensures maximum signal-to-noise ratio. The DirectConnect technology allows connecting the 24 coil elements of the BioMatrix Spine 24 without the need to plug in any cable. The patient friendly ergonomical design allows for maximum patient comfort. The high element coil is iPAT compatible in all directions.
Smoothly integrated into the patient table the BioMatrix Spine 24 can remain on the patient table for nearly all exams.
The BioMatrix Spine 24 is typically combined with BioMatrix Body 12, Head/Neck 16, BioMatrix Head/Neck 20 (optional), Peripheral Angio 16 (optional) or Flex Large 4, Flex Small 4.

BioMatrix Body 12
The 12-channel coil with its 12 integrated pre-amplifiers ensures maximum signal-to-noise ratio. The 12 coil elements of the BioMatrix Body 12 with only one SlideConnect Plug allows for fast and easy patient preparation resulting in less table time. Fast acquisition times enabled by iPAT in all directions. The light-weighted coil ensures highest patient comfort.
The BioMatrix Body 12 operates in an integrated fashion with the BioMatrix Spine 24 resulting in a 21 channel body imaging setup.
The BioMatrix Body 12 can be combined with further BioMatrix Body 12 coils for larger coverage and can be positioned in different orientations (0°, 90°, 180°, 270°) for patient specific adaptations.
The BioMatrix Body 12 is typically used in combination with the BioMatrix Spine 24 for examinations of the thorax, abdomen, pelvis or hip and operates as a 21 channel body coil (3 rings 10 elements).The BioMatrix Body 12 can also be used for cardiac or vascular applications.
Through the perfect combinability of the BioMatrix Spine 24, further BioMatrix Body 12 (optional), the Peripheral Angio 16 (optional), but also the BioMatrix Head/Neck 20 and all flexible coils (e.g. Flex Large 4, Flex Small 4, UltraFlex Large 18 (optional) or UltraFlex Small 18 (optional) a broad range of indications up to whole-body imaging are covered.

Flex Large 4/ Flex Small 4
Light-weight, very flexible, iPAT compatible, 4-element no-tune receiver coils which are made of soft and smooth material. The coils can be wrapped around or used flat.
Both coils can be connected via Flex Coil interface. One Flex Coil interface is already delivered as standard. The coils can be used for different examinations ranging from examinations of the extremities to abdominal examinations.

Productnaam: BioMatrix Table #AI

Item nr: 16

Product nr: 14461702

The BioMatrix Table is designed for smooth patient preparation, high patient comfort and easy cleanability. The unique design of the BioMatrix table can support up to 250 kg (550 lbs) without restricting the vertical or horizontal movement.

The MAGNETOM Altea BioMatrix table with its appealing design allows for a fast patient preparation and maximized patient comfort.
It provides unobstructed foot space for attending staff and direct access to the patient. The patient table can be lowered to a minimum height of 52 cm from the floor, for easier patient positioning and better accessibility for geriatric, pediatric or immobile patients.
The BioMatrix Table can be moved with two clicks into the isocenter – one click to the upmost position and one click into the isocenter. The tabletop travels beyond the rear end of the system, enabling additional patient access. An infusion stand is integrated to allow for fast patient set up of critical patients.
Multiple Tim 4G and BioMatrix coils can be connected at the same time for efficient and patient friendly examinations. The seamless integration of multiple Tim 4G and BioMatrix coils is possible via 4 SlideConnect and 4 DirectConnect connector slots, which are embedded in the table. This allows for comprehensive examinations without the need of repositioning.

Productnaam: Pure White Design #AI

Item nr: 17

Product nr: 14461706

MAGNETOM Altea is available in a light and appealing design which perfectly integrate into different environments. The Pure White Design comprises a brilliant white front design ring with integrated unique Select&GO panels.
The table cover is presented also in the same color and material selection.

The unique color and material selection enhances the visual appeal of the new system design, thereby creating an enticing, patient friendly impression.
The unique Select&GO panels are neatly integrated into the front design ring. The aesthetically pleasing and ergonimcally designed control elements are well illuminated for easy visual recognition.
In particular, the table cover and the smoothly embracing colored system cover parts have been designed to promote a modern visual appearance.
This combination of ingenuity and practical design as presented with the "Pure & White" design with its brilliant white makes MAGNETOM Altea an overall visually appealing system and creates a patient-friendly environment.

Productnaam: PC Keyboard US English #BM

Item nr: 18

Product nr: 14456270

Standard PC keyboard with 105 keys.

The keys of the numerical key panel are assigned to *syngo*-specific functions and labeled with the corresponding syngo icons. The keyboard supports the country specific special characters.

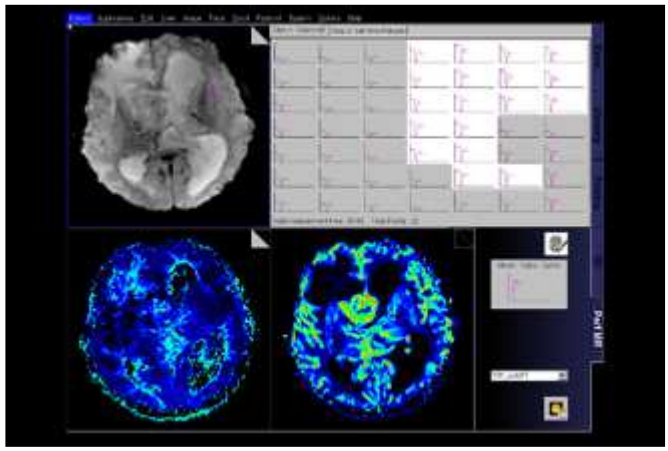
Productnaam: Neuro Perfusion Package

Item nr: 19

Product nr: 14430463

The Neuro Perfusions Package helps to streamline the clinical workflow by inline post-processing in dynamic susceptibility contrast (DSC) based perfusion imaging. This makes it possible to see perfusion maps immediately.

Perfusion parameter maps are based on a Local Arterial Input function. A corrected relCBV map calculation and motion correction is provided.



