MAGNETOM Flow.Ace

Data sheet based on *syngo* MR XA70

siemens-healthineers.com/flow
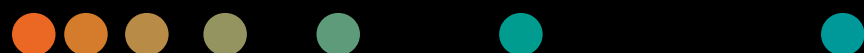
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The Data Sheet Navigator

MAGNETOM Flow.Ace XA70

Highlights at one glance

System
- > Magnet system
- > Gradient system
- > RF system
- > Computer system
- > Installation

Techniques
- > Comprehensive imaging techniques
- > Advanced techniques
- > Operational enhancements

Applications
- > Tim Application Suites

Workflow
- > Patient handling
- > syngo MR software
- > myExam Companion

RF Coils
- > RF Coils

Options
- > myExam Assist options
- > Accelerated MRI
- > Advanced technique packages
- > Advanced patient handling
- > Postprocessing options
- > Accessories and supplies

Flow.Ace

MAGNETOM Flow

The pioneering next-generation 1.5T MRI platform that empowers you with a game-changing new flow for daily care.

Ushering in a new era of sustainable and helium-independent MRI, MAGNETOM Flow empowers you across the entire imaging process from start to finish with unmatched workflow simplicity, elevated patient experience and pioneering AI-enhanced imaging for highest-quality results at unrivaled speed. MAGNETOM Flow—a new flow in MRI that empowers you to perform at your best.

The components of the MRI system

This section covers the key hardware components of the MRI system:

> Magnet system

> Gradient system

> RF system

> Computer system

> Installation

For details on the software please refer to

> syngo MR software

System

Techniques

Applications

Workflow

RF Coils

Options

MAGNETOM Flow.Ace XA70

Magnet system

Superconducting magnet

Short-bore, patient-friendly design, high homogeneity

Easy siting due to
• Active shielding (AS)
• External interference shielding (EIS)

Operating mode: Standard operating mode according to IEC 60601-2-33

Magnet parameters

Operating field strength	1.5 T
Magnet type	Superconductor
Field stability over time	< 0.1 ppm/h
Weight (with cryogens) [1]	2200 kg
Magnet length	1474 mm ± 4 mm
System length cover to cover	1690 mm
Bore size [2]	600 mm ± 1 %
Type of installation	Fixed
Decay characteristics from full field to 20 mT	approx. 20 s

Homogeneity (based on highly accurate 24-plane plot)

	Guaranteed
10 cm DSV	≤ 0.02 ppm
20 cm DSV	≤ 0.075 ppm
30 cm DSV	≤ 0.25 ppm
40 cm DSV	≤ 0.75 ppm
45 cm DSV	≤ 2.0 ppm
50 × 50 × 45 cm³ DEV	≤ 3.0 ppm

In compliance with the German »Qualifikationsvereinbarung«

Standard deviation Vrms (volume root-mean square) measured using the highly accurate 24-plane plot method (20 points per plane)

Standard active shim with 3 linear channels

DSV = diameter spherical volume (x, y and z direction)

DEV = diameter elliptical volume

1) Normal weight without any optional equipment

2) Incl. shim coils, gradient coil, RF body coil

Magnet system

DryCool technology

Sealed-for-life superconducting magnet
• Operating on 0.7 liters of liquid helium
• Eliminating the need for helium refills and a quench pipe

Cryogenic specifications and recovery times

Cryostat material	Stainless steel
Helium inventory	0.7 l liquid helium
Ramp down time	< 1 h
Time to resume operation after a ramp down [1]	< 4 h
Ramp up time follwing an emergency shut off [1]	< 48 h

Shimming

Passive shim	During installation
Standard active shim	3 linear channels (1st order)
3D Shim	Patient-specific automated shim
	Time to shim = approx. 15 s

Shielding

Active shielding (AS)	7th generation active shielding with counter coils	
Fringe field (axial × radial)	0.9 mT	3.5 m × 2.2 m
	0.5 mT [2]	4.0 m × 2.5 m
	0.1 mT	5.7 m × 3.4 m
External interference shielding (EIS)	Integrated into the magnet housing	
	EIS: Continuous compensation and automatic suppression of external magnetic interferences (such as those from moving ferromagnetic objects or power lines)	

1) Time will extend if refrigerator remains off for a longer period of time. For longer downtimes, the net time off field needs to be added to the times stated to estimate the overall ramp-up time.

2) Pacemaker safety limit

System

Gradient system: G60

Advanced whole-body gradient coil system

Active shielding (AS)

Extremely low eddy currents

Water-cooled coil and amplifier for peak performance

Force compensation on all axes

Gradient performance

Max. amplitude	61 mT/m [1] (35 mT/m for every gradient axis)
Max. slew rate	217 T/m/s [1] (125 T/m/s for every gradient axis)
Min. rise time from 0 to 61 mT/m	280 µs

Important note: Min. TR and TE values are not precise indicators of actual gradient performance due to RF pulse dependence. Comparable min. TR and TE values may be found across gradients of varying strengths. For superior gradient performance, a higher-powered gradient amplifier (with higher current and voltage) is essential to maintain gradient coil attributes.

Resolution parameters

Min. FOV	5 mm
Max. FOV [2]	500 mm
Slice thickness 2D	min. 0.1 mm, max. 250 mm
Partition thickness 3D	min 0.05 mm, max. 20 mm
Slab thickness 3D	min. 5 mm, max. 500 mm
Max. matrix	1024
Highest in-plane resolution	15 µm

Gradient amplifier (values for each gradient axis)

Design	Water-cooled, compact, modular
Technology	Ultra-fast solid-state with minimal switching
Max. output voltage	1200 V
Max. output current	330 A
Max. power	0.4 MW

1) Maximal gradient performance achieved by the vector addition of all three gradient axes simultaneously

2) Depending on the application, the maximum FOV in the z-direction can be up to 450 mm

Cooling system

Passive	Water consumption	80 l/min ± 10 l/min
	Water temperature	6 °C – 14 °C / 43 °F – 57 °F
	Heat dissipation to water	≤ 34 kW
Active	Two Siemens Outdoor Units (SOU) automatically adjust to cooling needs (e.g., day/night mode) to reduce energy costs	

Line power supply

Voltage	380 V, 400 V, 440 V, 480 V	± 10 %
Frequency	50 Hz/60 Hz	± 1 Hz
Connection value	30 kVA	with passive cooling
	52 kVA	with active cooling

Power consumption

Off	4.7 kW
System ready to measure	7.6 kW
Scan	11.6 kW

All values are typical values, applicable for 400 V/50 Hz.

Power consumption measured using COCIR methodology for MRI energy consumption.

Various factors affect power usage; identical results per customer are not guaranteed.

Does not include optional separator pump consumption.

"Off" value assumes eco-power mode (EPM) is active.

Gradient system: G60

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Sequences

		Matrix		
		64	128	256
Spin echo	min TR [ms]	1.9	2.3	2.8
	min. TE [ms]	1.3	1.6	1.9
Inversion recovery	min TR [ms]	24	24	24
	min. TE [ms]	1.5	1.6	1.9
	min. TI [ms]	21	21	21
2D GRE	min TR [ms]	0.6	0.94	1.33
	min TE [ms]	0.24	0.24	0.62
3D GRE	min TR [ms]	0.6	0.94	1.12
	min. TE [ms]	0.24	0.24	0.24
TrueFISP	min TR [ms]	0.94	1.2	1.7
	min. TE [ms]	0.3	0.3	0.39
TSE (HASTE)	min. echo spacing [ms]	1.46	1.64	1.94
	min TR [ms]	3.6	4.0	4.8
	min. TE [ms]	1.5	1.6	1.9
	max. turbo factor = 1024			
EPI (single-shot and multi-shot)	min. echo spacing [ms]	0.35	0.53	0.91
	min TR [ms]	2	3	5
	min. TE [ms]	1	1.1	1.6
	max. EPI factor = 256			
Diffusion imaging	max. b-value [s/mm²]	10 000	10 000	
	min. TE [ms] with b = 1000 s/mm²	52	52	56

All matrices without interpolation.

Not all stated parameter combinations may be achievable; certain parameters might necessitate optional application packages.

MAGNETOM Flow.Ace XA70

System

Techniques

Applications

Workflow

RF Coils

Options

Gradient system: B60

Advanced whole-body gradient coil system

Active shielding (AS)

Extremely low eddy currents

Water-cooled coil and amplifier for peak performance

Force compensation on all axes

Gradient performance

Max. amplitude	45 mT/m [1] (26 mT/m for every gradient axis)
Max. slew rate	78 T/m/s [1] (45 T/m/s for every gradient axis)
Min. rise time from 0 to 45 mT/m	578 μs

Important note: Min. TR and TE values are not precise indicators of actual gradient performance due to RF pulse dependence. Comparable min. TR and TE values may be found across gradients of varying strengths. For superior gradient performance, a higher-powered gradient amplifier (with higher current and voltage) is essential to maintain gradient coil attributes.

Resolution parameters

Min. FOV	5 mm
Max. FOV [2]	500 mm
Slice thickness 2D	min. 0.1 mm, max. 250 mm
Partition thickness 3D	min 0.05 mm, max. 20 mm
Slab thickness 3D	min. 5 mm, max. 500 mm
Max. matrix	1024
Highest in-plane resolution	15 μm

Gradient amplifier (values for each gradient axis)

Design	Water-cooled, compact, modular
Technology	Ultra-fast solid-state with minimal switching
Max. output voltage	1200 V
Max. output current	330 A
Max. power	0.4 MW

1) Maximal gradient performance achieved by the vector addition of all three gradient axes simultaneously

2) Depending on the application, the maximum FOV in the z-direction can be up to 450 mm

Gradient system: B60

Cooling system

Passive	Water consumption	80 l/min ± 10 l/min
	Water temperature	6 °C – 14 °C / 43 °F – 57 °F
	Heat dissipation to water	≤ 34 kW
Active	Two Siemens Outdoor Units (SOU) automatically adjust to cooling needs (e.g., day/night mode) to reduce energy costs	

Line power supply

Voltage	380 V, 400 V, 440 V, 480 V	± 10 %
Frequency	50 Hz/60 Hz	± 1 Hz
Connection value	30 kVA	with passive cooling
	52 kVA	with active cooling

Power consumption

Off	4.6 kW
System ready to measure	7.5 kW
Scan	11.5 kW

All values are typical values, applicable for 400 V/50 Hz.

Power consumption measured using COCIR methodology for MRI energy consumption.

Various factors affect power usage; identical results per customer are not guaranteed.

Does not include optional separator pump consumption.

"Off" value assumes eco-power mode (EPM) is active.

Gradient system: B60

Sequences

		Matrix		
		64	128	256
Spin echo	min TR [ms]	2.5	3.1	4
	min. TE [ms]	1.8	2.2	2.9
Inversion recovery	min TR [ms]	26	27	29
	min. TE [ms]	1.9	2.4	2.96
	min. TI [ms]	21	21	21
2D GRE	min TR [ms]	1.11	1.7	2.18
	min TE [ms]	0.53	0.79	1.01
3D GRE	min TR [ms]	1.11	1.7	2.18
	min. TE [ms]	0.53	0.79	1.01
TrueFISP	min TR [ms]	1.37	1.82	2.55
	min. TE [ms]	0.44	0.47	0.59
TSE (HASTE)	min. echo spacing [ms]	2.02	2.32	2.86
	min TR [ms]	5	5.7	7.1
	min. TE [ms]	2	2.3	2.9
	max. turbo factor = 1024			
EPI (single-shot and multi-shot)	min. echo spacing [ms]	0.58	0.85	1.17
	min TR [ms]	4	5	7
	min. TE [ms]	1.2	1.7	2.3
	max. EPI factor = 256			
Diffusion imaging	max. b-value [s/mm^2]	1 000	1 000	1 000
	min. TE [ms] with b = 1000 s/mm^2	54	56	63

All matrices without interpolation.

Not all stated parameter combinations may be achievable; certain parameters might necessitate optional application packages.

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RF system

DirectRX technology

Unique all-digital-out design integrates all RF receive components at the magnet

• Optical RF system enhances SNR by minimizing electrical noise and maximizing signal detection

• Digital-out configuration uses optical links between magnet and equipment room for optimal RF stability

• Receive path integrated within magnet housing

• Dual-density signal transfer technology supports ultra-high density coil designs by incorporating key RF components into the local coil

• Receiver operates with a high dynamic range without the need for adjustments

RF transmit technology

Frequency stability (5 min)	$\pm 2 \times 10^{-10}$
Frequency control	32 bits (0.015 Hz)
Phase control	16 bits (0.006°)
Body coil	Integrated whole-body no tune transmit/receive coil with 16 rungs, two-port feeding
	Optimized RF efficiency and signal-to-noise ratio (SNR)
	Real-time feedback loop for unmatched RF stability
Transmitter path	Feedback loop for excellent RF stabilization
	Transmit amplitude — 16-bit control 25-ns resolution
	Gain stability (after first minute) — < 0.05 dB (1 s) < 0.1 dB (5 min) Sinc-shaped < 0.3 dB (5 min), including body coil
Transmit amplifier	Extremely compact, water-cooled solid state amplifier
	Bandwidth — 500 kHz
	Peak power — 15 kW

RF system

The Total imaging matrix streamlines coil positioning and significantly reduces coil changing times

• All local coils are designed as no-tune coils

• Auto Coil Select facilitates dynamic, automatic, or interactive selection of coil elements within the Field of View (FOV)

RF receiver technology

Maximum number of channels[1]	108
Number of independent receiver channels that can be used simultaneously in one single scan in one FOV, each generating an independent partial image	24/48
Quadrature demodulation and filtering	Digital
Receiver bandwidth	500 kHz (for each channel)
Receiver signal resolution	32 bit
ADC sampling rate	120 MHz
Preamplifie noise figure	< 0.5 dB
Dynamic range at coil connector (referred to 1 Hz resolution bandwidth)	151 dB/Hz instantaneous at coil connector

1) Channels that can be connected simultaneously

RF system

Local receive coils

1.5T BioMatrix coils

BioMatrix Spine coil and BioMatrix Contour coils automatically capture respiration data with integrated sensors, removing the need for navigator scans or a respiratory belt.

BioMatrix Contour coils detect heart movement to trigger cardiac exams without external electrodes.

BioMatrix Position sensors streamline patient iso-center positioning, speeding up preparation and removing the need for laser positioning or manual input.

1.5T Tim 4G coils

Tim 4G coils combine top image quality with easy handling

High element coils boost SNR and cut exam times; DirectConnect® and SlideConnect® technology shorten patient setup

Lightweight, ergonomic coils maximize patient comfort:

- Multi-exam studies require no coil changes, saving setup time
- All coils are efficient "no-tune" types
- Low-noise preamplifiers enhance signal clarity
- Auto Coil Select allows dynamic, automatic, or interactive coil element selection within the field of view

Recommended basic coil package

Head/Neck Coil	Application area	Head and neck
	Dimensions (L × W × H)	445 mm × 330 mm × 364 mm
	Weight	5.0 kg
BioMatrix Spine Coil (with Respiratory Sensors[1] and DirectConnect ™)	Application area	Spine
	Dimensions (L × W × H)	1200 mm × 489 mm × 63 mm
	Weight	10.6 kg
BioMatrix Contour L Coil (with Position Sensor, Beat Sensor, Respiratory Sensor[1], SlideConnect® in combination with Detachable coil cable 1250 mm)	Application area	Thorax Heart Abdomen Pelvis Hip Vascular
	Dimensions (L × W × H)	622 mm × 451 mm
	Weight	1.0 kg
Detachable coil cable[2]	Dimension (L)	1250 mm
	Weight	0.6 kg

Combination of all coils possible for large field-of-view exams

1) The Position Sensor, Beat Sensor, and Respiratory Sensor functionality is a retrofittable software option
2) Detachable Cable is interchangeable between BioMatrix Contour S/M/L Coils

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Options

Computer system

Measurement and reconstruction system (Standard)

Processor	Intel Xeon W-1250E G1 (6-Core)
Clock rate	3.5 GHz, or comparable
Main memory (RAM)	32 GB
SSD (Solid-state drive)	≥ 960 GB
Reconstruction speed	≥ 37,974 recons per second (256² FFT, full FOV)
	≥ 157,894 recons per second (256×64 FFT, 25% recFov)
Parallel scan and recon	Simultaneous scan and reconstruction of up to 12 data sets
GPU	NVIDIA T1000 8GB

syngo Acquisition Workplace (MRAWP) Advanced host `Option`

Processor	Intel Xeon W-1250E G1 (6-Core)	10-Core
Clock rate	3.5 GHz, or comparable	
Main memory (RAM)	64 GB	96 GB
SSD (Solid-state drive)	≥ 960 GB[1] DICOM standard, ISO 9660	
CD/DVD drive	Not built in, but optionally connectable by USB	
Media drive	SDHC card reader	

24" standard monitor[2]	High-resolution widescreen Automatic backlight control for long-term brightness stability
Screen size (diagonal)	24"
Horizontal frequency	31 kHz – 74 kHz
Vertical frequency	60 Hz
Screen matrix	1920 pixels × 1200 pixels

Optional monitors, featuring the same data

24" touch monitor **Wall mount touch monitor**	High-resolution widescreen monitor with touch functionalities Automatic backlight control for long-term brightness stability
Screen size (diagonal)	24"
Horizontal frequency	31 kHz – 74 kHz
Vertical frequency	60 Hz
Screen matrix	1920 pixels × 1200

1) Using Enhanced DICOM > 5 300 000 images with a matrix size of 256 × 256 can be
   stored, when acquiring image stacks with 25 slices per stack
2) A standard monitor without calibration is not suitable for diagnostic purposes. Please
   consider the initial acceptance testing for image display devices and the follow-up
   service for constancy testing on a regular base, as offered by Siemens Healthineers service.

Computer system

Measurement and reconstruction system (High-end)

Processor	Intel Xeon W-1290E (10-Core)
Clock rate	3.5 GHz, or comparable
Main memory (RAM)	96 GB
SSD (Solid-state drive)	≥ 960 GB
Reconstruction speed	≥ 51,020 recons per second (256^2 FFT, full FOV)
	≥ 250,000 recons per second (256×64 FFT, 25% recFov)
Parallel scan and recon	Simultaneous scan and reconstruction of up to 12 data sets
GPU	NVIDIA RTX A4000

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Options

Installation

Magnetic and room shielding

Room shielding
Iron shielding in examination room walls for additional magnetic fringe field reduction
• Enables creation of a complete magnetic shielding enclosure

One-floor installation
Combines **active** shielding with **special** shielding

Special shielding installed on ceiling above or beneath the magnet room
• Ensures the 0.5 mT line remains within the same floor as the MRI installation
• Suitable for very low room heights

Radio frequency shielding

Shields the examination room from external RF sources

RF attenuation factor	> 90 dB
Frequency range	15 MHz – 65 MHz

System electronics cabinets

Two cabinets can be placed
• Directly against the wall
• Or in a corner

Service access needed only from the front
• Saving significant space

Integrated **water cooling** cabinet
• Can remove the need for a dedicated computer room

Space requirements

Minimum total space needed	24 m²

For magnet, electronics, and console room

Installation

Installation

Dimensions

Examination Room Component	Width	Depth	Height	Weight
Magnet 1.5T AS (incl. helium)	2.24 m	1.47 m	1.97 m	2250 kg (with seismic bracket) 2200 kg (normal)
Magnet in operation, incl. gradient coil, body coil, standard patient table and covers	2.33 m	4.14 m	2.07 m	3700 kg[1]
Standard patient table	0.76 m	2.45 m	0.89 m	
Patient table with vertical drive `Option`	0.76 m	2.45 m	0.48–0.89 m[2]	
Min. required room height clearance			2.20 m[3]	
Min. transport dimensions	2.33 m	1.69 m	1.98 m[4]	

Control Room Component	Width	Depth	Height	Weight
Standard monitor[5]	56 cm	22 cm	42–50 cm	9.8 kg
Touch monitor	57 cm	32–44 cm	28–46 cm	12.3 kg
Touch monitor for wall mounting	57 cm	7 cm	38 cm	8.0 kg
Mounting bracket[6]	67 cm	45 cm	192 cm	20 kg

Equipment Room Component	Width	Depth	Height	Weight
Electronics cabinet, incl. system control, RF system, gradient power system, host computer, image processor, cooling	156 cm	65 cm	198 cm[7]	980 kg
Heat dissipation	≤1.5 kW[8]			

1) Based on standard patient table
2) From lowest position to patient table home position
3) Finished floor to finished ceiling
4) Incl. transport pallet
5) Monitor height adjustable
6) With touch monitor and intercom
7) Without attachments
8) Ventilation may be the only requirement

Installation

System cover

Design with Standard patient table

Design with 2nd Select&GO displays

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System
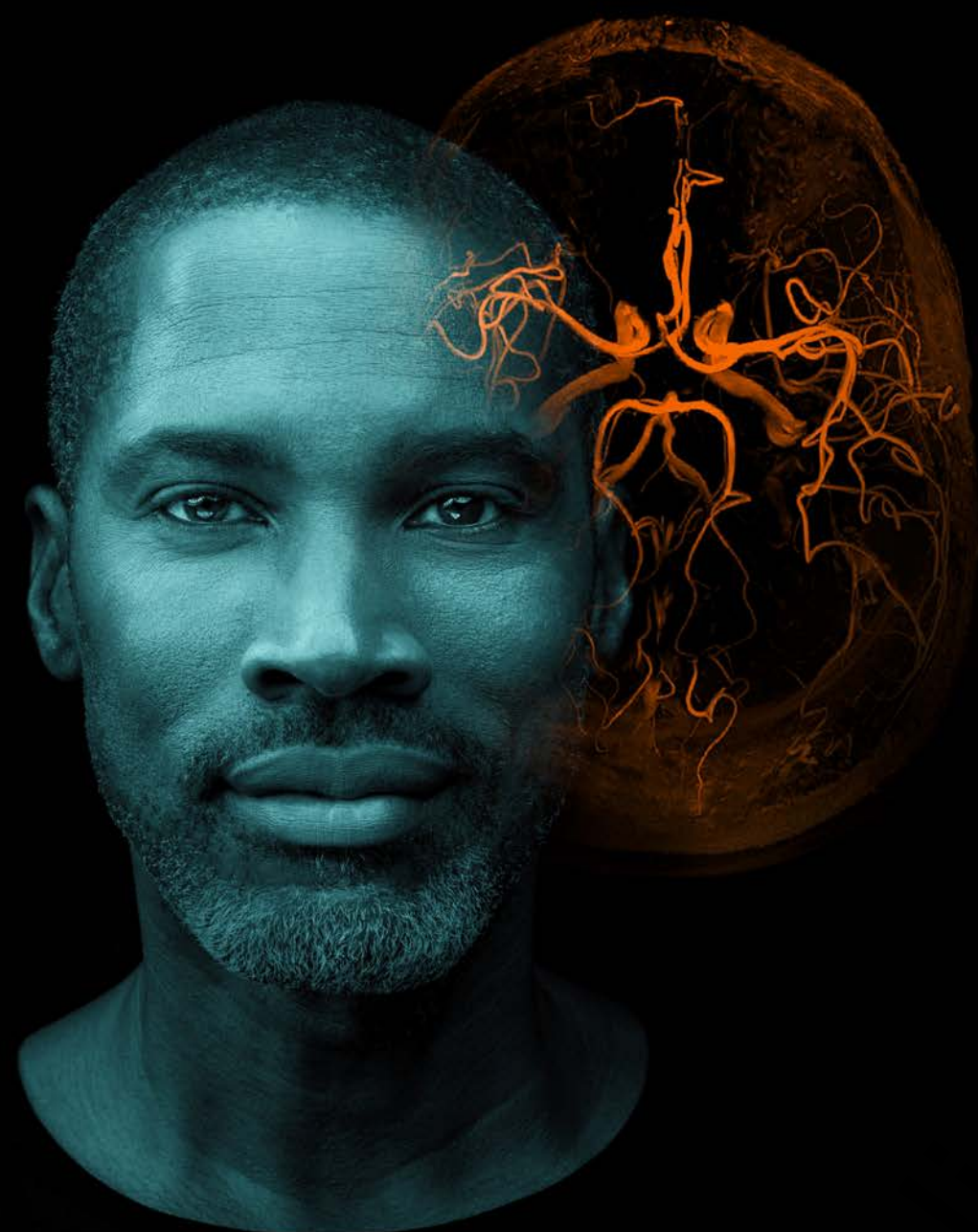
Techniques

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Options

A comprehensive MRI capability set

From core imaging principles to advanced methods,
catering to diverse diagnostic needs

Precision in MRI diagnostics

> **Comprehensive imaging techniques**

> **Advanced techniques**

> **Operational enhancements**

> Standard pulse sequences

> Parallel imaging

> Image enhancement techniques

> Acquisition parameters

> Efficiency enhancements

> Discovery Acceleration Package

> Advanced Diffusion

> Expert-i

> Security features

MAGNETOM Flow.Ace XA70

System

Spanning from basic spin-echo sequences to advanced methods for accelerating exams and enhancing image contrast

Techniques

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RF Coils

Options
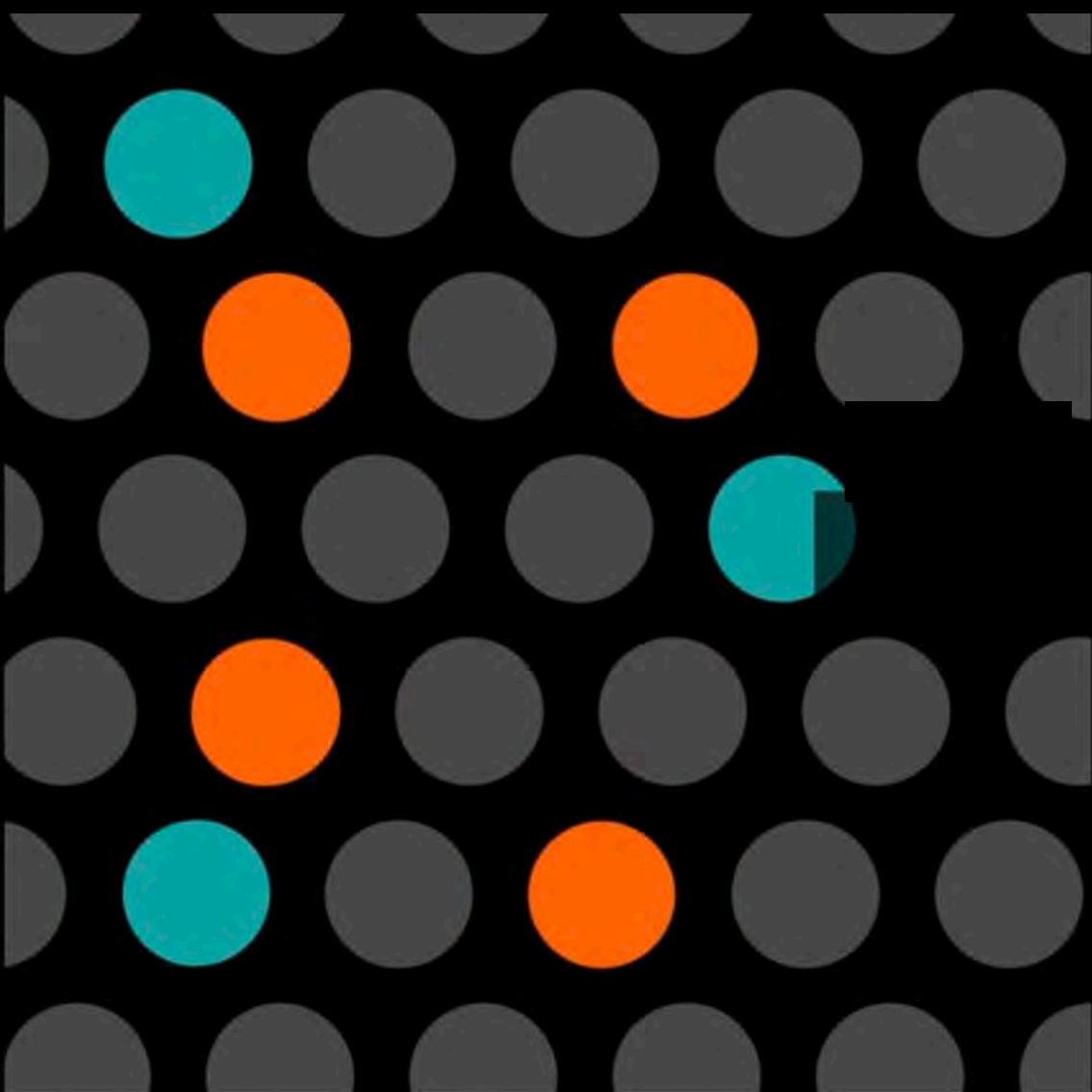
> **Standard pulse sequences**

Comprehensive set of optimized pulse sequences covering a wide array of parameters for highly flexible adjustments

> Spin-echo family

> Gradient-echo family

> **Parallel imaging**

> iPAT

> tPAT

> iPAT2

> **Image enhancement techniques**

> Fat/water imaging

> Motion correction

> Susceptibility artifact correction

> **Acquisition parameters**

> **Efficiency enhancements**

Comprehensive imaging techniques

Standard pulse sequences: Spin-echo family

Spin Echo (SE)

Single, double, and multiecho sequences, supporting up to 32 echoes

Turbo Spin Echo (TSE)

Restore technique to achieve a shorter TR
• Maintains excellent T2 contrast

2D Optimized High-Bandwidth TSE
High-quality imaging
Flawlessly integrated with WARP for superior outcomes
• T1, T2, PD
• STIR

SPACE
Optimized for 3D imaging with high isotropic resolution

For detailed anatomical studies
• T1, T2, PD
• DarkFluid Contrast

TurboIR
Accelerates IR sequences for faster T1-weighted imaging
• Enhanced contrast
• Reduced scan time

Applicable with:
• STIR
• DarkFluid T1 and T2

2D/3D HASTE
(Half-Fourier Acquisition Single-shot Turbo Spin Echo)
Rapid imaging using inversion recovery, acquires only half of the raw data
• Dark-fluid contrasts
• Abdominal imaging, eliminating blur caused by breathing

Applicable with:
• STIR
• FLAIR

Turbo Gradient Spin Echo (TGSE)

Ultrafast hybrid turbo spin-echo/gradient-echo sequence
• Primarily used for T2-weighted imaging

High-resolution imaging for extremely short acquisitiona
• Ideal for brain and spine

Improves visualization of hemorrhage due to magnetic susceptibility differences
• Decreased RF power deposition

Comprehensive imaging techniques

Standard pulse sequences: Gradient-echo family

2D/3D FLASH

(Spoiled Gradient Echo)
• Dual echo for in-phase / opposed-phase imaging
• Tissue characterization based on chemical shift

3D VIBE
(Volume Interpolated Breathhold Examination)
• Rapid fat saturation and inline 3D elastic motion correction
• Abdominal imaging and breast evaluation
• Enhances diagnostic accuracy in moving organs

DynaVIBE
• Inline 3D elastic motion correction for multiphase data sets of the abdomen
• Inline evaluation for breast imaging

TurboFLASH 2D/3D —3D MPRAGE
(Magnetization Prepared RApid Gradient Echo)
Rapid high-resolution T1-weighted imaging:
• Direct image assessment
• Brain anatomy visualization

Saturation Recovery
For 2D TurboFLASH, gradient echo, and T1-weighted 3D TurboFLASH with short scan time (e.g. MPRAGE)

MP2RAGE
(Magnetization-Prepared 2 Rapid Acquisition Gradient Echoes)
Double inversion recovery with two Turbo-FLASH readouts between each inversion pulse

Homogeneous T1 contrast suitable for:
• Segmentation
• Voxel-based morphometry

2D/3D MEDIC

(Multi Echo Data Image Combination)
Enhances contrast and detail in images by combining signals from multiple echoes

• High-resolution T2-weighted orthopedic imaging
• Excellent contrast in musculoskeletal structures

Echo-Planar Imaging (EPI)

For diffusion-weighted imaging, single-shot SE and FID, such as BOLD and perfusion-weighted imaging
• High resolution with minimal distortion
• Includes 2D/3D-segmented EPI (SE and FID)

RESOLVE
(REadout Segmentation Of Long Variable Echo trains)
Multi-shot EPI for high-resolution, low-distortion diffusion-imaging

• Accurate lesion depiction
• Largely insensitive to susceptibility effects
• Detailed, anatomy-true diffusion imaging for brain, spine, breast, and prostate

CISS

(Constructive Interference in Steady State)
Very high-resolution images, valuable for visualizing fine details of the brain and spine
• Assessment of small pathologies that may not be as visible with other sequences

3D GRE, 2D/3D FISP and PSIF

Broadens applications in:
• Field mapping
• Steady-state imaging
• Diffusion imaging

Comprehensive imaging techniques

Parallel imaging

Dramatically reducing scan times, ensuring swift, high-quality diagnostic imaging

iPAT (Integrated Parallel Acquisition Technique)

High-performance and flexible parallel imaging
• Integrated autocalibration

Incorporates two sophisticated algorithms to ensure maximum quality across all applications:
• mSENSE
• GRAPPA

Applicability
• SE, TSE, SPACE, MEDIC, TIRM DarkFluid, HASTE, EPI, MPRAGE, 3D VIBE, FLASH, TrueFISP, TurboFLASH, FLASH phase contrast, etc.