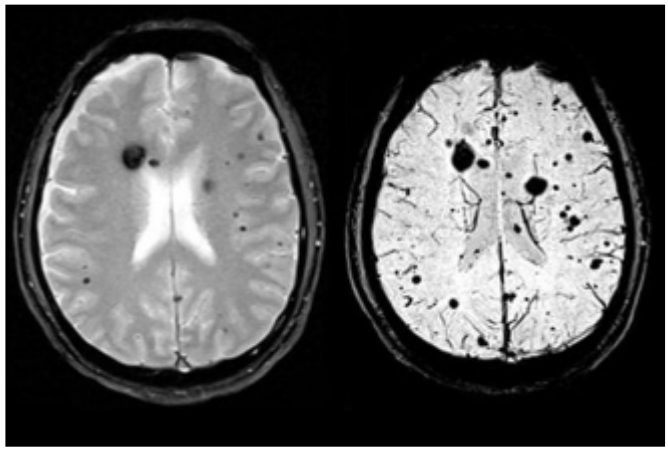
Neuro Perfusion Package provides a modified sequence and image reconstruction for motion correction and post-processing in dynamic susceptibility contrast (DSC) based perfusion imaging.
Depending on whether motion correction is switched on, the following uncorrected or motion corrected perfusion maps can be calculated: time-to-peak (TTP), relative cerebral blood volume (relCBV), relative cerebral blood flow (relCBF), relative mean transit time (MTT), relative corrected cerebral blood volume (relCCBV) and bolus plots.
Perfusion parameter maps are calculated based on a Local Arterial Input Function. The algorithm selects many AIFs per slice and volume based on a number of built-in criteria. This removes the need for manual selection of AIF voxels to calculate the cerebral perfusion parameters and allows the calculation to be performed in-line at the end of the measurement. It also minimizes deconvolution errors due to the effects of delay and dispersion of the contrast agent bolus. Additionally, in cases of contrast extravasations due to a disrupted blood-brain barrier, the postprocessing allows a correction to be applied during calculation of the relCBV maps.

Productnaam: SWI

Item nr: 20

Product nr: 14418596

Susceptibility Weighted Imaging is a high-resolution 3D imaging technique for the brain with ultra-high sensitivity for microscopic magnetic field inhomogeneities caused by deoxygenated blood, products of blood decomposition and microscopic iron deposits. Among other things, the method allows for the highly sensitive proof of cerebral hemorrhages and the high-resolution display of venous cerebral blood vessels.



Despite a strong sensitivity for local magnetic field inhomogeneities Susceptibility Weighted Imaging (SWI) as a 3D technology keeps up the signal near large susceptibility leaps due to very thin slices and high resolution in the slice (high image quality e.g. in the area of the forebrain near the frontal sinus).
Moreover, the phase information of the MR signal is integrated in the image display. In order to further increase sensitivity for localized microscopic magnetic field inhomogeneities, large-area magnetic field inhomogeneities (e.g. caused by susceptibility leaps near the sinus) are specifically suppressed in the phase images.
This allows even smallest amounts of deoxygenated hemoglobin (e.g. in cerebral veins) or from products of hemoglobin decomposition (e.g. from hemorrhages) to be displayed.
Interesting measuring times for the ultra-high-resolution 3D protocols are achieved through parallel imaging with iPAT (GRAPPA).

The Susceptibility Weighted Imaging package includes:
- SWI measuring sequence, iPAT compatible
- optimized measuring protocols for the head
- inline-postprocessing for automatic calculation of relevant images within the scope of image reconstruction:
  - calculation of susceptibility-weighted images
  - venous angiography: MIP of a thin slice block

SWI has been optimized for clinical use to support diagnostics with cerebrovascular diseases (e.g. cerebral insult), venous malformation, brain trauma and tumors.

Productnaam: TWIST syngo

Item nr: 21

Product nr: 14416862

This package contains a Siemens unique sequence and protocols for time-resolved (4D) MR angiographic and dynamic imaging in general with high spatial and temporal resolution. syngo TWIST supports comprehensive dynamic MR angio exams in all body regions. It offers temporal information of vessel filling in addition to conventional static MR angiography, which can be beneficial in detecting or evaluating malformations such as shunts. In case of general dynamic imaging, for example an increase in spatial resolution by a factor of up to 2 at 60 seconds temporal resolution (compared to conventional dynamic imaging) is possible due to intelligent k-space sampling strategies. Alternatively, increased temporal resolution at constant spatial resolution is possible.

syngo TWIST provides:

- Visualization of contrast agent dynamics in the vessel system of interest with maximum flexibility.
- Needs only a low amount of contrast agent.
- Imaging in all body regions, e.g. carotids, pulmonary and peripheral vessels with brilliant spatial and temporal resolution.
- Clear separation of the arterial and venous phase.
- High speed acquisition by intelligent k-space strategies and use of iPAT, powered by Tim.
- *syngo* TWIST provides fat suppression using water selective excitation.
- Inline technologies, such as subtraction and MIP are provided for optimal workflow.
- In case of very high spatial resolution *syngo* TWIST may even replace conventional static MR angio. Moreover, *syngo* TWIST does not require any bolus timing - just inject and go.

Productnaam: UltraFlex Small 18

Item nr: 22

Product nr: 14461541

Light-weight, iPAT compatible, 18-element no-tune receive coil made of highly flexible and soft viscoelastic material. It is used for examinations of smaller extremities (e.g. small to medium shoulder, smaller ankle, elbow and hand) and for abdominal examinations. A dedicated positioning aid for smaller extremities, like ankle or elbow is delivered with the coil.

The coil can be wrapped around or placed flat on top of the area of interest. This rectangular coil measures approx. 19 cm x 41 cm and connects with only one SlideConnect Plug which allows for fast and easy patient preparation. The positioning aids that come with the coil enhance positioning flexibility and help minimize involuntary patient motion artifacts.

Productnaam: Turbo Suite Essential

Item nr: 23

Product nr: 14461619

Turbo Suite Essential comprises established acceleration techniques to maximize productivity for all contrasts, orientations and all routine imaging applications from head-to-toe.

Turbo Suite Essential contains:
- iPAT and iPAT² parallel imaging capabilities for all contrasts, orientations and body regions
- T-PAT (temporal iPAT) for advanced parallel imaging provides fast high-resolution dynamic imaging in cardiac exams by distributing reference scans over time
- CAIPIRINHA for advanced iPAT² is a unique k-space reordering scheme that improves the g-factor significantly and therefore improves the SNR, which can be translated into higher imaging speed.
- CAIPIRINHA SPACE – high-resolution, fast 3D imaging with isotropic, sub-millimeter resolution, all contrasts. Protocols optimized for joints are provided.
- CAIPIRINHA VIBE – T1 weighted 3D imaging for high-resolution imaging throughout the body and significantly shortened breath-hold scans.

Productnaam: Peripheral Angio 16 #So,Al

Item nr: 24

Product nr: 14461556

The Peripheral Angio 16 features:
- 16-element design with 16 integrated preamplifiers
- Operates in an integrated fashion with the Body 6/ BioMatrix Body 12 and Spine 24/ Spine 32
- Both legs are independently covered with coil elements, maximizing the coil filling factor and the signal-to-noise ratio
- No coil tuning
- iPAT-compatible
- Includes special non-ferromagnetic coil cart for safe, user-friendly storage

Applications:
- High-resolution angiography of both legs incl. pelvis with highest signal-to-noise ratio
- Visualization of the iliac arteries and aorta

Can be combined with:
- Spine 24/ Spine 32
- Body 6/ BioMatrix Body12
- All flexible coils (e.g. Flex Small 4, Flex Large 4).

The Peripheral Angio 16 has a 16-element design with 16 integrated preamplifiers and is operated as a 8-channel coil.

A uniquely designed non-ferromagnetic coil cart for safe coil storage is included. No tuning of the fully iPAT-compatible Peripheral Angio 16 is required.

With a length of about 1m both legs are covered from the iliac artery level down to the foot arch vessels using multiple, flexible wings. For the visualization of the abdominal aorta and the iliac bifurcation it can be combined with the Body 6/ BioMatrix Body12 and the Spine 24/ Spine 32.

The dimensions of the Peripheral Angio 16 are 970 mm x 650 mm x 260 mm (L x W x H), its weight is about 6.1 kg (13.4 lbs).

Productnaam: Breast BI 7 #So,Al

Item nr: 25

Product nr: 14460424

The newly designed 7-channel BI coil for breast imaging and biopsy offers unmatched patient comfort, excellent image quality, and a high degree of versatility.
- Patient comfort: A broad abdominal wedge provides a smooth support of the patient in the critical transition between abdomen and rib cage. This is combined with a height-adjustable head rest, a frame that accomodates even large breasts, and comfortable cushions for the critical regions such as the shoulder and the sternum.
- Image quality: The seven channels of the coil are always active, even in the biopsy configuration. The design of the receive elements is optimized for high SNR and a smoothly distributed sensitivity profile.
- Versatility: The coil offers easy handling and sturdy mechanics and, when combined with the optional Biopsy Starter Kit #BM, supports both Grid and Post/Pillar biopsy with excellent accessibility even of difficult to reach anatomical areas. LED lights further improve the biopsy workflow.
A cranio-caudal compression unit for optimized axial imaging is available as an option.

The coil can be operated both head-first and feet-first. It can also be combined with other matrix coils (e.g., the Body 18) to further expand the volume being imaged.

Productnaam: Accessory Breast BI 7 70cm

Item nr: 26

Product nr: 14460204

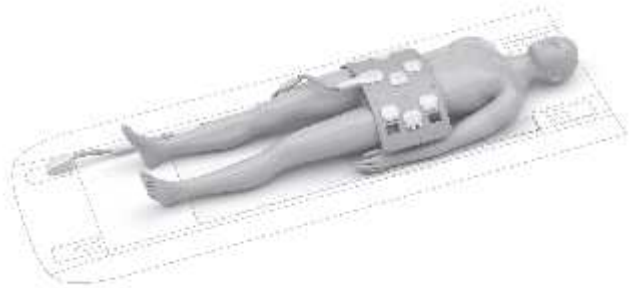
The accessories kit 70 cm for the Breast BI 7 contains three items:
- the connection wedge 70, which supports the abdomen of the patient and sits on top of the spine coil,
- a height-adjustable head rest, and
- a cushion for supporting the patient’s arms in an arms-up pose.
These accessories are common between the Breast 18 and the Breast BI 7.

Productnaam: UltraFlex Large 18 #1.5T

Item nr: 27

Product nr: 14460422

Light-weight, iPAT compatible, 18-element no-tune receive coil made of highly flexible and soft viscoelastic material. It is used for examinations of larger extremities (e.g. medium to large shoulder, hip, knee ankle and hand) and for abdominal examinations. A dedicated positioning aid for larger extremities, like knee is delivered with the coil.



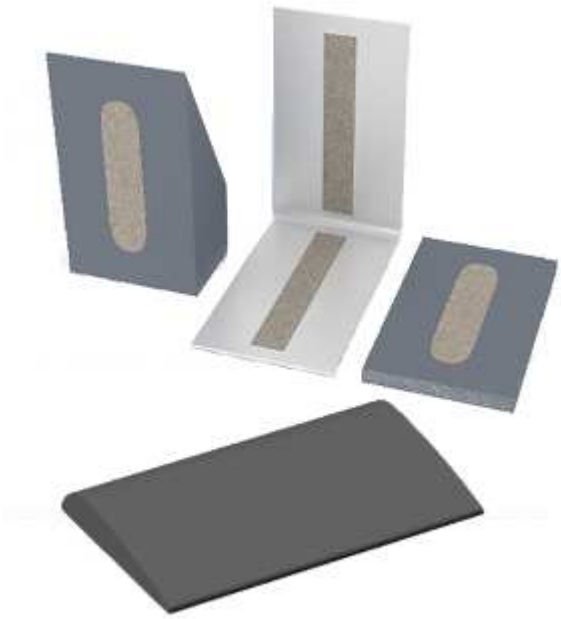
The coil can be wrapped around or placed flat on top of the area of interest. This rectangular coil measures approx. 29 cm x 59 cm and connects with only one SlideConnect Plug which allows for fast and easy patient preparation. The positioning aids that come with the coil enhance positioning flexibility and help minimize involuntary patient motion artifacts.

Productnaam: Positioning Aids Shoulder&Ankle #BM

Item nr: 28

Product nr: 14456282

This package contains additional positioning aids that can be used for the UltraFlex Large 18 and UltraFlex Small 18.