Compatibility
All multi-element coils and coil combinations

tPAT (temporal iPAT)

Rapid high-resolution dynamic imaging

Three distinct calibration techniques:
• Autocalibration: Reference scan to save total scan time
• Turbocalibration: Separate measurement for reduced PAT artifacts
• tPAT and PAT Averaging: Self-calibration for motion artifact suppression

iPAT²

Enhanced breath-hold capability with increased slice coverage

Utilizes PAT in two directions simultaneously
• For both phase-encoding and 3D direction in 3D sequences

Ideal for:
• MR angiography
• Ultrafast isotropic T1-weighted 3D imaging of the head

CAIPIRINHA

(Controlled Aliasing In Parallel Imaging Results IN Higher Acceleration)
Optimizes volumetric 3D imaging across various body applications

Includes:
• VIBE
• SPACE

Comprehensive imaging techniques

Image enhancement techniques

A range of techniques designed to significantly improve the quality, clarity, and diagnostic value of MR images

Fat/water imaging

Fat and water saturation
Additional frequency-selective RF pulses for precise suppression of bright signals from fatty tissues

Two tailored modes for optimal control:
• Weak
• Strong

Quick FatSat
Swift fat saturation processes
• Optimizes the imaging procedure while maintaining high image quality

SPAIR
(Spectral Adiabatic Inversion Recovery)
Robust fat suppression in body and thorax imaging
• Utilizes a frequency-selective inversion pulse

Selective fat/water excitation
Spectrally selective RF pulses to target fat and water excitation exclusively
• Enhances the clarity and contrast of images

Dixon
For unparalleled fat and water separation
• Detailed tissue characterization and improved diagnostic accuracy

Available on:
• VIBE
• TSE

STIR
(Short Tau Inversion Recovery)
Utilizes magnetization inversion to robustly suppress the fat signal, enhancing the T2 relaxation properties for improved tissue contrast
• Particularly useful in fluid detection
• Lesion detection in fatty tissues

Motion correction

BLADE
A turbo spin-echo sequence that is inherently resistant to motion, with added features for actively correcting motion artifacts
• Ideal for head, spine, orthopedic, and abdominal imaging

Simultaneous in-plane motion correction for any slice orientation

Available contrasts:
• T2
• T1
• STIR
• DarkFluid

Compatibility
• All coils and planes
• iPAT using GRAPPA
• Restore pulses
• Respiratory-triggered abdominal imaging with 2D PACE

1D PACE
(Prospective Acquisition Correction)
Quick and straightforward acquisition control
• Suitable for cardiac imaging

Enables patient examination during free breathing

2D PACE
For precise motion correction in moving organs (heart, liver)
• Enables free-breathing during high-res 2D/3D exams
• Dramatically improves image quality
• Precise gating for more accurate multi-breath-hold studies
• Eliminates need for respiratory belt
• Uses PAT averaging for effective motion artifact suppression

Comprehensive imaging techniques

Image enhancement techniques

Susceptibility artifact reduction[1]

WARP
Minimizes susceptibility artifacts, such as those from MR Conditional implants

Combines high-bandwidth 2D TSE sequences with the **VAT** (View Angle Tilting) technique

Available contrasts:
- T1
- T2
- STIR

Advanced WARP
Reduces trough-plane distortions caused by large MR Conditional implants

Especially useful for:
- Hip and knee joint replacements

Includes 2D TSE-based **SEMAC** (Slice Encoding for Metal Artifact Correction)

Additional enhancement techniques

Inversion Recovery (IR)
Nullifies the signal of fat, fluid, or any other specific tissue

True Inversion Recovery (TrueIR)
Strong T1-weighted contrast
- Significantly enhances image quality with clear contrast differentiation

Dark Blood Inversion Recovery Technique
Suppresses fluid blood signal
- Enhanced visualization of blood vessels and cardiac structures

Freely Adjustable Receiver Bandwidth & Flip Angle
Enables studies with an increased signal-to-noise ratio
- Optimized RF pulses enhance image contrast

Magnetization Transfer Contrast (MTC)
Employs off-resonance RF pulses to suppress signal from specific tissues
- Particularly useful in magnetic resonance angiography (MRA)

Multidirectional Diffusion Weighting (MDDW)
Boosts diffusion tensor imaging (DTI) by incorporating:
- Multiple diffusion weightings
- Up to 12 directions for more comprehensive data sets

Available sequences:
- EPI
- RESOLVE

Acquisition parameters

Acquisition parameters[1]	AWP	
2D	Number of slices	1–256 (steps of 1)
	Slice order	Sequential or interleaved
3D slabs/partitions	Number of 3D partitions for matrix 256 × 256	4–512
	Number of 3D slabs (3D volumes)	1–128 (steps of 1)
Acquisition matrix	Frequency encoding (true imaging matrix without interpolation or oversampling)	64–1024 (in steps of 2; sequence dependent)
	Phase encoding	32–1024 (in steps of 1)
Reduced matrix	Phase resolution (rectangular matrix)	32 × n ... n × n (steps of 1)
	Slice resolution (3D volumes)	50 %–100 %
Partial Fourier imaging	Phase partial Fourier (Half Fourier)	4/8–1 (steps of 1/8)
	Read partial Fourier (asymmetric echo)	Selectable
	Slice partial Fourier (3D volumes)	5/8–1 (steps of 1/8)
Rectangular field of view	In phase encoding direction	3 %–100 %
Averaging	Number of data acquisitions	1–32 (steps of 1)
	Averaging mode	Short term, Long term (LOTA)
Oversampling	Read oversampling	100 % standard
	Phase oversampling	0 %–100 % (steps of 12.5 %)
	Slice oversampling (3D volumes)	0 %–100 % (steps of 12.5 %)
Interpolation	In plane interpolation	Selectable (factor of 2)
	3D interpolation (3D volumes)	Selectable (up to factor of 2)
Serial acquisitions	Number of repeated scans	With constant delay times 1–4096
		With different delay times 1–65
Swap	Exchange of read-out and phase-encoding direction	Yes
Slice orientation	Slice orientation for 2D and 3D scans	Transverse, sagittal, coronal, oblique, double oblique (steps of 0.1°)
	Multislice, multiangle (simultaneously)	Yes

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

1) Not all parameter combinations may be feasible; certain parameters might rely on optional application packages

Comprehensive imaging techniques

Efficiency enhancements

Auto Coil Detect
Detects the position and orientation of coils automatically

Shows coils in the user interface right within the graphical slice positioning

Auto Coil Select
Automatic detection and selection of all coil elements in the active field of view

***syngo* Scan Assistant**
Shows parameter constraints and provides possible solutions

scan@center
Automated table movement for scanning in magnet isocenter, user-toggleable

"Local range" positioning mode for specific regions (heart, brain) with fixed table position tolerance

Increases scan efficiency by reducing adjustment time

For interventional procedures, a dedicated positioning feature maintains a fixed table position, regardless of scan field position

Automatic voice commands
Assist with optimal timing for breathing, scanning, and contrast media injection during scans
• In multiple languages

Phoenix and PhoenixZIP
Pulse sequences data exchange (e.g., via Internet) through drag & drop of clinical images

PhoenixZIP enables the transfer of entire measurement programs

Online help

DirectConnect
Cableless direct connection for:
• Head/Neck Coil
• BioMatrix Head/Neck Coil
• BioMatrix Spine Coil
• Foot/Ankle Coil

SlideConnect®
SlideConnect® cable connectors can be securely plugged-in with one hand only

Recon&GO

Wide range of Inline functionalities automates postprocessing steps for pre-viewing

Delivers ready-to-read results with zero clicks, even in advanced cases

Example features
• Inline Composing: Automates composition of adjacent coronal/sagittal images for anatomical/angiographic exams
• Inline Subtraction: Automates image subtraction, e.g., pre/post-contrast
• Inline calculation for ADC maps and extrapolated b-values
• Inline MIP on-the-fly: Automates MR angiography image subtraction and MIP in three planes
• Prospective motion correction (1D and 2D PACE) on-the-fly
• Automatic perfusion and diffusion maps
• On-the-fly calculation of standard deviation for arterial/venous phase differentiation
• Automatic launch of postprocessing applications
• Inline Display: Auto-reconstructs images for immediate access, opens automatically for interactive scanning or Care Bolus exams
• Inline Movie: Auto-starts cine image display

TimCT FastView

"One go" localizer for whole-body or large regions (whole spine, abdomen), capturing extended field of view in one volume with isotropic resolution
• Transverse, coronal, sagittal reformats calculated inline and displayed for planning future exams
• Inline reconstruction of localizer images during the scan
• Provides localizing images in three planes over maximum field of view for all-orientation planning
• Operates without laser light positioning, streamlining workflow for multiple indications

Quiet Suite

For extremely quiet neuro and orthopedic imaging, with up to 93 % reduction in sound pressure [1]
• Brain
• Spine
• Large joints

QuietX for optimized gradient waveforms to achieve significant noise reduction and smoother, more tolerable sounds without impacting image quality or scan time
• Quiet prescan normalize and quiet localizers
• QuietX TSE and GRE sequences for T1, T2, and DarkFluid contrasts
• **QuietX SWI**[2]
• **QuietX Diffusion**
• **PETRA** (Pointwise Encoding Time Reduction with Radial Acquisition) for barely audible 3D T1-weighted imaging (inaudible with TxRx coil)
• Optimized Quiet pulse sequences for the brain, spine, and large joints

Quick Protocols

Fast protocols optimized for high throughput demands in standard applications
• Available for the most common MRI examinations of the brain, spine and large joints

Elliptical scanning

Reduces scan time for 3D imaging by optimizing the coverage and speed of the scanning process

1) Data on file, results may vary
2) Prerequisite: SWI license

Advanced techniques

Discover Acceleration Package

Acceleration techniques to enhance productivity

Applicable for all contrasts, orientations, and routine imaging (head to toe)

Compatibility
- iPAT and iPAT^2
- tPAT (temporal iPAT)
- CAIPIRINHA for advanced iPAT^2 supporting SPACE and VIBE

Deep Resolve Gain

Specifically tackles the inherent challenge of non-uniform noise distribution in accelerated MRI. Substantially improves signal-to-noise ratio (SNR) throughout the image

Enables particularly strong and targeted denoising in areas where conventional methods fall short
- Acquires raw data from reduced, and thereby faster, scans
- Captures individual noise maps that reflect local noise variations

The image is effectively denoised by using the noise map iteratively

Available sequences
- Turbo Spin Echo (TSE)
- Spin Echo (SE)
- TSE Dixon

Compatibility
- Standard GRAPPA acceleration

Deep Resolve Sharp

Enhances image quality by boosting sharpness and minimizing Gibbs ringing at edges, achieved in reduced scan times

Offers up to a twofold improvement in in-plane resolution

Accurately predicts the location of sharp edges in images

Applicability
Versatile across various contrast weightings and orientations

Available sequences
- Turbo Spin Echo (TSE)
- Spin Echo (SE)
- TSE Dixon

Compatibility
- Standard GRAPPA acceleration
- Deep Resolve Gain
- Deep Resolve Boost

Advanced Diffusion

High-resolution low-distortion diffusion-weighted imaging (DWI) for accurate depiction of lesions

RESOLVE and QuietX Diffusion

RESOLVE with DTI tractography enables excellent white-matter tract imaging, including challenging areas like the cervical spine
- Readout-segmented (multi-shot) EPI for high-resolution, susceptibility-insensitive DWI
- Variable readout segments for flexibility
- 2D navigator-based phase correction minimizes pulsation artifacts and automatically reacquires corrupted data
- Inline calculation of DTI and diffusion parameter maps

MAGNETOM Flow.Ace XA70

System

Techniques

Applications

Workflow

RF Coils

Options

Operational enhancements

Expert-i

Real-time interactive access to imaging data and exam information

From networked PCs[1] for remote assistance during MRI exams

Removes need for physical presence of radiologists/experts at the scanner for review or setup help

- Immediate, high-quality results
- Faster patient processing
- Reduces repeat rates by allowing image checks while the patient is still on site
- Minimizes training requirements through expert remote support for specialized procedures

Security features

This *syngo* software version provides security settings to protect the scanner against known security threats.

- User management includes authentication measures to prevent unauthorized access
- Privileges system to assign rights and specify functionalities based on user roles
- Operating system is hardened, with network communication restrictions for added security
- Whitelisting (embedded control) protects against unauthorized modifications to scanner software
- Security delivery process ensures regular distribution of security updates
- Option to safeguard custom pulse sequence trees from unauthorized changes
- Audit trail functionality logs system and data access by specified users and service personnel
- Support provided to customers for implementing their security policies, including HIPAA compliance

1) Minimum bandwidth 30 Mbit/s, recommended 100 Mbits/s

MAGNETOM Flow.Ace XA70

System

Techniques

Applications

Workflow

RF Coils
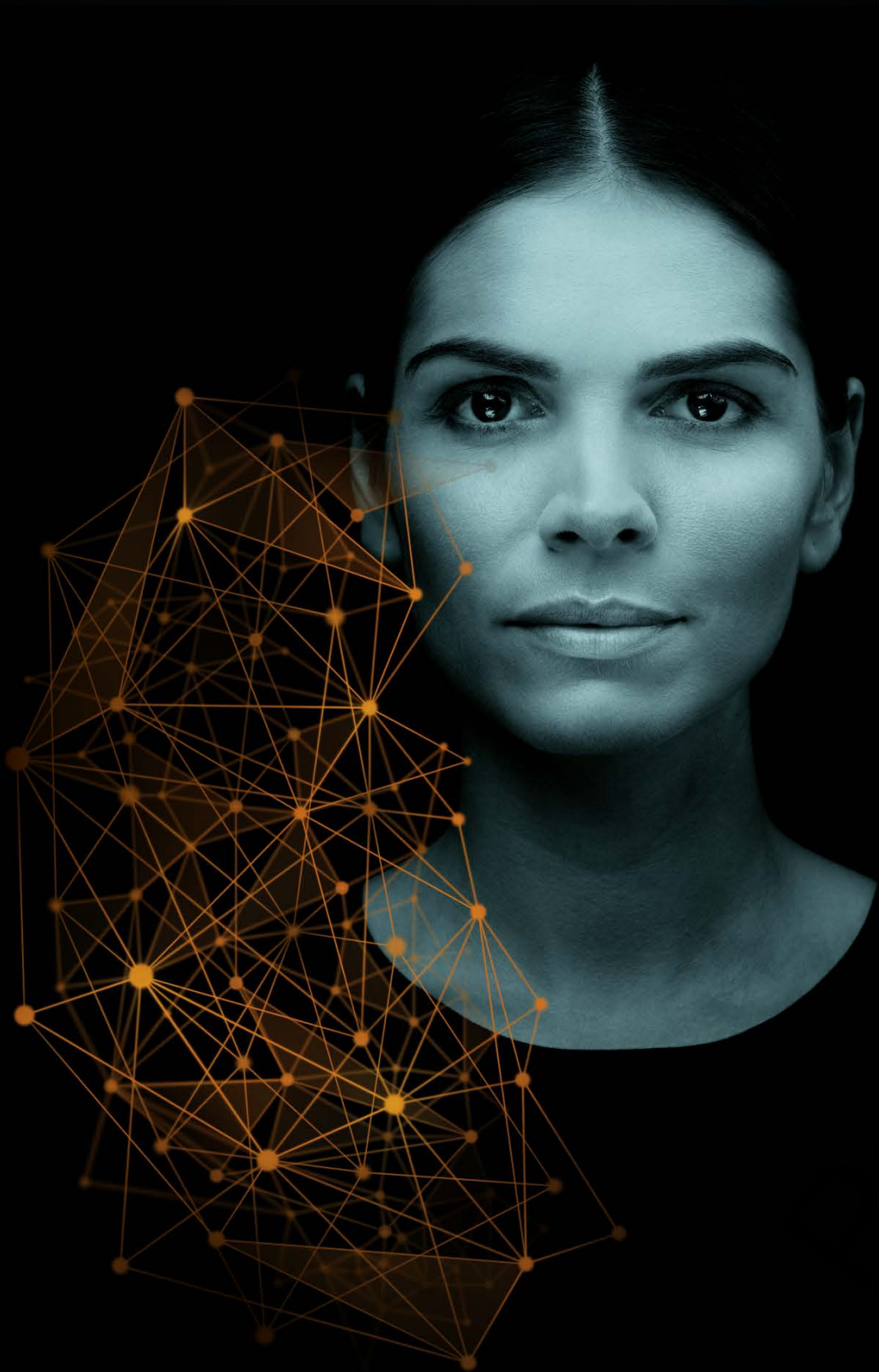
Options

Tim Application Suites

Clinically optimized examinations in all body regions, from head to toe

What is an Application Suite?

A Total image matrix (Tim) Application Suite is a collection of software and hardware features, applications, and functionalities tailored for specific imaging needs and clinical applications.

Siemens bundles these suites to optimize the performance and capabilities of MAGNETOM for particular medical specialties or types of examinations.

> Neuro Suite

> Angio Suite

> Cardiac Suite

> Body Suite

> Onco Suite

> Ortho Suite

> Breast Suite

> Scientific Suite

> Pediatric Suite

> Tim Planning Suite

The Tim Application Suites are standard on MAGNETOM Flow.

Tim Application Suites

Neuro Suite

Dedicated programs facilitate extensive head and spine examinations

High-resolution & fast imaging techniques
- Fast 2D imaging with TSE and GRE
- BLADE for motion-insensitive TSE imaging
- EPI for diffusion imaging, perfusion imaging, and fMRI
- 3D isotropic volume imaging with
  T1 3D MPRAGE/3D FLASH
  SPACE DarkFluid
  T1/T2 SPACE

Advanced neuro techniques
- Diffusion-weighted imaging (DWI) with up to 16 b-values
- SliceAdjust for reduced distortions
- 3D TOF for non-contrast angiography
- TSE_MDME for multi-contrast imaging
- MP2RAGE for homogeneous tissue contrast and segmentation
- Whole-spine acquisitions with software-controlled table movement

Specialized imaging protocols
- 2D/3D MEDIC for T2 contrast, particularly for C-spine exams
- BioMatrix's CoilShim for reducing B0 inhomogeneities
- 3D Myelo for detailed anatomical imaging
- PSIF diffusion spine imaging for high spatial accuracy
- 3D CISS for fine structure visualization, such as cranial nerves and the inner ear
- TGSE for efficient T2-weighted imaging of the brain

Imaging optimization & support features
- High-resolution T2 SPACE optimized for inner ear exams
- Double inversion recovery 3D (DIR SPACE) for simultaneous suppression of two species, e.g. cerebral-spinal fluid and white matter
- RESOLVE for accurate lesion depiction
- AutoAlign Head LS for enhanced imaging fidelity

Angio Suite

Excellent MR Angiography to visualize arteries and veins

Contrast-enhanced MRA

3D ce-MRA
For dynamic, carotid, abdominal, and peripheral arteries
- Shortest TR and TE

Test Bolus
For optimal bolus timing

Care Bolus
Accurate determination of bolus arrival time and "Stop and Continue" of 3D ce-MRA after 2D bolus control scan

Non-contrast MRA and venography

2D Time-of-Flight (ToF)
- For Circle of Willis, carotids, neck vessels
- Breath-hold protocols for abdominal vessels

Triggered 2D ToF
- For non-contrast MRA
- Particularly of the abdomen and the extremities

2D phase contrast

MR venography
With 2D ToF and phase contrast

TONE (Tilted Optimized Non-saturating Excitation) and **MTC** (Magnetization Transfer Contrast)
- For improved contrast-to-noise ratio (CNR)

Inline image processing

- MPR, MIP, MinIP
- 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

Tim Application Suites

Cardiac Suite

From morphology and ventricular function to tissue characterization

Fast step-by-step **cardiac scouting** of typical cardiac views
- Short-axis, four-chamber, and two-chamber views
- E.g. based on TrueFISP or Dark Blood TurboFLASH