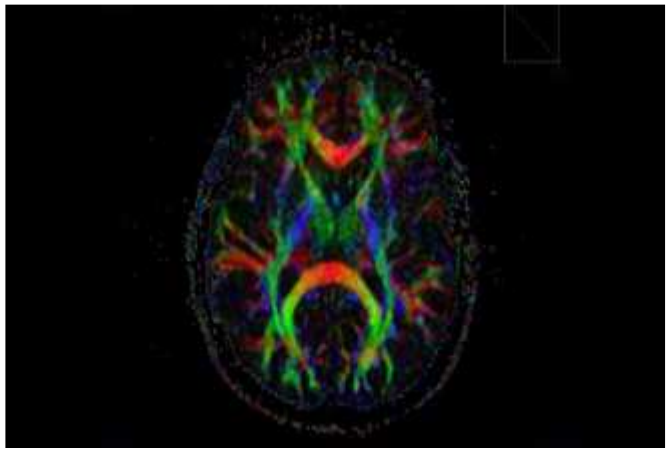


This package contains a wedge shaped cushion that can be used together with the UltraFlex Large 18 or UltraFlex Small 18, e.g. for shoulder imaging and an L-shaped holder that can be used together with the coil holder of the UltraFlex Small 18 or UltraFlex Large 18 for ankle imaging to achieve a 90° angle of the patient's ankle.

Productnaam: Diffusion Tensor Imaging #T+D

Item nr: 29

Product nr: 14441849



Diffusion Tensor Imaging provides a Single Shot EPI sequence for measuring diffusion-weighted data sets with up to 256 directions of diffusion weighting. Based on these data sets, the diffusion tensor itself and parametric maps derived from it (e.g. fractional anisotropy) are calculated automatically and in real-time. The package supports both clinical applications regarding diseases of the white matter (e.g. multiple sclerosis, brain maturation disorders, or displacement of nerve fiber tracts through masses) and advanced research applications.
Diffusion spectrum imaging (DSI), an extension of diffusion tensor imaging, is included in this package. DSI expands on the DTI acquisition capabilities by providing the ability to resolve white matter fiber crossings.

Diffusion Tensor Imaging allows for a complete description of the diffusion properties of the brain within the scope of the tensor diffusion model, both for anisotropic and isotropic diffusion. Efficient diffusion direction schemes are pre-defined to allow for optimal diffusion directional resolution. Schemes with up to 256 directions can be selected.
Inline technology enables automatic and immediate calculation of the diffusion tensor, including grey-scale and colored “fractional anisotropy" (FA) map derived from it.
With the addition of Diffusion Spectrum Imaging (DSI), it is possible to acquire diffusion data in up to 514 different directions each with independent b-values.

Details:
- Measurements with up to 256 different directions and with up to 16 different b-values
- Inline calculation of tensor, grey-scale and colored FA map, ADC map and trace-weighted image
- Support of parallel imaging (iPAT)
- Clinical protocols with full head coverage, incl. inline calculation of tensor, FA, ADC and trace-weighted images in 4 minutes.

Productnaam: Coil Storage Cart #T+D,Ez

Item nr: 30

Product nr: 14416952

Specially designed non-ferromagnetic cart for easy storage of the most commonly used coils and accessories.

The cart may be rolled to convenient locations in the examination room and can be opened up to work like a shelf. The coil storage cart has multiple drawers and trays as well as many other storage spaces for coils, cushions and miscellaneous items.

Its dimensions are: Width 140 cm (4' 7") when closed and 280 cm (9' 12") when opened, depth 54 cm (1'9") and height 121 cm (3'12").

Productnaam: Separator 60kW/75kW #BM

Item nr: 31

Product nr: 14456241

The SEP (Separation cabinet) has to be used if a central hospital chilled water supply is available or if a chiller of any brand/type is already available.
The SEP is the interface between the on-site water chiller (of any brand or type) or the interface to the central hospital cooling water supply.
For the above-mentioned cases the SEP is mandatory!

In these cases, the primary water specifications must fulfill the requirements (i.e. 60 kW (for XK/XQ gradient) / 75kW (for XT gradient) heat dissipation; 100+-10l/min flow; 6 to 14°C (for XQ gradient)/6 to 12°C (for XT gradient) water temperature; pH value 6 to 8, max. working pressure 6 bar).

Dimensions: 1950mm x 650mm x 650mm (height x width x depth)
Weight: approx. 350kg
Function:
- Interface between the on-site water chiller (of any brand/type) or
- Interface to the central hospital chilled water supply.

Delivery volume:
- Separator
- Two 3.0 m hoses (forward and return) for connecting the SEP to the local cooling water supply system
- Separation cabinet
- With the SEP configuration, the helium compressor is built into the SEP cabinet and connected internally
- Regional specific adapter for connection to the hospital installation

Productnaam: MRT Pat.Stretcher, hight adjustable

Item nr: 32

Product nr: 11155025

This steel patient transport table serves as patient transport support for the MRT environment.

- The steel frame of the MRI transport table with hydraulic height adjustment is made of stainless steel, with a low residual magnetism
- The hydraulic height adjustment (620 - 980 mm) is done with a foot pump, which can be mounted on either side
- The MRI patient transport tables are equipped with four smooth multi-directional castors (Ø 100 mm), two of which are lockable , all castors are equipped with a locking function
- The headrest is continuously adjustable (up to +30°) and secured with clamping rod mechanism; the headrest and the main surface each have an upholstery thickness of 64 mm
- The hydraulic height-adjustable MRI table includes two side guards (each 800 x 250 mm, LxH). In order for this MRI table to be accessed from both sides, the side guards can be adjusted up or down with a simple rotation mechanism and locked in place with a sliding bolt
- With side guards, the patient stretcher has a width of approximately 795 mm

Productnaam: teamplay Basic

Item nr: 33

Product nr: 14437955

Healthcare professionals, come together in teamplay's rich Digital Marketplace to access both the metrics from their own imaging fleet and a vast shared pool of imaging data. As a community, you connect and collaborate in a secure environment with high data privacy and security standards. teamplay BASIC applications include Dose, Usage and Image data management functionalities free-of-charge.
Its easy onboarding allows you to register on teamplay´s digital platform and download the needed software to set it up in your institution: Click > Try for free at www.siemens.com/teamplay
teamplay BASIC applications provide a locally installed teamplay Receiver software with web-based data analytics capabilities in the area of Dose, Usage and Image data management.

teamplay Dose BASIC application and teamplay Usage BASIC application are restricted to datasets produced by Siemens modalities.