In conjunction with iPAT, tPAT, ePAT

BEAT

Set of specialized techniques and protocols optimized for cardiac imaging

User-friendly protocols minimize setup and execution complexity

Synchronizes the MRI acquisition with the patient's heartbeat (cardiac synchronization)

One-click switches
- 2D to 3D imaging
- FLASH to TrueFISP

(G60 only):
- Arrhythmia rejection on/off
- Cartesian to radial sampling (increase effective image resolution and avoid folding artifacts in large patients)

Visualization of structural cardiovascular pathologies

Multiple contrasts (such as T1, T2)

Dark Blood TSE with motion compensation for high-quality vessel wall imaging in small or large vessels

- Breath-hold and free-breathing (G60 only) techniques for strong contrast between blood and vascular structures
- Dark Blood TSE and HASTE for the structural evaluation of the cardiothoracic anatomy, including vessels or heart valves
- Cine techniques (FLASH & TrueFISP) for high-resolution valve evaluation

Rapid evaluation of left/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

Inline ECG for graphical ECG triggering setup

Retrospective gating with cine sequences (TrueFISP, FLASH)

(G60 only):
Real-time imaging for patients who have difficulty holding their breath

AutoMate Cardiac

AI-based automated planning

AutoPositioning
Accurate setup of scan parameters, localizers, 3D whole heart measurements

AutoRestingPhase
Detects optimal data acquisition window for several cardiac target anatomies

AutoTI (Automatic Inversion Time)
Optimal inversion time for delayed enhancement measurements

Tim Application Suites

Cardiac Suite

4D imaging (G60 only)

For high-contrast and high-resolution tissue characterization

Stress and rest imaging with TurboFLASH
• Acquisition of multiple slices with high-resolution and arbitrarily adjustable slice orientation for each slice

Advanced parallel imaging
tPAT and ePAT with mSENSE and GRAPPA
• Fast high-resolution dynamic imaging

Optimization of tissue contrast
Segmented IR TrueFISP/FLASH with TI scout

Advanced tissue characterization
2D phase-sensitive IR (**PSIR**) pulse sequences with TrueFISP and FLASH contrast
• Magnitude and phase-sensitive images with one acquisition
• No adjustment of inversion time (TI) necessary

PSIR HeartFreeze
Motion correction and averaging of multiple measure-ments using iPAT or tPAT-accelerated single-shot TrueFISP or GRE images of the heart
• Enables free-breathing acquisition

Tim Application Suites

Body Suite

Dedicated to clinical body applications

2D PACE
Multi-breathhold examinations and free breathing

Motion artifact reduction with 2D PACE Inline

Free-breathing 2D PACE applications with 2D HASTE (RESTORE) and 2D/3D TSE
• Phase navigator measures respiratory induced off-resonance effects

Automated positioning for most pulse sequences

SliceAdjust (slice-by-slice adjustments)
Reduced distortions and homogeneous signal intensity
• In the presence of challenging susceptibility interfaces
• At station boundaries

Abdomen 2D

Breathhold and free breathing
• T1 FLASH breathhold, with and without FatSat (SPAIR, Quick FatSat, in-phase/opp-phase)
• T2 breath-old (HASTE, TSE/BLADE, EPI), with and without FatSat (SPAIR, FatSat, STIR)
• T1 TFL triggered (2D PACE free breathing) in-phase/opp-phase
• T2 triggered (HASTE, TSE/BLADE, EPI) with and without FatSat (SPAIR, FatSat, STIR), including HASTE and TSE multiecho
• Optimized rapid HASTE and high-resolution SPACE and TSE for MRCP and MR urography

AutoAlign
Enhances efficiency with automatic positioning and scan parameter adaptation

Pelvis

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

Thorax

High-resolution T1, T2
• Motion-insensitive (BLADE, HASTE)
• TrueFISP for imaging of respiratory mechanics
• Non-contrast-enhanced vessel visualization with SPACE
• STIR for the evaluation of lymph nodes
• Diffusion-weighted imaging with single-shot EPI

Abdomen 3D

Dixon (VIBE 2-point Dixon) breathhold
In-phase, opposed phase, fat, and water images

Inline calculation of fat-fraction maps for increased fat-to-lesion contrast in bone marrow

Dynamic VIBE
SPAIR, Dixon, and Quick-FatSat

Inline motion correction for the visualization of focal lesions with high spatial and temporal resolution

Dark-lumen colonography
With T1-weighted VIBE

Diffusion-weighted imaging (DWI)
For the prostate, cervix, rectum, and additional organs
• Using single-shot EPI with multiple b-values
• Individual numbers of averages may be specified per b-value

Inline calculation
• ADC maps
• Exponential ADC maps
• Inverted b-value images
• Extrapolation of high b-values up to b=5000 s/mm²

Tim Application Suites

Onco Suite

Detailed assessment of a variety of oncological conditions

STIR TSE, HASTE, FLASH in-phase/opposed-phase for highly sensitive visualization of focal lesions

Dynamic imaging for tissue kinetic assessment

Quantitative analysis with colorized maps via Inline technology
- Wash-in/wash-out
- Time to peak
- Positive enhancement integral
- MIP-time
- Combination maps

TimeCurve postprocessing for temporal analysis in selected ROIs
- Supports additional datasets for ROI definition

Diffusion-weighted imaging (DWI)

Single-shot EPI with multiple b-values
- Individual numbers of averages per b-value

RESOLVE for high-resolution, low-distortion DWI

Inline calculation
- ADC maps
- Exponential ADC maps
- Inverted b-value images
- Extrapolation of high b-values up to b=5000 s/mm²

SliceAdjust (slice-by-slice adjustments)
Reduced distortions and homogeneous signal intensity
- In the presence of challenging susceptibility interfaces
- At station boundaries

Prostate imaging

For a variety of clinical scenarios
- T1-weighted 3D VIBE with high temporal resolution for time course evaluation
- Prostate DWI with single-shot EPI and RESOLVE
- Prostate spectroscopy with up to 8 sat bands (suppression of water and fat signal)

Whole-body imaging

TSE STIR for head to toe and head-to-pelvis
- Focus regions head, neck, thorax, abdomen, and pelvis
- DWI with single-shot EPI

Inline calculation and composing
Of whole-body fat-fraction maps
- Based on 2-point Dixon protocol
- Increased fat-to-lesion contrast in bone marrow

Tim Application Suites

Ortho Suite

Dedicated to joint imaging including the spine

High-resolution imaging
2D TSE for PD, T1, and T2-weighted contrast with high in-plane resolution and thin slices

3D MEDIC, 3D TrueFISP with water excitation for T2-weighted imaging

High-resolution 3D VIBE for MR arthrography (knee, shoulder, hip)

3D imaging & postprocessing

3D MEDIC, 3D TrueFISP, 3D VIBE with high isotropic resolution for 3D postprocessing

T1 and PD SPACE 3D with high isotropic resolution, compatible with CAIPIRINHA for advanced postprocessing

Spine imaging & dynamic joint assessment

Single-step and multi-step whole-spine protocols

Dynamic protocols for TMJ and ilio-sacral joint, assessing contrast dynamics and different joint positions

Specialized imaging & fat suppression

Multiecho SE for T2 mapping with up to 32 echoes

High-resolution 3D DESS for fluid-cartilage differentiation

2-point Dixon for fat and water separation in TSE sequences

Excellent fat suppression in off-center positions, e.g., in the shoulder, due to high magnet homogeneity

Advanced techniques
WARP for metal artifact reduction
> WARP
> Advanced WARP

Breast Suite

Excellent tissue contrast for the evaluation of the breasts

Customized pulse sequences (e.g., fat saturation, water excitation, silicone excitation) and flexible multiplanar visualization

High-resolution diagnostics
2D for morphology evaluation

3D for both breasts simultaneously

Interventional support
Such as fine needle and vacuum biopsies, wire localization

Silicone implant evaluation
Automatic and manual frequency adjustment for silicone signal

Techniques to detect and manage the silicone signal for implant leakage detection or surrounding tissue evaluation

Advanced imaging techniques
Dixon – 2-point Dixon with 3D VIBE for in-phase, opposed phase, fat, and water images

iPAT with GRAPPA and iPAT² with CAIPIRINHA for sagittal imaging and improved temporal resolution in dynamic scans

Image processing and analysis
Inline subtraction and MIP display

Offline subtraction, MPR, and MIP display

Specialized breast imaging
Diffusion-weighted imaging with single-shot EPI, adjustable averages per b-value

RADIANT for ultrasound-like reconstruction around the mammary papilla

VIEWS (Volume Imaging with Enhanced Water Signal) for bilateral examination, axial views of milk ducts, with fat-saturated or water-excited options

Near-isotropic 3D measurement for any direction reconstruction, submillimeter voxel size

RESOLVE
> RESOLVE

Tim Application Suites

Scientific Suite

Easy access to application-specific data for further processing and advanced image calculus

Data management and privacy
USB memory stick support

Patient data anonymization

Educational and presentation tools
Simplified creation of AVIs and snapshots for presentations/teaching

Exports tables, statistics, and signal time courses in formats like tabulated text (TimeCurve, spectroscopy, DTI evaluations)

Advanced image calculus
Addition, subtraction, multiplication, division

Pediatric Suite [1]

Addressing challenges of scanning pediatrics patients

Motion robust scanning techniques for non-compliant patients
BLADE TSE scanning across all slice orientations

Various body regions including head, spine, abdomen, orthopedic imaging

Multiple contrasts: T1, T2, Dark Fluid, STIR

Noise reduction
Lowers MR scan sound pressure, enhancing patient comfort and compliance during MRI exams

> Quiet Suite

Fast scan techniques
For reduced exam durations and improved patient compliance

2D and 3D acceleration methods (iPAT, CAIPIRINHA)

Optional techniques for enhanced acceleration:

> Compressed Sensing

> Simultaneous Multi-Slice

> Deep Resolve

Protocol adaption
Tailored to age, body size, and variations in tissue relaxation times

Parameter adjustment according to preference and use case

Pediatric protocols can be saved for future examinations

Siemens Healthineers pediatric community
Peer-to-peer exchange of pediatric MRI knowledge. Protocols articles, recorded presentations, images, available for download

https://www.magnetomworld.siemens-healthineers.com

Patient education `Option`

MAGNETOM Mini scanner designed to demonstrate the appearance and sound of an MRI system

Educational children's books and MR paper models

https://www.magnetomworld.siemens-healthineers.com/toolkit/mri-patient-education

Tim Planning Suite

Simplified planning for extended field-of-view examinations

Multi-station planning
• On composed localizer images
• Adjustable slice group overlap
• Independent parameter settings for each station, displayed collectively

Special coupling mode for simultaneous positioning of all stations according to patient anatomy

Full support for scan@center and Phoenix functionality

Set-n-Go protocols
Ready-to-use and tailored for various clinical questions

Quick advanced slice planning
• Integrated toolbar:
  FOV-Plus
  FOV-Minus
  AlignParallel
  AlignFieldOfViews

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

Optimized MRI workflow

Integration of hardware, software, automation, and postprocessing

System

Techniques

Applications

Workflow

RF Coils

Options

Top-tier patient care

> Patient handling

> syngo MR software

> myExam Companion

System

Techniques

Applications

Workflow

RF Coils

Options

Patient handling

Enhanced patient comfort and efficiency
BioMatrix Interfaces, Tim 4G, and myExam Companion enhance patient comfort and operational efficiency

Streamlined user interaction
BioMatrix Interfaces streamline user interaction

Select&GO touch display, based on the BioMatrix Body Model, enables rapid and accurate patient positioning, avoiding delays from incorrect setup

Simplified patient setup
Users select the scan region or organ on the touch display for automatic, precise patient alignment

One-time setup: no need for repositioning or changing coils

150 cm scan range covers most whole-body exams without moving the patient

Simplified imaging
Optimized, high-element ultra-lightweight surface coils

Remote control of table movement

Anxiety-reducing options
Feet-first examination options for various applications (e.g., cardiac, liver, upper abdomen, pelvis, colonography, body angio) alleviate anxiety for claustrophobic patients

Patient positioning aids
Standard set of cushions for comfortable and stable patient positioning together with safety straps

Patient communication

Ergonomic patient communication unit

Designed for flexibility, can be placed anywhere on the workplace table

Features a squeeze bulb for patient assistance calls

Responds to patient activation with options for table stop, sequence stop, and adjusting volumes

Audio communication controls
• Volume adjustment for control room speaker
• Volume control for examination room speaker and headphones, accommodating voice commands

External audio system integration
Connects to an external audio system with independent volume controls for voice and music

Pneumatic system in ergonomically designed headphones ensures comfort

Includes loudspeaker and microphone for clear audio exchange

Advanced voice command system
Automatic and customizable voice commands for breath-hold instructions

Music automatically mutes for clear communication during instructions

Two-way intercom allows open communication between patient and control room

Patient handling

BioMatrix Patient Table

Engineered for robust hygiene and optimal patient experience

Accommodates patients up to 250 kg, supporting full weight capacity in both vertical[1] and horizontal movements

Integrated coils for quick patient preparation and enhanced user comfort

Modular infusion stand and paper roll holder cushion

Allows for adjustable table speed, including predefined acceleration or continuous adjustment via the jog-wheel on Select&GO control units

Max. patient weight for vertical[1] and horizontal table movement		250 kg (551 lbs)
Max. scan range		1500 mm[1]
Vertical table movement (Only available for patient table with vertical drive)	Range[2]	480 mm–930 mm + 30 mm[3] ± 5 mm[4]
	Speed	40 mm/s ± 1 mm/s
Horizontal table movement	Max. range	2150 mm ± 5 mm
	Max. speed	200 mm/s ± 2 mm/s
	Repositioning accuracy in same direction	± 0.5 mm
	Repositioning accuracy in opposite directio	± 1 mm
Continuous table movement during scan capable		

1) Depending on specific application and patient positioning
   Option: Vertical table drive to lower patient to 48 cm for easy access
2) From lowest position to maximum height
3) Adjust limit switch
4) Depending on the floor conditions

Patient handling

Physiological Measurement Unit (PMU)

Wireless physio control
Synchronizes measurements with physiological cycles to minimize motion artifacts from cardiac and respiratory movements

Visualizes physiological curves on the Select&GO display

Wireless sensors
Vector ECG/respiration and pulse sensors, wireless and battery-powered for easy patient handling

Physiological signals monitored
- ECG (three channels)
- Pulse
- Respiration
- Cardiac motion

Triggering methods

ECG triggering
Captures multiple heart slices at various cardiac cycle phases

Enhancied image quality through synchronization with cardiac motion

Peripheral pulse triggering
Minimizes flow artifacts from pulsatile blood flow

Improved image quality by aligning data acquisition with blood pulse

Respiratory triggering
Enhances image quality by aligning data acquisition with respiratory motion

External triggering
Interface for trigger inputs from both internal (e.g., patient monitoring systems) and external sources (optional, e.g., pulse generators for fMRI)

Optical trigger output for fMRI

Retrospective gating
For ECG, peripheral pulse, and external triggers

Noise reduction

Gradient coils
- Acoustically optimized mountings minimize structure-borne noise
- Special epoxy resin and casting technology dampen vibrations
- Reduction in gradient stray field limits eddy currents
- Acoustically soft yet mechanically rigid mountings inside the magnet
- Force compensation on all axes

Magnet
- Complete magnet encapsulation
- Efficient floor decoupling to minimize noise transfer
- Noise-optimized cold head
- Thermally balanced materials reduce physical interactions
- Acoustic decoupling from cover

Body coil
- Low-vibration, noise-optimized supporting tube material
- Extension beyond gradient coil for maximal noise reduction
- Slotted copper structures glued to reduce high-frequency noise
- Acoustically decoupled with special suspensions

Optimized sequence timing
- Prevents gradient coil resonance
- No compromise on application performance

Whisper Mode
For significantly quieter imaging
- Reducing max. slew rate and amplitude
- User-selectable

Quiet Suite
> Quiet Suite

syngo MR software

System

Techniques

Applications

Workflow

RF Coils

Options

syngo MR software

Siemens Healthineers' advanced software platform designed to enhance the functionality and efficiency of the MAGNETOM scanner

> Workspaces

> *syngo* MR Examination

> MR View&GO

> *syngo* MR network communication

syngo MR software

Workspaces

Acquisition workplace

Comes standard with a single-monitor setup, complemented by
• One keyboard
• One mouse

Dual-monitor setup

Dedicated scan and viewing monitors streamline operations for technologists
• Provide a sparated view of scanning and viewing tasks
• Minimize context switching
• Facilitate multitasking

Scan monitor
Focuses on scanning and initial quality checks

Viewing monitor
Handles postprocessing, data management (DICOM actions), and multiple applications simultaneously

Acquisition workplace
• Supports one MR View&GO and three postprocessing applications
• Additional four applications possible on an attached syngo MR Workplace

Postprocessing features

MR relevant postprocessing functionalities from *syngo*.via are also accessible in *syngo* MR XA70

With an available *syngo* MR Workplace (secondary console), applications can flexibly be used at either the Acquisition or *syngo* MR Workplace

If a dual user package exists, applications can be used simultaneously for different patients across both workplaces

Integrated reporting and Findings Assistant from *syngo*.via are *not* included in *syngo* MR XA70

Postprocessing results are provided as result images at remote DICOM nodes[1]

syngo MR examination

AutoScout

Automatically initiates localizer scan
• Brief acquisition time
• Supports arbitrary orientations (multislice multiangle)
• Directly loads images for graphical slice positioning

Graphical slice positioning

Enables the simultaneous use of three arbitrary localizer images from different measurements

Allows for graphical positioning of slices and saturation regions

Interactive modification of measurement parameters
(Such as slice thickness, distance factor, and oversampling)

Automatic and graphical selection of relevant coil elements

Off-center positioning
Enables shift of the field of view within the selected slice position

True multislice multiangle capability
For simultaneous measurement of multiple image stacks in different orientations