Its easy onboarding allows you to register on teamplay´s digital platform and download the needed software to set it up in your institution: Click > Try for free at www.siemens.com/teamplay

teamplay Receiver software

teamplay Receiver software is a DICOM gateway that is installed on the local institution network to manage communication of data between hospital systems and teamplay servers and manage conformity with local data privacy regulations.

Functionalities of the teamplay Receiver software:
- DICOM fetch and receive (Query/Retrieve and C-STORE)
- Choice of three data privacy levels
- Automatic software updates

The teamplay Receiver software can be installed on hardware or virtual machines provided by the customer meeting the minimum requirements listed below.
- Windows 64-bit server or client operating system
  (at least Windows server 2012 R2 or Windows server 2016 is recommended for a production environment although Windows 10 may be used):
  min. dual core CPU system
  min. 4 GB memory
  at least 200 GB free dirk space (< 500 GB recommended)
- Recommendation for small sites (up to 50.000 procedures per year):
  at least 4 core system
  at least 8 GB memory
- Recommendation for medium sites (between 50.000 and 250.000 procedures per year):
  at least 6 core system
  at least 8 GB memory
- Recommendation for large sites (more than 250.000 procedures per year):
  at least 8 core system
  at least 16 GB memory
- At least 6 Mbit/s upload bandwidth to the Internet

The minimum hardware requirements are applicable when fetching data for teamplay Dose and Usage using DICOM Q/R. For scenarios where data will be actively sent to teamplay using DICOM C-Store the hardware requirements depend on the actual load and needs to be adjusted accordingly. Please contact the Siemens teamplay support for help

teamplay Dose:
teamplay Dose provides easy access to dose data to support the quality assurance process for monitoring imaging radiation doses across the fleet of scanners in the institution.

teamplay Usage:
teamplay Usage provides an intuitive way to display an overview of the fleet utilization of all institutional diagnostic imaging scanners.

teamplay Images Research:
teamplay Images Research provides the functionality to receive imaging data from other teamplay members for research and education.
Caution: teamplay Images Research is not intended for clinical use.

teamplay Images:
teamplay Images provides the functionality to receive imaging data from other teamplay members.

Productnaam: User instructions Siemens systems

Item nr: 34

Product nr: NL2:APPL.DAY.MR

Productnaam: MIPM TeslaM3 Basic

Item nr: 35

Product nr: 10847259

MRT patient monitor - for monitoring the patient in the MR system; it measures SPO2, NIBP, ECG, and 1x IBP.

- *Tesla*^{M3} is approved for use with 1 T, 1.5 T, and 3.0 T scanners
- The *Tesla*^{M3} has an intelligible, intuitive interface that makes it particularly user-friendly
- Color touch displays with good visibility, on the monitor itself and on the remote control
- Functions/parameters: SPO2, NIBP, ECG, 1x IBP
- Up to six channels and four numeric parameter fields can be displayed simultaneously on the screen
- The ECG was developed specifically for use during an MR examination, and provides interference-free values, even during the scan
- The accessories for the *Tesla*^{M3} were developed for a wide range of patient sizes (neonatal, pediatric, adult)
- Fiber optic technology for a high degree of precision
- Flexible power options: long-life battery or line voltage
- The *Tesla*^{M3} can be configured for information management, and provides solutions for current and future data transfer

Productnaam: MIPM TeslaM3 Remote Monitor

Item nr: 36

Product nr: 10847262

Remote monitor for TeslaM3 with 15" color touch display for transmitting vital data, and all alarms and events in the control room.

Productnaam: Cardiac Dot Engine #T+D

Item nr: 37

Product nr: 14416926

Cardiac examinations used to be the most complex exams in MR. Now Cardiac Dot Engine supports the user in many ways. Using anatomical landmarks, standard views of the heart, such as dedicated long axis and short-axis views, are easily generated and can easily be reproduced using different scanning techniques. Scan parameters are adjusted to the patient's heart rate and automatic voice commands are given. All of this takes most of the complexity out of a cardiac exam and supports customized workflows that are easy to repeat. Every time.

Guidance View
- Step-by-step user guidance is seamlessly integrated.
- Example images and guidance text are displayed for the individual steps of the scanning workflow.
- Both images and text are easily configurable by the user

Patient View
- Within the Patient View the user can easily tailor the exam to each individual patient (e.g. patient with arrhythmia, breath hold capability).
- Pre-defined Dot Exam Strategies are integrated. The user just selects the appropriate strategy with one click and the queue and the complete scan set-up are automatically updated

AutoFoV (automatic Field of View calculation)
- Based on the localizer images the optimal FoV is automatically estimated.
- In case the patient moves during the examination, this step can be repeated at any time

Automated parameter adaptation
- Scan parameters are automatically adapted to the patient's condition (e.g. heart rate)

Novel heart localization method
- On-board guidance visually facilitates anatomic landmark settings which are used for calculation
- Automated localization
- Automated localization of short-axis views

Guided slice positioning
- Easy way to match slice positions (short-axis) between cine, dynamic imaging, tissue characterization

Cardiac Views
- Easy selection of cardiac views (e.g. 3 chamber view) during scan planning

Inline Ventricular Function Evaluation
- *syngo* Inline VF performs volumetric evaluation of cardiac cine data fully automatically right after image reconstruction.
- No user input necessary. If desired, inline calculated segmentation results can be loaded to 4D Ventricular Function Analysis for further review or processing

Inline Time Course Evaluation
- Automatic, real-time and motion corrected calculation of parametric maps with inline technology

Cardiac specific layout for the Exam task
- Automatically chosen layouts show the new physio display and are configured for every step of the exam
- Automatic display of images
- Automatic display of images in dedicated cardiac image orientations in contrast to standard DICOM orientations

Adaptive triggering
- Acquisition adapts in realtime to heart rate variations for non cine applications