Recall previous slice and/or saturation region positioning

Paging through all images during graphical positioning

Inline Movie
Allows for slice positioning on dynamic images, such as the beating heart

Inline Display
Instantly loads images as they become available, for example, during image reconstruction

Quick overview of images
Via stamps and drag-and-drop loading of entire series for planning

Graphical Slice Positioning (GSP) on
• 3D reconstructed
• 2D and 3D distortion corrected
• Composed images

Multiselect GSP segments
For synchronized actions, such as scrolling

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syngo MR software

MR View&GO

Image viewing, basic postprocessing, filming, and distribution

Central application for image viewing, quality assurance, basic postprocessing, filming, and result distribution

Features

Overview of all available data with automatic loading of newly acquired or received images

Multi-modal image viewing and comparison

Specialized layouts for MPR, MIP, and VRT

Basic postprocessing
• Analysis, correction, and filter tools
• TimeCurve (spatial and temporal analysis of images)
• Composing and combining of images from different table positions
• Editable image comment

Filming with preparation of virtual film sheets for DICOM printer

Distribution of selected data sets for archiving and DICOM transfer

Image display
• Various display layouts selectable incl. time point comparison
• Multi-modality viewing
• Image zoom and pan
• Image annotation and marker
• Free interactive definition of cut planes in axial, sagittal, coronal, oblique, and double oblique orientations
• non-interpolated display of images
• Mosaic view
• Predefined views of certain anatomical regions (Auto Views)1)
• Free interactive image rotation of MIP and VRT
• Interactive 3D reference point for spatial localization on different orientations
• Interactive slice thickness adjustment
• Interactive selection of relevant parts of MIP and VRT volumes by 3D shutters or freehand cut out
• Fast scrolling through data sets (500 images) with 15 frames/s
• 4D viewing with intuitive temporal (phase navigation in 4D data sets) and spatial scrolling extended by the 4D movie toolbar with phase tags
• Movie mode for cine display with spatial navigation during running movie

Windowing
• Width and center freely selectable
• Auto-windowing for optimized contrast
• Capability to save window values
• Various color LUTs (look-up tables) including inversion of grayscale values

Evaluation
Parallel evaluation of multiple regions of interest
• ROI (Freehand, Circle)
• VOI (Freehand, Sphere)
• Statistical evaluation of ROI/VOI
  Area or volume
  Standard deviation
  Mean value
  Min/max values
  Number and sum of pixels or voxels
• Interactive segmentation (Region Growing)
• Pixel lens with position marker
• Distance (line and polyline)
• Angle

Range creation and curved reconstructions
Enables free definition of parameters like slice thickness, spacing, and numbering for parallel, radial, radial sliced, and curved reconstructions

Offers output display types such as MPR, MIP, MinIP, MIP thin, VRT, VRT thin, and Fusion
• Includes configurable reconstruction presets
• Anatomical range presets for specific body regions

Position display
Displays measured slice positions on a localizer image or a selected series

Corrections
• Motion correction
• 3D elastic motion correction for offline adjustment in all directions across entire 2D and 3D datasets, ideal for soft tissue MR exams
• 2D and 3D distortion correction
• Option to undo 2D distortion correction

Image filter
Smoothing or edge enhancement of image stacks

MAGNETOM Flow.Ace XA70

TimeCurve
Time-intensity analysis for contrast-enhanced examinations
- Allows on-the-fly analysis using pixel lens or ROIs
- Features an interactive mean curve segment to navigate to specific phases and slice positions within the 4D datasett

Spine labeling
Automatically calculates spine labels or adopts labels from myExam Spine Assist

Filming
- Offers both DICOM basic print connection and locally connected printer options
- Interactive filming
- Supports virtual film sheets
- Filming parallel to other activities
- Independent scanning and documentation without delays from camera
- Simultaneous handling of multiple film jobs
- Freely selectable positioning on virtual film sheets
- Various selectable film layouts
- Windowing, image zoom and pan, and annotations on the film sheet
- Configurable image text
- Reference image display
- Printing directly from the browser

Analysis tools
Arithmetic operations on images and series for tasks like evaluating contrast media studies
- Addition, subtraction, multiplication, and division of single images and entire series
- Calculation of the arithmetic mean across a selected range of images
- ADC maps and calculated b-values with interactive preview

MPR – Multiplanar Reconstruction
Real-time reformatting of secondary views

MIP – Maximum Intensity Projection
3D reconstructions of vessels from a 3D data set or 2D sequential slice data set, acquired with dedicated MR Angiography sequences
- MIP thin
- MIP thick

MinIP – Minimum Intensity Projection
Similar to MIP but focuses on reconstructing areas of minimum intensity
- Useful for Dark Blood techniques

VRT – Volume Rendering Technique
3D rendering with the flexibility to define multiple trapezes for opacity and color
- User-specific presets
- VRT thick
- VRT thin

Result handling and distribution
Provides an overview over all acquired data and facilitates easy selection of target DICOM nodes for archiving

- Supports 4D, including archiving sub-sets of 4D datasets
- Status information about tje distribution state for each dataset

Prepare reading
Allows for dynamic adjustments within a single series, including image reordering, rotation, and deletion

Series Saving
Allows saving the current representation of data within a selected viewing segment as a new result series

If the segment contains MPR data, parallel ranges are automatically generated

Image fusion
Interactive control over the mixing ratio and selection of various (color) LUTs

Provides tools for visually aligning images through interactive adjustments

Cinematic Volume Rendering Technique VRT `Option` (CRT)

Advanced simulation to mimic how light interacts with matter, creating photo-realistic images of anatomical regions

DICOM services (Digital Imaging and Communications in Medicine)
Interface for transmitting medical images and related information according to the DICOM 3.0 industry standard

Facilitates communication between devices from various manufacturers
- DICOM send/receive
- DICOM query/retrieve
- DICOM SC storage commitment
- DICOM basic print
- DICOM modality worklist
- DICOM MPPS modality performed procedure steps
- DICOM structured reports
- DICOM study split

Enhanced MR images (Multiframe)

- Decreased loading times due to minimized redundancy in header information
- Reduced object size leading to less memory consumption
- An average of 40%[1] reduction in data storage requirements with Multiframe DICOM, lowering archive costs, extending online availability of exams, and speeding up image access at target nodes
- Enhanced application compatibility through adherence to DICOM standard attributes
- Inclusion of color within MR modality images
- MR quantification enhanced by real-world value mapping support
- Improved archiving and application support for MR spectroscopy objects
- Enhanced archiving of DTI and other non-image data, including raw data objects

Image transfer

Local network	Ethernet
Data transfer rate	Max. 1 Gbit/s
Transfer rate (DICOM enhanced MR images with 80 frames per instance)	Approx. 160 frames/s–250 frames/s

DICOM study split
Splits a single acquired study into multiple studies directly at the scanner
- Allows simultaneous head and neck requests to be scanned once and mapped to two separate studies

Combines multiple procedures into one scan, then divides them into individual studies for billing and reading efficiency

- Maps multiple requested procedures to multiple series with a single scan, saving time
- Enables creation of individually billable studies from one exam
- Enhances departmental workflow by removing the need for post-scan splitting on a separate workstation
- Allows immediate visual selection, checking, and correction of study image assignments
- Permits images of overlapping regions to be copied to both studies

DICOM interoperability
Allows for a conversion to DICOM MR images for remote DICOM nodes, such as PACS systems, that do not support the DICOM Enhanced MR Image format.

Expert-i
Interactive real-time access to imaging data and exam information from any PC within the hospital network during the MR exam

DICOM Viewer
A tool that can be stored along with images on an export medium, allowing it to be handed out to the patient for viewing

Correction, rearrangement, and deletion
- DICOM data correction
- Operations for rearranging patient, study, series, and images
- Threshold-based data deletion

[1] Data on file. Results may vary

System

Techniques

Applications

Workflow

RF Coils

Options

myExam Companion

Highly automated scan workflows

Simplifies the imaging process and enhances clinical decision-making.

Delivers reliable high-quality results tailored to the individual patient's condition and clinical need.

- Regardless of user experience level

- Regardless of throughput

Key features

- State-of-the-art automation for peak efficiency

- An intuitive user interface

- Simplified planning and customization of protocols

- Real-time optimization tailored to each patient

- Consistent and reproducible outcomes

- Automated patient positioning

myExam Companion consists of:

> [myExam Autopilot](#)

> [myExam Assist](#)

> [myExam Cockpit](#)

> [myExam Implant Suite](#)

myExam Autopilot

Drastically simplified MRI operation, minimizing the need for user interaction

Allows less trained staff to perform high-quality scans, easing the load of routine tasks

Similar to myExam Assist, myExam Autopilot offers automation capabilities
- Eliminates the need for manual adjustments
- Automated consistent coverage and orientation
- Customizable to meet site-specific standards of care

Radically simplified user interface
Scan with a simple touch[1] or click

Exam Settings
- Language for Automatic Voice Commands
- Exam Mode (standard, motion-insensitive)
- Decisions, such as contrast agent
- Patient Comfort Settings, such as music volume, etc.

- Exam Mode selectable before scan acquisition
- Settings can be optimized on the fly

Workline
Provides a guided, efficient pathway through the various steps of an MRI exam—from planning and execution to analysis and reporting

Users can start, continue, stop, insert, or remove pauses during examinations

Users can activate a step to view scanned images and information, preview the scan regions of pending steps, and access controls specific to each step

Image stage
- Previewing scan regions of pending steps
- Viewing scanned images through simple scrolling, allowing for quick and easy review

Information and control stage
Displays step-specific information and situation-specific controls, such as deleting or repeating a program step

Last step: The Summary
- Acquired image series are presented in a thumbnail overview
- Enables image distribution and basic filming tasks within myExam Auopilot

myExam Brain Autopilot

Allows less trained staff to scan brain MRI at high quality.

Automations, such as:
- AutoPosition
- AutoAlign Head LS
- AutoCoverage
- Inline MPR
- Inline Diffusion

myExam Spine Autopilot

Allows less trained staff to scan general cervical, thoracic and lumbar spine MRI at high quality.

Automations, such as:
- AutoAlign Spine LS
- AutoLabeling for planning support
- Interactive Snapping
- AutoCoverage
- Inline curved reconstructions

myExam Knee Autopilot

Allows less trained staff to scan knee MRI at high quality.

Automations, such as:
- AutoPosition
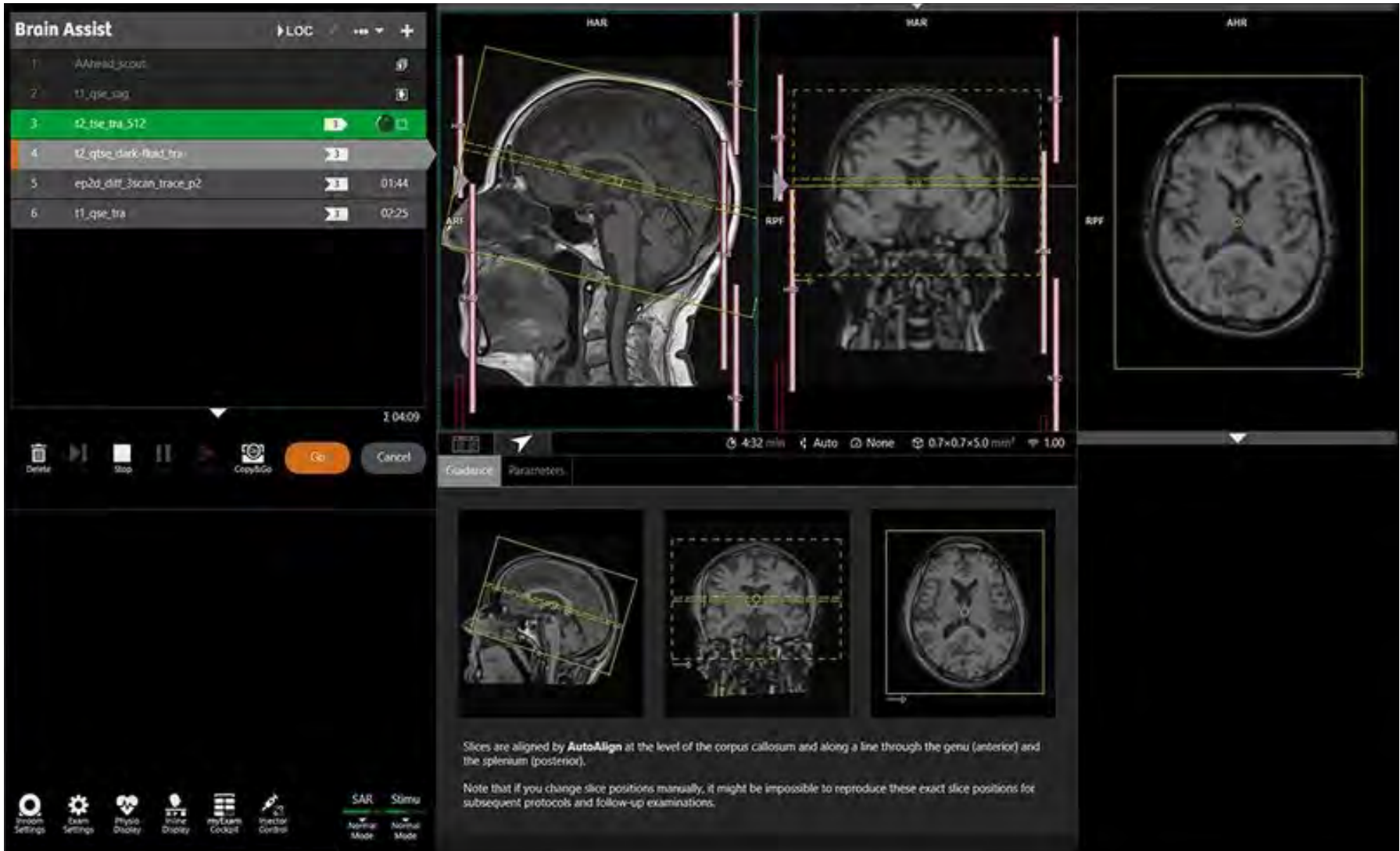- AutoAlign
- AutoCoverage
- Inline MPR

myExam Brain Autpilot

[1] Prerequisite: 24" Touch Monitor (optional)

MAGNETOM Flow.Ace XA70

myExam Assist

Supporting the human operator through user guidance, timing optimization, and automation feature

myExam Brain Assist

Guided and automated user assistance

Adaptable imaging procedures for a range of body regions

Consistent high-quality results
Customized to each patient's specific condition and clinical needs

Independent of the user's experience level or workflow requirements

Dynamically adaptable
High-quality imaging standards, even as patient or environmental conditions change

Mastering complex exams
Unparalleled results in intricate studies, notably in abdominal imaging

Automated positioning
Advanced automation for slice and volume positioning. Enhances both precision and operational efficiency.

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myExam Assist

Customizable key features

The recurring features of all myExam Assist modules

Exam strategies

A suite of examination strategies tailored for all supported body regions.

Patient-centric selection
Based on the specific condition of the patient, ensuring personalized care

Adaptive flexibility
Accommodates unforeseen needs during the exam—at any point

Decision points

Tactical program branches enable decisions like the use of contrast agents in subsequent steps.

Configurable decisions
• Made in advance or
• Dynamically adjusted during the study

Rerun functionality

On-the-fly management of the examination queue.

Allows for a portion of the examination queue to be rerun from a selected program step,

Flexibility in use
• Using either identical parameters or
• Modified parameters

Patient View

Streamlines the entire scan setup for a patient in one view on the screen.

Usage
• Select from the given choices of suitable Exam strategies
• Customize the examination to meet specific needs

Parameter View

Streamlined view of a user-defined subset of parameters for manual pulse sequence optimization.

Users can switch to the traditional, fully-loaded parameter view whenever needed.

Guidance View

Integrated step-by-step instructions for each phase.

Guiding through the examination
• Instant help
• How-to descriptions
• Vivid guidance images

Supports customization of guidance images and texts to suit specific clinical needs.

The crucial benefit of myExam Assist

In contrast to traditional scanning methods: Users can conveniently change exam strategy and decision. This enables expert-level examinations within a reasonable timeframe.

myExam Assist

Automation features

For highly automated scan procedures

AutoPosition

Enables precise anatomical positioning at the isocenter.

Eliminating the necessity for laser light positioning.

Available for:
• All myExam Assist modules

AutoAlign

Offers automatic positioning and precise alignment on anatomy-related slices.

Delivers robust and consistent results, unaffected by patient age, organ position, disease, or lesions.

Supports diagnostic accuracy by ensuring high image quality and standardized slice orientation.

Utilizes anatomical landmarks

Used for:
• Follow-ups
• Comparative analysis across patients

Available for:
> myExam Brain Assist
> myExam Spine Assist
> myExam Large Joint Assist
• myExam Abdomen Assist[1]
• myExam Cardiac Assist[1]

Inline MPR

Offers automatic multiplanar reconstruction for 3D datasets.

Effortless setup
Seamlessly reconstructs any required 2D images automatically

Utilizes the position information from AutoAlign.

Available for:
> myExam Brain Assist
> myExam Large Joint Assist
• myExam Breast Assist[1]

AutoCoverage

Determines the optimal number of slices and field of view (FOV).

This ensures complete coverage of the region of interest.

Utilizes data from AutoAlign
• Bypassing manual adjustments
• Preventing scanning of superfluous slices

Available for:
> myExam Brain Assist
> myExam Spine Assist
> myExam Large Joint Assist
• myExam Abdomen Assist[1]
• myExam Whole-Body Assist[1]
• myExam Breast Assist[1]
• myExam Prostate Assist[1]

Automatic voice commands

Optimal timing of scanning, breathing, and contrast media administration.

Commands are played at precise moments.
Monitors breath-holds and pauses.
Inserts breaks between automatic breath-hold instructions.

Available for:
• myExam Abdomen Assist[1]
• myExam Angio Assist[1]
• myExam Cardiac Assist[1]

AutoFOV

Estimates the optimal field of view (FOV) using localizer images.