Automated Naming
- Automated naming of series depending on cardiac views and contrast

Auto Voice Commands
- Auto Voice Commands are seamlessly integrated into the scanning workflow. The system plays them automatically at the right time point. This ensures optimal timing of scanning, breathing and contrast media. The user can monitor which breath-hold or pauses are actually played, and could add pauses between the automatic breath hold commands if necessary

Dot Exam Strategies

The workflow can be personalized to the individual patient condition and clinical need. The following predefined strategies are included. They can be changed at any time during the workflow:
- Standard: Segmented acquisition techniques
- Limited patient capabilities: switch to realtime and single shot imaging if breath-hold is not possible or arrhythmias occur

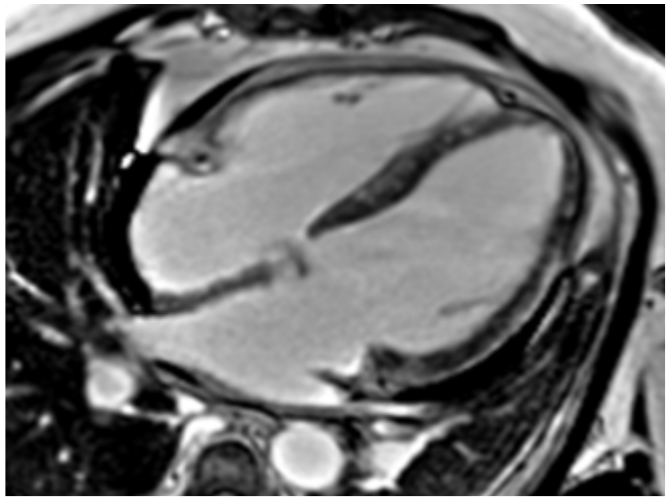
Customization
Existing Dot engines can be modified by the user to their individual standard of care.
- Add/remove protocol steps
- Change guidance content (images and text)
- Change or add Dot Exam Strategies and Decision Points
- Modify the Parameter View

Productnaam: Advanced Cardiac incl. PSIR #Al,Lu

Item nr: 38

Product nr: 14468984

This package contains special sequences and protocols for advanced cardiac imaging including 3D and 4D BEAT functionalities. It supports advanced techniques for ventricular function imaging, dynamic imaging, tissue characterization, coronary imaging, and more.



Combining the unique advantages of Tim and BEAT with iPAT and powerful gradients, it allows performing cardiac MR examinations without compromise in image resolution or acquisition speed.
BEAT is a unique tool for fast and easy cardiovascular MR imaging. It provides 1-click switch from cine imaging to tagging for wall motion evaluation and 1-click switch from 2D to 3D imaging.
BEAT automatically adjusts all parameters associated with the changes.

Cardiac and Vessel Morphology
- 3D aortopathy imaging with free breathing (SPACE)

Global or Regional Wall Motion Analysis with BEAT
- 3D cine acquisition for full CT-like heart coverage
- 2D segmented FLASH for visualization of the regional wall motion using various tagging techniques (grid or stripes)

Dynamic myocardial imaging with BEAT
- Ultra-fast, high-SNR sequence for dynamic imaging with GRE EPI contrast for stress and rest exams

Tissue characterization with BEAT
- Robust myocardial tissue characterization with 3D PSIR (phase-sensitive inversion recovery)
- Fast and complete coverage of the myocardium with IR 3D FLASH and TrueFISP
- Including PSIR HeartFreeze (motion correction) for free-breathing measurements

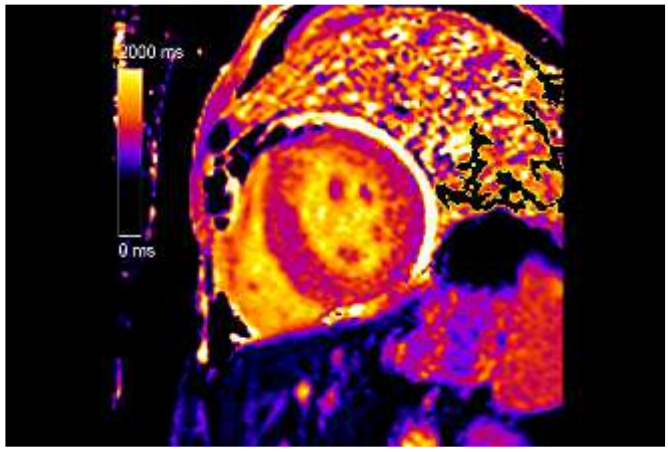
Coronary imaging with BEAT
- 3D Whole-Heart non-contrast Coronary MRA
- 3D Whole-Heart MRA with advanced free-breathing navigator compensating diaphragm shifts during the acquisition (motion-adaptive respiratory gating)

Productnaam: MyoMaps #1.5T

Item nr: 39

Product nr: 14441747

This package contains special sequences and protocols for inline T1,T2 and T2* calculation at the heart. The generation of T1 and T2 parametric maps is enhanced by the use of motion correction. T1,T2 and T2* parametric maps could be used to support assessment of cardiovascular disease.



The MyoMaps package enables the calculation of quantitative T1, T2 and T2* parametric maps at the heart. The calculation is available shortly after the measurement is finished without the need of post-processing.

T1 Parametric Map
- Acquisition based on ECG triggered modified look-locker inversion recovery (MOLLI)
- T1 parametric maps could be used to enhance the characterization of both ischemic and non-ischemic heart disease.

T2 Parametric Map
- Acquisition based on T2-prepared TrueFISP sequence
- T2 parametric maps could be used to enhance the evaluation of myocarditis and heart transplant rejection.

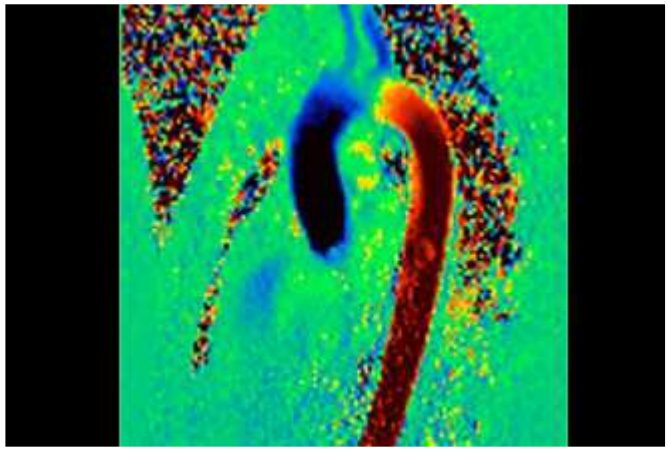
T2* Parametric Map
- Acquisition based on multi-echo GRE sequence
- T2* parametric maps could be used in the evaluation of iron overload for hemochromatosis patients.

Productnaam: Flow Quantification #Tim

Item nr: 40

Product nr: 08464740

Special sequences for quantitative assessment of flow.



Flow Quantification enables the acquisition of flow encoded images and the evaluation of blood as well as of cerebro-spinal fluid (CSF).

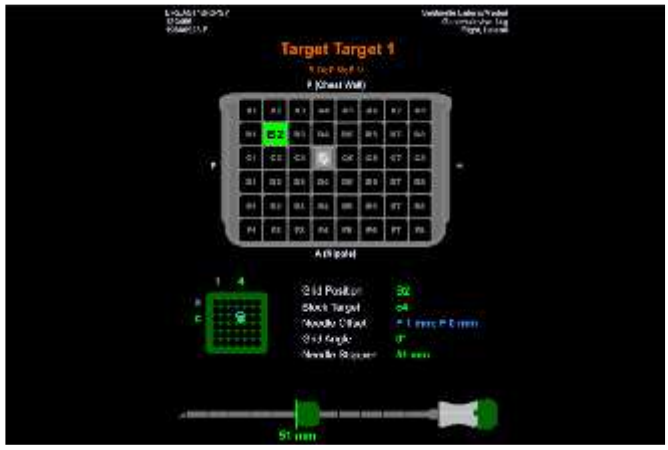
Sequences include:
- ECG triggered 2D phase contrast with iPAT support
- Retrospective reconstruction algorithms for full R-R interval coverage
- Maxwell Term Compensation

Productnaam: Breast Biopsy #BM

Item nr: 41

Product nr: 14461559

The Breast Biopsy Software is a professional solution for a fast and accurate MR biopsy workflow.



The Breast Biopsy Software offers an effective guide for breast interventions such as vacuum biopsy and wire localization. It supports both the grid method and the post/pillar method. The software automatically extracts the coordinates of the selected target and calculates the required point of entry, angulation (for post/pillar method) and penetration depth. For control, the needle path is projected on the planning images. Graphical instructions support the coil-specific guidance. For an optimized workflow, the instructions are also displayed on the touch display at the scanner.

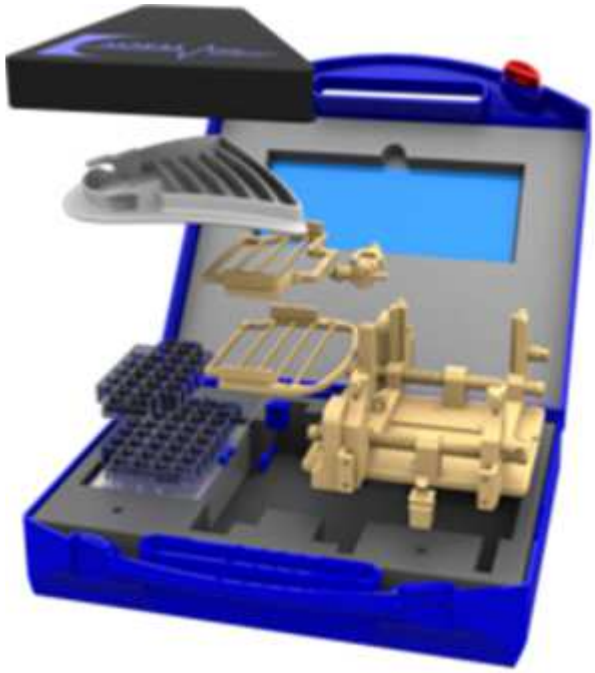
The Breast Biopsy Software supports most common MR interventional accessories and the following MR breast coils:
- Breast BI 7
- 2-/4-/8-Channel Sentinelle Breast Coil
- 2-/10-/16-Channel Sentinelle Breast Coil

Productnaam: Biopsy Starter Kit #BM

Item nr: 42

Product nr: 14456224

This breast biopsy kit for the Breast BI 7 coil comes as a case containing accessories for both the Post/Pillar and the Grid biopsy method, plus a needle set for training purposes (not for use in humans).
In detail, the Biopsy Starter-Kit #Vi comprises:
- Lateral and medial grids for Grid biopsy
- Needle block (12G) and marker for grid biopsy
- Lateral and medial grids for Post/Pillar biopsy
- Post/Pillar device with needle holder (12G) and fiducial Training needle (12G), not for use in humans



Productnaam: CC-Compression Unit #BM

Item nr: 43

Product nr: 14456225

The cranio-caudal compression unit for the Breast BI 7 coil facilitates optimized axial imaging.

Productnaam: Patient Supervision TV #T+D

Item nr: 44

Product nr: 14416948

This package contains a special video camera for monitoring the patient during an MR examination, conveniently mounted on the wall of the examination room. The information is displayed on an LCD monitor in the control room, included in this kit.

The supervision solution is customizable and designed to address different site specific requirements. Up to 4 cameras can be optionally connected for patient supervision in the examination or waiting room.

This feature provides a connection from the radiographer to the patient. It improves the patient experience by reducing anxiety through virtual hand-holding.

Special video camera for monitoring the patient during an MR examination.
Color 640 x 480 pixel LCD monitor may be positioned at the *syngo* Acquisition Workplace or at a convenient wall location (wall support not included in scope of delivery) in the control room.

Productnaam: Patient TV wall support

Item nr: 45

Product nr: 14405351

Wall mount for the patient monitor.

Productnaam: Innovision #BM

Item nr: 46

Product nr: 14468958

Wireless audio and video patient entertainment system “Innovision”:
- Contains set of Innovision Video and Innovision Audio.

The system mounts on the table and engages the patient with entertainment while outside of the bore and travels with the patient into the scanner.