Can be repeated at any time in case of patient movements.

Available for:
• myExam Abdomen Assist[1]
• myExam Cardiac Assist[1]
• myExam Breast Assist[1]

[1] Option

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myExam Assist

myExam Brain Assist

Optimized for general brain examination

Exam strategies

Standard: 2D and 3D pulse sequences

Speed focus: Fast 2D pulse sequences (e.g. HASTE) to accelerate scanning

Motion-insensitive: BLADE pulse sequences for automatic motion correction, refer to Standard motion correction

AutoAlign Head LS

Automated slice positioning for head examinations.

Calculates optimal centering for routine brain structures.

Examples include:
• Alignment for the AC-PC line, midbrain, and temporal lobes
• Inner ear, orbits, and optic nerve

Inline Diffusion

Inline technology facilitates the automatic creation of trace-weighted images and ADC maps.

Customization

User-defined offsets allow for adjustments beyond the standard positions set by AutoAlign.

Within myExam add-in functionalities for tailored scanning and imaging processes, including:
• AutoCoverage
• AutoFOV
• InlineMPR

myExam Spine Assist

Optimized for cervical, thoracic and lumbar spine imaging

Exam strategies

Standard: For fast routine spine examination

Post surgery: For detailed spine evaluation, incorporating fat saturation and Dixon techniques

High-bandwidth WARP : Optimized to minimize susceptibility artifacts, refer to Susceptibility artifact reduction

AutoAlign Spine LS

Detection and labeling of vertebrae and invertebral disks.

Guided positioning for sagittal, coronal, and double oblique axial slices of the spine.

AutoLabeling

Automatically labels vertebrae. Streamlines examination planning and accelerates the reading process.

Interactive Snapping

Automatic double oblique positioning of axial slice groups to align with intervertebral disk layers.

Usage:
Dragging the slide group over the sagittal plane

Inline Curved Reconstruction

Automatically creates curved reconstructions from 3D scans.

Customization

User-defined offsets allow for adjustments beyond the standard positions set by AutoAlign Spine LS.

(also for the saturation region)

• Inline curved reconstruction
• MPR

MAGNETOM Flow.Ace XA70

myExam Assist

myExam Large Joint Assist

Optimized for knee, hip and shoulder scan

Exam strategies

Standard: Highest image quality in a reasonable scan time using both 2D and 3D pulse sequences

Speed focus: Shortest possible examination by maximizing the acceleration of pulse sequences

Motion-insensitive: BLADE pulse sequences for automatic motion correction, refer to Standard motion correction

WARP : Optimized to minimize susceptibility artifacts, refer to Susceptibility artifact reduction

GOKnee3D

Fast, push-button examination specifically designed for knee diagnostic imaging.

- AutoAlign localizer for the knee
- PD-weighted and T2-weighted contrasts with fat suppression
- High-resolution, isotropic 3D protocols powered by the SPACE sequence and enhanced by the CAIPIRINHA technique

myExam Cockpit

Protocol administration and exam management: The whole exam configuration visualized on one page

Designed to realize the full potential of myExam Assist programs.

All myExam Assist programs can be configured to align with standards of care
- Intuitive protocol customization
- Creation and maintenance of exam programs
- Tailored to individual needs

Explorer
- Browsing through exams and organizing them
- Quick search for pulse sequences

Program Editor
- Modifying exams, finding protocol histories, comparing exams
- Adding a new exam strategy (creates a new myExam Assist)
- Drag & drop from the sidebar for adding pulse sequences
- Immediate switch from the Explorer with one click

User-friendly toolbar
Enables program opening, saving, and commands for copy, paste, undo, redo

myExam Implant Suite

Easily and reliably scanning patients with MR Conditional implants

Accommodates a broad spectrum of active and passive MR Conditional implants during patient examinations

Monitoring RF limits
Scan setup during patient registration:

Limits for B_{1rms} and SAR (both head and whole body) can be set as specified by the implant manufacturer

- Allows for review at any time during the scan
- Continuously monitored to ensure they are not exceeded
- If limits are exceeded, a dialog will inform the user of potential protocol modifications to maintain compliance

Users can set a scan time limit defined by the implant manufacturer
- Notification before the timer expires

Comments can be entered and archived with the study

Supported coils
Supports most existing 1.5T coils

If a coil is unsupported, the UI will notify the user: The coil must be removed

SAR adaptive protocols
Standard protocols with RF reduced by about 50% are available as substitutes

Availability:
- Head
- Heart
- Spine
- Knee

MAGNETOM Flow.Ace XA70

System

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RF Coils

Options

RF coils

Head/Neck Coil `Option`

Application

The combined Head/Neck Coil is part of the recommended coil package.

Optimized workflow of the head/neck region:
- Head examination
- Neck examination
- MR angiography of the head/neck
- Combined head/neck examination
- Temporomandibular joints (TMJ)

Coil specification

Ultra-high density coil
Dual-Density Signal Transfer integrates key RF components into the local coil
- 16 coil elements
- 16 integrated pre-amplifiers

Element configuration
- Two rungs of 6 elements each
- One rung with 4 elements in the neck region

Modularity
- Upper coil part removable
- Lower coil part can be used independently for highly claustrophobic patients
- Lower coil part may stay on the patient table for most of the examinations

First cableless 16-channel head coil with DirectConnect™ technology

Smoothly integrated into the patient table with BioMatrix Spine Coil

- Open patient-friendly design
- Detachable look-out mirror
- No coil tuning required
- iPAT-compatible in all directions

Compatibility

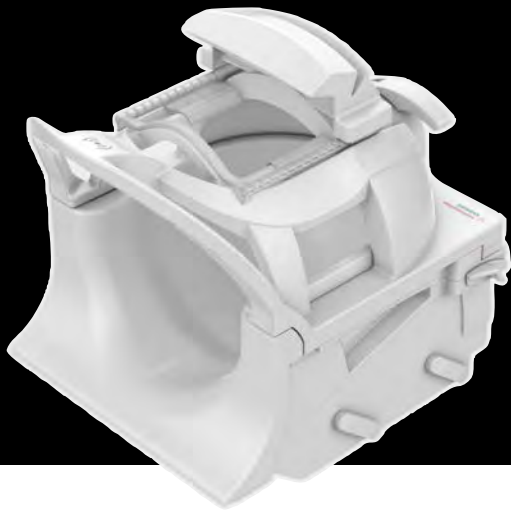Allows combination with all receive-only coils, e.g.:
- BioMatrix Spine Coil
- BioMatrix Contour Coils
- Loop Coils

Weight		Dimensions	
Total	5.0 kg	Length	445 mm
Anterior part	1.9 kg	Width	330 mm
		Height	364 mm

International version. Not for distribution or use in the U.S.

RF coils

BioMatrix Head/Neck Coil `Option`

Application

The BioMatrix Head/Neck Coil (BM Head/Neck) is a combined head/neck coil designed to optimize imaging of the head and neck region:
- Head examination
- Neck examination
- MR angiography of the head/neck
- Combined head/neck examination
- Cervical spine
- Temporomandibular joints (TMJ)

Coil specification

Ultra-high density coil
Dual-Density Signal Transfer integrates key RF components into the local coil
- 16 coil elements
- 16 integrated pre-amplifiers

Element configuration
- Two rungs of 6 elements each
- One rung with 4 elements in the neck region for excellent signal-to-noise ratio

Modularity
- Upper coil part removable
- Lower coil part can be used independently

First cableless tiltable head coil with DirectConnect™ technology

Smoothly integrated into the patient table with BioMatrix Spine Coil

- Cushioned head stabilizers (removable)
- Detachable look-out mirror
- No coil tuning required
- iPAT-compatible in all directions

Compatibility

Allows combination with all receive-only coils, e.g.:
- BioMatrix Spine Coil
- BioMatrix Contour Coils
- Loop Coils

24 independent channels in combination with one BioMatrix Spine and one BioMatrix Contour L

Weight		Dimensions	
Total	6.2 kg	Length	425 mm
Anterior part	1.8 kg	Width	370 mm
		Height	385 mm

International version. Not for distribution or use in the U.S.

RF coils

BioMatrix Spine Coil `Option`

Application

The BioMatrix Spine Coil (BM Spine Coil) with integrated Respiratory Sensor[1] is part of the recommended coil package.

- High-resolution imaging of the whole spine
- Various applications in combination with additional coils
- May remain on the patient table for most exams

Coil specification

Ultra-high density coil
Dual-Density Signal Transfer integrates key RF components into the local coil
- 24 coil elements
- 24 integrated pre-amplifiers

Element configuration
- 8 rows of 3 elements

Cableless coil with DirectConnect™ technology

Smoothly integrated into the patient table and streamlined with the Head/Neck Coil or BioMatrix Head/ Neck Coil

BioMatrix Sensors measure the patient's respiratory signal in both head-first and feet-first positions

- No coil tuning required
- iPAT-compatible in all directions

Compatibility

Allows combination with all receive-only coils, e.g.:
- Head/Neck Coil
- BioMatrix Head/Neck Coil
- BioMatrix Contour Coils
- Loop Coils
- Peripheral Angio 36

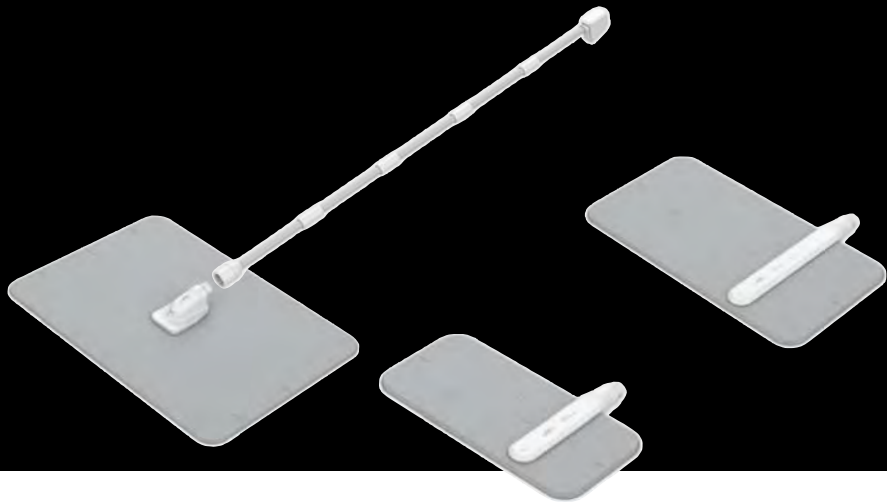| Weight	Dimensions	
10.6 kg	Length	1200 mm
	Width	489 mm
	Height	63 mm

[1] The Respiratory Sensor functionality is a retrofittable software option

International version. Not for distribution or use in the U.S.

Preliminary Edition

RF coils

BioMatrix Contour Coils `Option`

Application

The BioMatrix Contour Coils (BM Contour L/M/S) with integrated Respiratory Sensor, Beat Sensor, and Position Sensor[1] are offered in three sizes: S/M/L.

The BioMatrix Contour L Coil is part of the recommended coil package.

- Thorax
- Heart
- Abdomen
- Pelvis
- Hip
- Vascular
- Unilateral Hip
- Shoulder
- Knee, Hand
- Foot
- Wrist
- Ankle

Coil specification

Ultra-high density coil
Dual-Density Signal Transfer integrates key RF components into the local coil

BioMatrix Contour S
- 8 coil elements with 8 integrated pre-amplifiers
- 2 rows of 4 elements each

BioMatrix Contour M
- 12 coil elements with 12 integrated pre-amplifiers
- 3 rows of 4 elements each

BioMatrix Contour L
- 12 coil elements with 12 integrated pre-amplifiers
- 3 rows of 4 elements each

SlideConnect® technology for easy coil set up

Improved flexibility by detachable coil cable 1250 mm

- No coil tuning required
- iPAT-compatible in all directions

Compatibility

Allows combination with all receive-only coils, e.g.:

- Head/Neck Coil
- BioMatrix Head/Neck Coil
- BioMatrix Spine Coil, seamless integration for body imaging
- Additional BioMatrix Contour Coil, allows larger coverage
- Peripheral Angio 36
- Loop Coils

	Weight	Dimensions	
BM Contour S	490 g	Length	209 mm
		Width	446 mm
BM Contour M	770 g	Length	305 mm
		Width	587 mm
BM Contour L	970 g	Length	451 mm
		Width	662 mm
Detachable coil cable	570 g	Length	1250 mm

Coil weights without detachable coil cable

International version. Not for distribution or use in the U.S.

RF coils

iTX Extremity 18 Flare `Option`

Application

- Examinations of joints in the area of the lower extremities
- High-resolution knee imaging

Coil specification

18-channel inductive transmit/receive coil

- 18-channel coil with 18 integrated pre-amplifiers
- Elements arranged in 3 rungs by 6 elements
- Transmission layer integrated working as inductive coupled local transmit coil with body coil brings higher transmit efficiency and lower whole body SAR
- Upper coil part removable
- Holder enables off-center positioning to provide patient comfort
- Flared opening towards the thigh
- Cushions for patient comfort and stabilization of the anatomy
- SlideConnect® technology for easy coil set up
- One plug only
- No coil tuning required
- iPAT-compatible in all directions

Weight		Dimensions	
6.2 kg		Length	282 mm
		Width	528 mm
		Height	262 mm
Inner diameter			
170 mm, 190 mm flaring towards thigh			

International version. Not for distribution or use in the U.S.

RF coils

Hand/Wrist Coil `Option`

Application

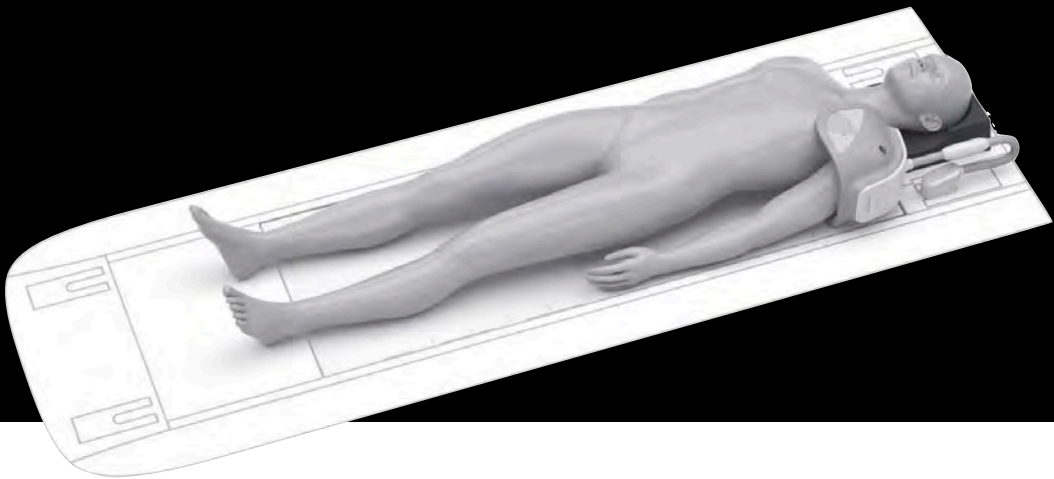High-resolution hand and wrist imaging

Coil specification

Ultra-high density coil
Dual-Density Signal Transfer integrates key RF components into the local coil
- 16-channel coil with 16 integrated pre-amplifiers

- Hinged design of the upper part for quick and easy patient positioning

- Stabilization pads for comfortable positioning

- Holder enables off-center positioning to provide patient comfort

- SlideConnect® technology for easy coil set up

- No coil tuning required

- iPAT-compatible in all directions

Weight		Dimensions	
Coil	2.8 kg	Length	332 mm
		Width	245 mm
		Height	128 mm
Base plate	3.0 kg	Length	536 mm
		Width	469 mm
		Height	58 mm

International version. Not for distribution or use in the U.S.

RF coils

Foot/Ankle Coil `Option`

Application

High-resolution foot and ankle imaging

Coil specification

Ultra-high density coil
Dual-Density Signal Transfer integrates key RF components into the local coil
- 16-channel coil with 16 integrated pre-amplifiers

- Boot-like coil design

- Cableless coil with DirectConnect™ technology

- Stabilization pads for comfortable positioning

- No coil tuning required

- iPAT-compatible in all directions

Weight		Dimensions	
Coil	3.2 kg	Length	332 mm
		Width	245 mm
		Height	128 mm
Base plate	7.1 kg	Length	536 mm
		Width	469 mm
		Height	58 mm

International version. Not for distribution or use in the U.S.

RF coils

Shoulder Shape 16 `Option`

Application

- Very good visualization of small anatomical structures (e.g. labrum)
- High SNR and better field homogeneity
- Reduced slice thickness and measurement times

Coil specification

Ultra-high density coil
Dual-Density Signal Transfer integrates key RF components into the local coil
- 16-channel coil with 16 integrated pre-amplifiers
- Flexible wings to shape around small and large shoulder anatomy

- Includes pads for high patient comfort
- SlideConnect® technology for easy coil set up
- No coil tuning required
- iPAT-compatible in all directions

Weight	Dimensions	
1.4 kg	Length	213 mm
	Width	213 mm
	Height	254 mm
Opening		
160 mm–270 mm		

RF coils

Peripheral Angio 36 `Option`
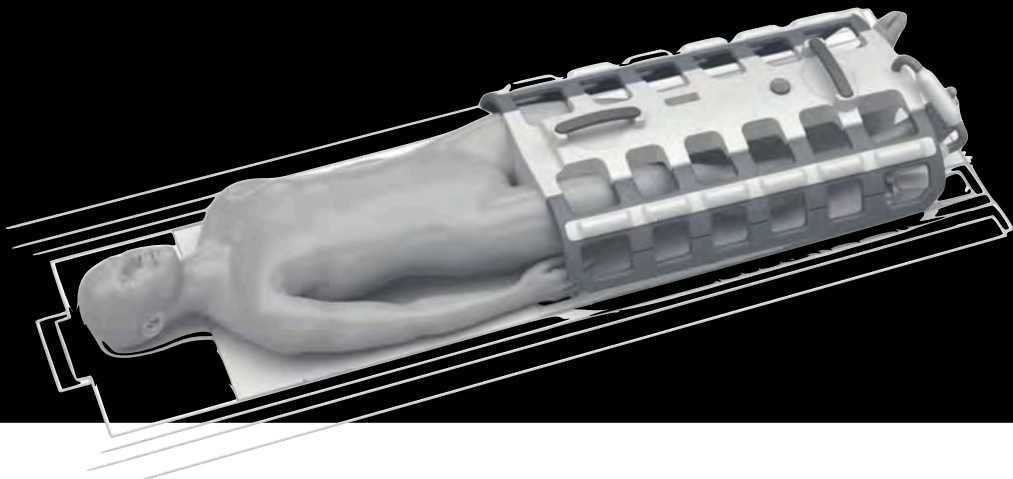
Application

High-resolution angiography of both legs with highest signal-to-noise ratio

Bilateral long bone examinations of the legs

Covering both legs independently with coil elements for maximium coil filling factor and enhanced signal-to-noise ratio

Coil specification

- 36 coil elements with 36 integrated pre-amplifiers
- 6 rows of 6 elements each

SlideConnect® technology for easy coil set up
- One cable only for easy handling
- No coil tuning required
- iPAT-compatible in all directions

Compatibility
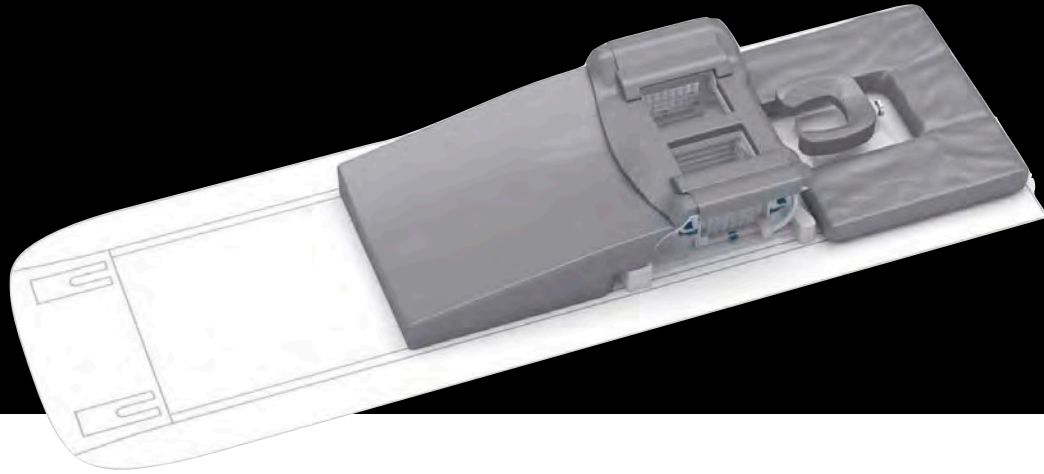
- BioMatrix Spine Coil
- BioMatrix Contour Coils

Weight	Dimensions	
8 kg	Length	860 mm
	Width	300 mm–640 mm
	Height	280 mm

Breast BI 7 `Option`

Application

- Simultaneous imaging of both breasts in all directions
- Unilateral biopsy imaging for lateral and medial access
- High-resolution 2D and 3D imaging
- For quantitative spectroscopy (SVS, Option) a reference bottle can be inserted

Coil specification

7-channel design
- For high SNR in diagnostic/interventional setups
- Height-adjustable headrest, compact design
- Single-plug connection, parking position
- Head/feet first measurement
- Abdominal cushion locks to coil
- Enables cranio-caudal compression (Option)
- Biopsy kit (Option) with grids, Post&Pillar fixation unit, markers, training needle kit
- LED lights for clear breast positioning and biopsy
- iPAT compatible in all directions

Weight	Dimensions	
10.7 kg	Length	499 mm
	Width	564 mm
	Height	232 mm

Breast 18 `Option`

Application

- Simultaneous imaging of both breasts in all directions
- Axillary imaging elements
- High-resolution 2D and 3D imaging
- For quantitative spectroscopy (SVS, Option) a reference bottle can be inserted

Coil specification

18-channel design
- 4 frontal elements
- 4 elements around each breast
- 1 axillary element per side
- Height-adjustable headrest, compact design
- Single-plug connection, parking position
- Head/feet first measurement
- Abdominal cushion locks to coil
- Pedals for easy left-right breast fixation
- Breast volume capacity: 2200 ml per breast
- iPAT compatible in all directions

Weight	Dimensions	
5.5 kg	Length	413 mm
	Width	578 mm
	Height	201 mm

RF coils

Loop Coils `Option`

Application

Loop coil, large
For upper or lower extremities (e.g., shoulder, axilla)

Loop coil, medium
Suitable for inner ear, wrist and finger structures, pediatric exams[1]

Loop coil, small
For small, surface-near structures (e.g., finger/toe joints, wrist, skin, TMJ)

Coil specification

Ultra-high density coil
Dual-Density Signal Transfer integrates key RF components into the local coil

• Connection via Flex Coil Interface 1.5T

• No coil tuning

• iPAT-compatible in combination with other coils

Flex Coil Interface 1.5 T

• 4 integrated low-noise preamplifiers
• Allow flexible coil positioning

• Single interface for all loop coils

Compatibility

Allows combination with all receive-only coils, e.g.:

• Head/Neck Coil

• BioMatrix Head/Neck Coil

• BioMatrix Spine Coil

• BioMatrix Contour Coils

	Weight	Diameter
Loop coil, large	225 g	110 mm
Loop coil, medium	200 g	70 mm
Loop coil, small	175 g	40 mm

RF coils

Flex Loop Large `Option`

Application

Abdomen, pelvis, prostate, hips

Coil specification

• Flexible single channel loop coil with large opening

• No coil tuning

For connection with scanner:
• Flex Coil Interface 1.5 T (**Option**) needed

Compatibility

Allows combination with all receive-only coils, e.g.:

• Head/Neck Coil

• BioMatrix Head/Neck Coil

• BioMatrix Spine Coil

• BioMatrix Contour Coils

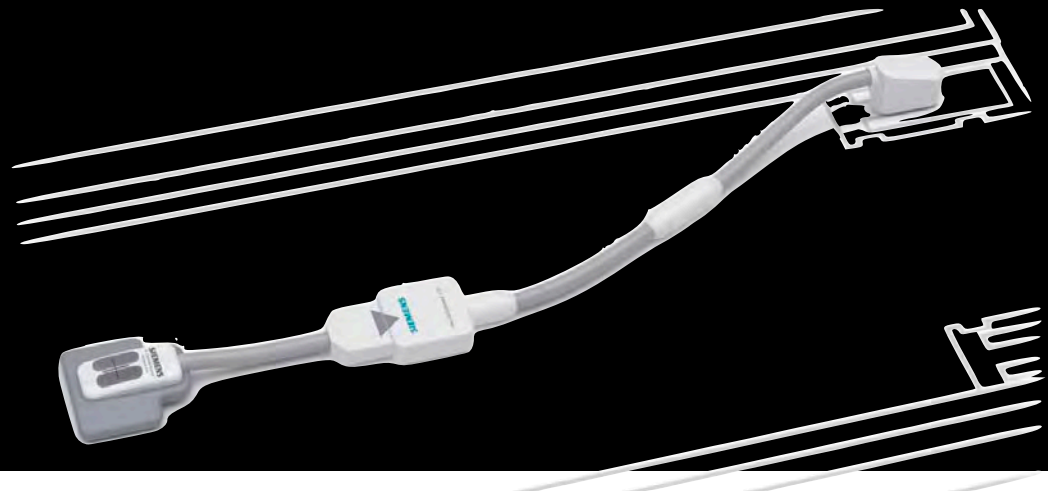| Weight	Diameter
0.4 kg	190 mm

[1] MR scanning has not been established as safe for imaging fetuses and infants under two years of age. The responsible physician must evaluate the benefit of the MRIex amination in comparison to oth er imaging procedures.

RF coils

Special Purpose 4 Coil `Option`

Application

- Carotids
- Examinations with small field of views
- Small structures near the surface

Compatibility

Allows combination with all receive-only coils, e.g.:

- Head/Neck Coil
- BioMatrix Head/Neck Coil
- BioMatrix Spine Coil
- BioMatrix Contour Coils

Coil specification

- 4-channel coil
- iPAT compatible
- No coil tuning

For connection with scanner:
- Flex Coil Interface 1.5 T (Option) needed

	Weight	Dimensions	
Coil	300 g	Length	94 mm
		Width	127 mm
		Height	51 mm
Coil, cable, and plug		Length	418 mm
		Width	127 mm
		Height	51 mm

International version. Not for distribution or use in the U.S.

System

System options

Techniques

Applications

What kind of options are available?

> <u>myExam Assist options</u>

Workflow

> <u>Accelerated MRI</u>

> <u>Advanced technique packages</u>

> <u>Advanced patient handling</u>

> <u>Postprocessing options</u>

RF Coils

> <u>Accessories and supplies</u>

Options

System

Techniques

Applications

Workflow

RF Coils

Options

myExam Assist options

myExam Abdomen Assist `Option`

Optimized for the upper abdomen with excellent image quality

Exam strategies

Breath-hold: Quick acquisition with robust image quality

Respiratory synchronized: Achieves high image resolution using PACE triggering

Motion-insensitive: Rapid scans utilizing both BLADE and PACE triggering for stability

Coverage
Liver, biliary and pancreatic system

Kidneys, if slightly adjusted

AutoNavigator
Automatically detects breathing patterns and scales triggered scans for optimized imaging

Decision points
Preconfigured for MRCP and diffusion

MRCP is measured and Inline Radial Ranges are generated

4D Movie toolbar
Optimized navigation through the spatial and temporal dimensions of multiphase data

Timeline monitoring
Displays the contrast media enhancement curve, offering a comprehensive overview of multi-phase breath-hold examinations

Automatic timing
Liver dynamics with Care Bolus

Automated bolus detection monitors the contrast agent's arrival in a user-defined region of interest (ROI). The Auto ROI feature can be activated in the patient view, allowing for automatic ROI positioning on the descending aorta at the diaphragm level.

Bolus timing
Alternative approach to liver dynamics by deriving the optimal data acquisition time window following a Test Bolus application

Includes visual guidance and interactive evaluation during setup

myExam Assist options

Inline subtraction
In the contrast-enhanced abdomen exam, multiple phases are acquired: native, arterial phase, portal-venous phase, and late-phase

Automatic subtraction of the native measurement from the arterial, portal-venous, and late phases

Inline registration
Automatic registration/alignment of the anatomy across different dynamic phases

The significance of registration/correction becomes apparent in the evaluation of nodular enhancing pathologies

Abdomen Library Assist

Dedicated storage folder for sequences refined using myExam Assist functionality

Effortless reading and reporting with syngo.via

Integrated sequences:
* StarVIBE
* TWIST-VIBE

LiverLab `Option`

System-guided workflow for assessing hepatic fat and iron status, integrated in myExam Abdomen Assist

For features see myExam LiverLab Assist

myExam LiverLab Assist `Option`

Optimized for hepatic fat and iron status, independent of myExam Abdomen Assist

Non-invasive detection of fatty liver and iron overload in early disease stages

Reduces the reliance on biopsies

Fat and iron screening
* **First Look Dixon** : Rapidly detects possible fat and/or iron overload in the liver
* Automated liver segmentation following immediately based on the produced images

Evaluation methods
* **Multi-echo Dixon VIBE** : Image-based mapping of water, fat, fat signal fraction, and R2*
* **HISTO** : Voxel-based, single-breath-hold spectroscopy that calculates fat fraction and water R2*

myExam Assist options

myExam Whole-Body Assist `Option` (Head to pelvis)

Optimized for multiparametric multistation exams

Exam strategies

Standard

Motion-insensitive

Automated anatomy recognition guarantees uniform settings for spatial resolution, image contrast, and breath-hold capacity
- Landmark-based automatic segmentation delineates anatomical regions using the FastView scan
- Automatic overlap of stations
- Additional head and leg coverage stations can be added using the coverage slider
- Supports 2D and 3D acquisitions in axial and coronal orientation
- Stations can be flexibly repeated, with results integrated accordingly during composition

Protocol
- WB T2 HASTE
- WB T1 VIBE
- WB DWI
- Whole-spine exam

Can include dedicated scans for focus regions:
- Chest, Abdomen, and Pelvis
- Incorporating dynamic exams for each specific area

iPAT compatibility
Enabled by Tim 4G

AutoCoverage
Easy definition of the scan range across the chest, abdomen, and pelvis using a coverage slider

Automated bolus detection
For focus region Abdomen (liver)

Inline calculation and composing

Customization

The Whole-Body Library Assist offers optimized pulse sequences as alternatives to enhance imaging

myExam Angio Assist `Option`

Optimized for angiographic single- or multistation examinations

Test Bolus / Feedback of bolus timing information
Visual arterial/venous timing window
Informing adjustments in scan parameters for the patient's specific needs

Care Bolus / Automated bolus detection
Monitoring the contrast agent's arrival in a user-defined ROI, automatically triggering sequence timing

myExam Angio Advanced Assist
Simplified and improved planning procedure for semi-automatic operation
- Both for Care Bolus and Test Bolus

myExam Assist options

myExam Cardiac Assist `Option`

Optimized for rapid patient setup, providing step-by-step guidance for CMR exams

Exam strategies

Standard: Breathhold (segmented acquisition)

Limited patient capabilities (G60 only): Real time (single-shot imaging if breath-hold is not possible or arrhythmias occur)

Standard heart views, such as dedicated long-axis and short-axis views, are effortlessly generated using anatomical landmarks.
- Can be readily reproduced using various scanning techniques

Scan parameters adapt to the patient's heart rate, accompanied by automatic voice commands.

AutoAlign Heart
Automatic detection of five cardiac landmarks from localizer images enables optimal planning of cardiac exams without user interaction. This fully automatic process generates two-, three-, and four-chamber views, a stack of short-axis views, and specific valve orientations.

If the patient moves during the examination, this step can be repeated at any time.

Automated localization
Automated localization of short-axis views

Guided slice positioning
Easy method to align slice positions (short-axis) across cine, dynamic imaging, and tissue characterization

Cardiac views
Easy selection of cardiac views (for example three-chamber view) during scan planning

Inline ventricular function evaluation
Volumetric evaluation of cardiac cine data immediately following image reconstruction, requiring no user input.

If needed, the dataset with inline-calculated segmentation results can be imported into 4D Ventricular Function Analysis for further review or processing.

Inline time-course evaluation
Automatic, real-time and motion corrected (G60 only) calculation of a parametric upslope map using Inline technology.

Automatic display of images
Images presented in specialized cardiac orientations, rather than standard DICOM orientations

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

Automated naming of series
Depending on cardiac views and contrast

Flow measurements
Predefined flow sequences from the Library Assist allow for easy integration of blood flow measurements into existing myExam Cardiac Assist programs

GOHeart (G60 only)

Fast and semi-automated procedures enable cardiac MRI exams to be completed in under 30 minutes

Two main exams:
GOHeart 12-minute exam during free breathing, covering cardiac function and Late Gadolinium Enhancement (LGE)

GOHeart 30-minute Ischemic Heart Disease exam, offering cardiac function, stress perfusion, mapping, and LGE

myExam Assist options

myExam Breast Assist `Option`

Optimized for tissue depiction, implant evaluation, and breast biopsy

Exam strategies

FatSat

Non-FatSat

InterVIEWS

Care Bolus support

Silicon support

for medium-channel and high-channel coils

AutoCoverage
Estimation of the optimal FOV after autosegmentation
• Entire FOV for both breasts
• Right or left breast
• Breast with chest

Implant situation
Based on an implant type identification scan, the implant type is assessed automatically.
The system automatically modifies the scan queue accordingly, and the frequency adjustment setting of the pulse sequences is changed (assume silicone).
The user may change these modifications.

MPR Planning
For user-selected pulse sequences, e.g. the high-resolution "delayed VIEWS", adjustable MPR are calculated automatically.

Biopsy support
Supporting interventions with breast biopsy coils released for the system.
Seamlessly integrates with the separate Breast Biopsy software (Option), which guides intervention planning and execution for both Grid method and Post&Pillar method.

Single frequency adjustment
The user can preselect to show the frequency adjustment dialog only once for the exam queue.
This preselection stays valid until a new coil combination or z-position is used.

myExam Prostate Assist[1] `Option`

Optimized for multiparametric prostate MR studies

Patient View
The user defines the examination approach (Anatomical, Axial) and may enter patient specific information, such as the PSA value (ng/ml).

AutoPosition

AutoFOV

AutoCoverage
Automatically adapted to the anatomical conditions

Asymmetric coverage allows optimized coverage of anatomical structures such as the seminal vesicles

[1] Prerequisite: ZOOMIt or ZOOMitPRO and one of the following packages: CS GRASP-VIBE or FREEZEit+ or Elite Acceleration Package

myExam Assist options

myExam 3D Camera `Option`

Automated, accurate and consistent positioning

Extends the automatic positioning capabilities of BioMatrix Select&GO by additional body regions and coils

AutoPositioning
Can make positioning up to 48 %[1] faster – even with flexible contour coils.

Captures the patient's shape and position on the table in three dimensions
• Using infrared measurements, e.g. the position of elbow, wrist, or hand.

Automatically identifies body landmarks and positions the relevant body parts at the scanner's isocenter
• Eliminating the need for a table ruler or positioning laser

Integrated with the data from the Select&GO touch display.