The entertainment is displayed on a video screen that appears farther than the boundary of the bore. This produces, for the viewer, a virtual sense of space.

A specially-designed pillow, in combination with dedicated ear plugs, reduce the noise heard by the patient significantly while providing clear audio signals resulting in a much improved MRI experience.

A similarly-designed pillow with a different shape provides the same features and is compatible with the 16-, 20-, 32-, and 64-channel head coils.

A countdown timer is displayed on the video screen to assist the patient keep track of their scan time.

The Innovision™ system comes with:
- Wireless video display that engages the patient outside of the bore and travels with the patient into the bore. The display can be mounted at the head or foot of the table to facilitate head- or feet-first scans, respectively.
- A set of table adapters to enable the video display to be mounted for head- or feet-first scans. Different table adapters are available to match the type of equipment rail.
- A standard pillow, and a head coil pillow both designed to produce clear audio signals, resulting in less noise heard by the patient and improving the patient MRI experience. The pillows work with dedicated ear plugs to activate vibrational hearing.
- Two pairs of wireless signal transmitters (audio and video data bridges) affixed onto both sides of the shielded window.
- Touch-screen console with WiFi access for the MRI operator to select the entertainment content, adjust the volume, and operate the countdown timer. A WiFi connection is needed to enable access to online entertainment content.
- Two full sets of batteries to power the wireless in-room system components, and a battery charger.
- One intercom interface box to split the audio signals from the Siemens intercom to the Innovision™ system for delivery to the patient.
- Two boxes of Innovision™ earplugs (200 pairs per box).
- Two boxes of pillow covers (200 per box).

The Innovision™ system is designed to work with the Tech-smart service, a subscription-based online content management plan that provides the following:
- Cloud-based online entertainment content
- Frequently updated playlists of various genres
- A limited selection of audio/visual content for off-line use
- Content availability may vary by Country

Tech-smart requires a WiFi connection for installation and maintenance.

The system requires MR service procedures for installation.

Productnaam: Turbo Suite Excelerate #BM

Item nr: 47

Product nr: 14469017

Turbo Suite Excelerate comprises access to cutting edge acceleration techniques such as Simultaneous Multi-Slice and Compressed Sensing for static 2D and static 3D imaging applications in Neuro, MSK and Body MRI.

Turbo Suite Excelerate contains:

- Simultaneous Multi-Slice (SMS) acceleration
  - SMS DWI / DTI helps bringing advanced DWI applications into routine neuro, breast, liver and pelvic imaging. It can be seamlessly combined with iPAT to achieve total acceleration factors of up to 8.
  - SMS TSE for up to 46% faster routine MSK exams, supporting all TSE contrasts and orientations. It can be seamlessly combined with iPAT to achieve total acceleration factors of 4-6.
  - SMS RESOLVE enables high resolution distortion free DWI with up to 50% time savings. SMS RESOLVE is currently planned for XA11B (Vida); XA20 (Sola/Altea/Lumina); XA30A (Sola fit/Vida fit).
  - SMS BOLD can enable increased temporal sampling of BOLD data acquisitions and/or improved slice coverage/resolution (prerequisite Inline BOLD license).

- Compressed Sensing (CS) static imaging
  - CS TOF with incoherent subsampling is designed to accelerate Time-of-Flight imaging by up to 50% without compromising diagnostic quality. CS TOF is currently planned for XA11B (Vida); XA20 (Sola, Altea, Lumina); XA30A (Sola fit/Vida fit).
  - CS SPACE with incoherent subsampling is designed to significantly accelerate SPACE imaging for neuro and body application. CS SPACE is designed to enable high-resolution 3D MRCP scans in one breath-hold and isotropic, high-resolution imaging of the brain, such as T1 DIR SPACE in 3 minutes. CS SPACE is currently planned for XA11B (Vida), XA20 (Sola, Altea, Lumina); XA30A (Sola fit/Vida fit).
  - CS SEMAC with incoherent subsampling is designed to significantly accelerate imaging of MR conditional implants with time savings up to 50%. CS SEMAC is currently planned for XA11B (Vida), XA20 (Sola, Altea, Lumina); XA30A (Sola fit/Vida fit).

Future security:
Software upgrade to software version required to support included sequences (if applicable) will be provided at no additional cost. Installation may happen at a later point in time, depending on country registrations and system availability.

Productnaam: Turbo Suite Excelerate Support

Item nr: 48

Product nr: 14469020

Turbo Suite Excelerate Support package enables the delivery of future SMS or static 2D and static 3D Compressed Sensing applications which may be introduced with future SW versions. This may require an EVOLVE step.

Turbo Suite Excelerate Support package enables the delivery of future SMS or static 2D and static 3D Compressed Sensing applications which may be introduced with future SW versions.

Productnaam: BioMatrix Dockable Table #AI

Item nr: 49

Product nr: 14461703

The BioMatrix Dockable Table is designed for maximum patient comfort and smooth patient preparation. The BioMatrix Dockable Table can support up to 250 kg (550 lbs) without restricting the vertical or horizontal movement.

The BioMatrix Dockable Table with its light appealing design allows for a fast patient preparation and maximized patient comfort.
With its newly designed AutoDocking functionality the table can be smoothly docked and undocked with just one click on the BioMatrix table interface.
It provides unobstructed foot space for attending staff and direct access to the patient. The patient table can be lowered to a minimum height of 56 cm (18.5") from the floor, for easier moving of immobile patients and better access for geriatric, pediatric patients or immobile patients. The BioMatrix Dockable Table can be moved with two clicks into the isocenter - one click to the upmost position and one click into the isocenter. The tabletop travels beyond the rear end of the system, enabling additional patient access.
Multiple Tim 4G and BioMatrix coils can be connected at once for efficient patient set up and patient friendly examinations. The seamless integration of multiple Tim 4G and BioMatrix coils is possible via 4 SlideConnect and 4 DirectConnect connector slots, which are embedded in the table.
This allows for comprehensive examinations without the need of repositioning.
The BioMatrix Dockable Table is easily adjustable for height even in the undocked state. A minimum height of 56 cm allows for easy wheelchair access or easy patient movement to the hospital bed.
The integrated infusion stand and arm rests allow for fast patient set up anywhere.