AutoRegistration
Streamlines and helps safeguard accurate patient registration
• Automatically fills in weight, height, and orientation details
• Based on the patient's shape, position, height, and weight

Supported patient orientations
• Supine
• Prone
• Head First
• Feet First
• Superman supine
• Superman prone

Supported patient population

Height	140 cm–200 cm
Weight	45 kg–120 kg
BMI	18.5–34.9

[1] Data on file

System

Techniques

Applications

Workflow

RF Coils

Options

Accelerated MRI options

Simultaneous Multislice `Option`
(SMS)

Simultaneous excitation and acquisition of multiple slices enable faster scanning

Unique Acceleration: No SNR loss from sub-sampling

Multiband Pulse + blipped CAIPIRINHA: Minimizes g-factor SNR penalties

Combinability
Enhances conventional parallel imaging for further scan time reduction

Technical Highlights

Spatial Signal Encoding: Excites and encodes multiple slices simultaneously

Efficiency: Achieves significant time savings in MRI from head to toe

SMS Enhanced Protocols

Diffusion
Boosts diffusion resolution with reduced scan times or higher spatial/diffusion resolution

BOLD
Increases slice coverage and temporal resolution, higher sensitivity

TSE & TSE Dixon
Reduced scan times, enhanced slice coverage for MSK imaging

RESOLVE & BLADE
Accelerated protocols for diverse body regions, improving both diffusion-weighted, distortion-free DWI, and standard measurements

Accelerated MRI options

Compressed Sensing

Compressed Sensing TOF `Option`

Highly accelerated MR angiography uses the BEAT sequence, combining time-of-flight (ToF) with Compressed Sensing and iterative reconstruction

Enhanced spatial or temporal resolution and significantly reduced scan times

Optimized protocols available for ToF MR angiography targeting intracranial vasculature

Compressed Sensing SEMAC `Option`

Highly accelerated musculoskeletal imaging for patients with whole joint replacements

SEMAC (slice encoding for metal artifact correction) combined with Compressed Sensing and iterative reconstruction
• Compressed Sensing acceleration with a fixed rate
• GRAPPA acceleration with a selectable acceleration factor

SAR optimization reduces energy usage in SEMAC sequences

Optimized protocols available for hip and knee

Compressed Sensing SPACE `Option`

Highly accelerated 3D imaging using SPACE, enhanced with Compressed Sensing and iterative reconstruction

Enhanced spatial or temporal resolution and significantly reduced scan times

Optimized protocols available for musculoskeletal imaging (knee, hip, shoulder, foot-ankle), neuro imaging (head), and body imaging (triggered and breathhold 3D MRCP)

Supported contrasts:
• T1
• T2
• PD

Compressed Sensing GRASP-VIBE `Option`
(G60 only)

Compressed Sensing GRASP-VIBE (Golden-angle Radial Sparse Parallel) enables dynamic contrast-enhanced abdominal exams in free breathing

Acquisition is performed in a single continuous run using a golden-angle stack-of-stars radial scheme, enhancing motion robustness and allowing flexible temporal resolution slection during reconstruction

Temporal resolution can vary over throughout the scan. Reconstruction uses a Compressed Sensing accelerated iterative algorithm with per-voxel through-time regularization

Automatically identifies typical liver dynamics phases, enabling reconstruction and labeling of only clinically relevant images

Automated bolus detection during reconstruction

Exam phases configurable by start time, relative to auto-detected bolus arrival, duration, temporal resolution, and pre-selection for PACS export

Self-gating for further reduction of residual motion blur

Includes FREEZEit+

Compressed Sensing Cardiac Cine `Option`
(G60 only)

Highly accelerated functional Cardiac 2D cine imaging using the BEAT sequence with Compressed Sensing and iterative reconstruction

Enhanced spatial or temporal resolution and significantly reduced scan times

Real-time cine or single breath-hold cine for full heart coverage, suitable for patients with limited breath-hold capability or with arrhythmia

Adaptive triggering to cover the full cardiac cycle

Retrogating for segmented acquisitions

Pro Acceleration Package Option

Advanced Acceleration Package Option

Cutting edge acceleration techniques such as:

> Simultaneous Multi-Slice (SMS)

> Compressed Sensing

> Wave-CAIPI SWI

Application
Static 2D and static 3D imaging in:
• Neuro
• MSK
• Body

Package includes:
• SMS for TSE and TSE Dixon
• SMS for DWI and BOLD
• SMS for RESOLVE
• SMS for BLADE
• Compressed Sensing SPACE
• Compressed Sensing ToF
• Compressed Sensing SEMAC
• Wave-CAIPI SWI

Deep Resolve Pro Package Option

Deep Resolve Boost

Deep learning reconstruction from raw data to image: Exceptional denoising for ultra-fast acquisitions from head to toe

Reconstructs high SNR images from highly undersampled data

Applicability
Versatile across various contrast weightings, orientations, and all body regions

Available sequences
• Turbo Spin Echo (TSE)
• ep2d_diff
• HASTE

Compatibility
• Simultaneous Multislice imaging (where available)
• Deep Resolve Sharp

Deep Resolve Sharp

Enhances image quality by boosting sharpness and minimizing Gibbs ringing at edges, achieved in reduced scan times

Offers up to a twofold improvement in in-plane resolution

Accurately predicts the location of sharp edges in images

Applicability
Versatile across various contrast weightings and orientations

Already available sequences
• Turbo Spin Echo (TSE)
• Spin Echo (SE)
• TSE Dixon

Additionally available sequences
• ep2d_diff
• HASTE

Compatibility
• Standard GRAPPA acceleration
• Deep Resolve Gain
• Deep Resolve Boost

Elite Acceleration Package Option

Deep Resolve Swift Brain Option

A set of deep learning-enhanced protocols designed for high-speed routine brain examinations, significantly cutting down table time

Multi-shot EPI enables the fastest data acquisition in a single session

T2 and T2* are measured simultaneously, saving additional time

Applicability
• All essential neuro contrasts (T1, T2, T2*, FLAIR, DWI)
• All relevant orientations with AutoAlign

Cutting edge Compressed Sensing applications for advanced abdominal and cardiovascular imaging

Dynamic 2D and 3D applications significantly reduce scan times, counter patient motion, and expand MRI eligibility

• Compressed Sensing GRASP-VIBE (G60 only)
• Compressed Sensing Cardiac Cine (G60 only)
• TWIST
• TWIST-VIBE
• StarVIBE

MAGNETOM Flow.Ace XA70

Advanced technique packages

For neuro applications

SWI (Susceptibility-weighted imaging) `Option`

Visualization of local changes of the magnetic field
- Due to tissue properties in general
- Due to the presence of deoxygenated blood or blood decomposition products

3D GRE sequence with full flow compensation to support venous angiography

Enhanced susceptibility weighting of the magnitude images by phase images

Wave-CAIPI SWI[1] `Option`

Siemens Healthineers-unique

Sinusoidal gradients during readout result in corkscrew k-space trajectories

Optimized g-factor penalty
(compared to standard CAIPIRINHA)
- Higher acceleration factors with equivalent image quality
- More homogeneous noise distribution

BLADE Diffusion `Option`

Non-EPI-based technique supports imaging in regions with high B0 field inhomogeneities
- E.g. in the middle ear region, due to the transition from air to tissue

Combinability
- GRAPPA
- SMS

Physiologging `Option`

Provides access to time-synced sensor data

Available sequences:
- EPI BOLD
- EPI PACE

Allows auto-logging of time-stamped physiology signals for fMRI data correction
- Simplifies the correlation of physiology and fMRI data

DTI (Diffusion Tensor Imaging) `Option`

Acquisition of data sets with multi-directional diffusion weighting to assess anisotropic diffusion properties of brain tissue

- Measurement of up to 256 directions with up to 16 b-values
- Free Mode: User-defined diffusion directions

Inline calculations
- Diffusion tensor
- Fractional anisotropy (FA) maps (grayscale as well as color-coded for principle diffusion direction)
- Apparent diffusion coefficient (ADC) maps
- Trace-weighted images based on the tensor

DSI (diffusion spectrum imaging)
More accurate fiber tracking due to a higher sensitivity to intra-voxel diffusion caused by crossing fiber tracks

- Cartesian sampling in q-space
- Multiple directions with independent b-values
- Up to 514 directions

Inline BOLD Imaging (Blood Oxygen Level Dependent) `Option`

Examination of intrinsic susceptibility changes in different areas of the brain, induced by external stimulation (e.g. motor or visual)

Automatic real-time calculation of z-score (t-test) maps with Inline technology, for variable paradigms

- Compatible with single-shot EPI with high susceptibility contrast for fast multi-slice imaging

- ART (Advanced Retrospective Technique) for fully automatic 3D retrospective motion correction, for 6 degrees of freedom (3 translations and 3 rotations)

- 3D spatial filtering

- Inline calculation of t-statistics (t-maps) based on a general linear model (GLM) including the hemodynamic response function and correcting for slow drifts

- Overlay of inline calculated statistical results on the EPI images

Advanced technique packages

3D PACE `Option`

3D PACE (Prospective Acquisition CorrEction) enhances Inline BOLD imaging with motion correction during the acquisition of a BOLD exam

The unique 3D PACE tracks the head of the patient, correcting for motion in real time
- Increases data quality beyond what can be achieved with retrospective motion correction
- Covers the complete 3D volume
- For 6 degrees of freedom (3 translations and 3 rotations)
- Provides high accuracy
- Substantially reduced motion-related artifacts in t-test calculations
- Significantly increased signal changes in the activated neuronal volume
- Increased functional MRI (fMRI) sensitivity and specificity

Inline Perfusion `Option`

Automatic real-time calculation of global bolus plot (GBP), percentage of baseline at peak map (PBP) and time-to-peak map (TTP) with Inline technology

ASL (Arterial Spin Labeling) 2D `Option`

Utilizes the water in arterial blood as an endogenous contrast agent to evaluate perfusion noninvasively

Assists in the evaluation of human brain perfusion and function physiology by giving information on relative cerebral blood flow

ASL is capable of high spatial resolution perfusion imaging and may also be useful in basic neuroscience

- 3D PACE motion correction for increased reliability
- Fully automated Inline calculation of relCBF color maps
- Supports pulsed arterial spin labeling technique (PASL)
- Supports pseudocontinuous arterial spin labeling technique (PCASL)
- iPAT compatible

ASL (Arterial Spin Labeling) 3D `Option`

Acquires high spatial resolution perfusion-weighted images covering the whole brain

- Based on 3D TGSE pulse sequence for fast, high-resolution brain imaging with full coverage
- Higher SNR, optimized contrast uniformity and reduced motion sensitivity
- Fully automated Inline calculation of relCBF color maps
- Perfusion maps can be easily fused with anatomical images for detail evaluation in Neuro 3D
- Supports pulsed arterial spin labeling technique (PASL)
- Supports pseudocontinuous arterial spin labeling technique (PCASL)
- iPAT compatible
- Multi-TI support and calculation of bolus arrival time maps

Advanced technique packages

For orthopedic applications

MapIt `Option`

Parametric maps of T1, T2, T2*, R2 and R2* properties of the imaged tissue

Applications
- Cartilage evaluation of joints
- Evaluation of other organs such as liver, kidney or prostate

Techniques
- 3D VIBE for Inline T1 mapping
- Multiecho spin echo for Inline T2 /R2 mapping
- Multiecho gradient echo for Inline T2*/ R2* mapping
- Protocols for fully automated Inline parametric mapping

For body applications

MR Elastography `Option`

Non-invasive assessment of variations in relative tissue stiffness

- Advanced Siemens Healthineers implementation
- iPAT enables shortened breath-hold time
- Fully integrated processing of the elastogram at the scanner
- Completely automated calculation of wave images and corresponding elastograms
- Confidence map for reliability

Techniques
- 2D gradient-echo with cyclic motion-encoding gradients (MEG)
- Spin echo EPI with cyclic motion-encoding gradients (MEG)

Package includes:
- Processing software
- Dedicated 3rd party hardware

LiverLab and myExam LiverLab Assist `Option`

System-guided workflow to examine the hepatic fat and iron status

Available as dedicated myExam Assist and as part of myExam Abdomen Assist

Inline First-Look Dixon gives a first overview of possible fat and/or iron overload in the whole liver

Based on the resulting images, liver segmentation runs automatically

If further evaluation is needed, the user can choose:
- Multiecho Dixon VIBE: Image-based method to calculate maps such as water, fat, fat signal fraction, and R2*
- HISTO: Single-breath-hold single-voxel spectroscopy to calculate fat signal fraction as well as water R2*

Advanced technique packages

FREEZEit+ `Option`

Robust and motion-insensitive imaging throughout the body
- Overcomes timing issues by acquiring multiple 3D datasets within seconds while maintaining a high spatial image resolution
- Enables contrast-enhanced MR imaging during free breathing

TWIST
Advanced, fast gradient-echo technique
- Perfect for time-resolved (4D) MR angiography
- Dynamic imaging with high spatial and temporal accuracy
- Comprehensive dynamic MRA for all body areas

TWIST-VIBE
Fast 4D protocol for multi-arterial liver, thoracic, abdominal, pelvic imaging
- High spatial resolution using VIBE with CAIPIRINHA
- View-sharing for optimal contrast timing
- Dixon for fat-water separation
- Abdomen protocols offer 3D datasets every 3–5 seconds (1.8 mm × 1.8 mm × 3 mm resolution)

StarVIBE
Motion-insensitive, contrast-sensitive VIBE with stack-of-stars (radial) trajectory
- Enables free-breathing imaging (abdominal, head, neck, spinal, thoracic, pelvic) for non-breath-hold patients
- Supports quick FatSat and Dixon for fat suppression

ZOOMit^PRO `Option`

EPI diffusion imaging targets small, 'zoomed' areas of interest, minimizing surrounding tissue signal and metal implant artifacts

Part of the Tim TX TrueShape package

- Confines the excited FOV to a given region of interest
- Spatially selective RF pulses to only excite the tissue in the target region
- High resolution without infolding artifacts
- For various body regions (e.g., pelvis, breast, brain, spine)

For angio applications

Angio Package `Option`

TWIST
> for details, see FREEZEit+ on this page

NATIVE
Integrated software package for **non-contrast** enhanced 3D MRA with high spatial resolution
- NATIVE TrueFISP
- NATIVE SPACE

Particularly enables imaging of abdominal and peripheral vessels
- Separate imaging of arteries and veins
- Visualization of, e.g., renal arteries or peripheral vessels

QISS `Option`

Non-contrast enhanced peripheral MR angiography based on quiescent interval single-shot imaging
- ECG-triggered
- Robust, 2D non-subtractive technology
- Set-n-Go implementation (myExam add-in) for workflow optimized application
- Allows export of all images in one series (combined view, CT-like)

Flow Quantification `Option`

For quantitative flow determination studies
- Non-invasive blood/CSF flow quantification
- ECG-triggered 2D phase contrast with iPAT support
- Retrospective reconstruction algorithms for full R-R interval coverage

4D flow measurements in the heart (G60 only)
Typical applications: flow measurements in the aortic arch
- Navigator-based respiratory gating combined with ECG triggering
- Retrospective gating and prospective triggering

High-bandwidth inversion recovery `Option`

Improved tissue characterization, reducing susceptibility artifacts

MAGNETOM Flow.Ace XA70

Advanced technique packages

For cardiac applications (G60 only)

MyoMaps (G60 only) `Option`

Pixel-based myocardial tissue quantification (T1. T2)
- Inline colored maps
- HeartFreeze Inline Motion Correction

T1 Map
Based on Modified Look-Locker inversion recovery (MOLLI) T1 mapping

T2 Map
Based on T2-prepared single-shot TrueFISP T2 mapping

Advanced Cardiac Package (G60 only) `Option`

Advanced techniques for
- Ventricular function imaging
- 4D imaging
- Tissue characterization
- Coronary imaging, and more

Cardiac and vessel morphology
- Multiecho technique assessment
- 3D aortopathy imaging with free breathing (SPACE)

BEAT techniques
Morphology and global or regional ventricular wall motion analysis
- 3D cine acquisition for full CT-like heart coverage
- 2D-segmented FLASH for visualization of regional wall motion with tagging techniques (grid or stripes)

Robust myocardial tissue characterization
- 3D PSIR (phase-sensitive inversion recovery)
- Fast and complete coverage of the myocardium with IR 3D FLASH and TrueFISP

3D whole-heart coronary imaging
- Non-contrast coronary MRA
- Advanced free-breathing navigator compensating diaphragm shifts during acquisition (motion-adaptive respiratory gating)

For breast applications

Breast Biopsy software `Option`

Guides breast interventions such as vacuum-assisted biopsy and wire localization

Guidance for intervention planning and execution for both Grid method and Post&Pillar method

- Guides through the process of marker identification and target selection
- Automatic identification of up to two markers
- Planning of multiple targets
- Automatic extraction of coordinates for the selected target and calculation of required point of entry, angulation (for Post&Pillar method) and penetration depth
- Projection of needle path on the planning images for control
- Coil-specific guidance with graphical instructions on both the console and the scanner's touch display
- Typical, site-specific settings (e.g. grid method, biopsy device, marker position) can be set as default to minimize user interaction

Supports
myExam Breast Assist (Option)

Commonly used breast MR biopsy devices
- E.g., Bard EnCor, Bard Vacora, Hologic ATEC, Mammotome

Supported coil:
- Breast BI 7

Advanced technique packages

For spectroscopy applications

Single-voxel spectroscopy (SVS) `Option`

Integrated software package for proton spectroscopy of brain, breast, prostate

- Matrix Spectroscopy – phase-coherent signal combination from multiple coil elements for maximum SNR
- Spectral suppression minimizes lipid superposition, ensuring reliable detection of compounds like choline in breast tissue
- Can be combined with free-breathing prospective acquisition correction (2D phase navigator)
- Outer volume suppression (OVS) with up to 8 regional saturation (RSat) bands
- Automatic reference scan reduces evaluation time
- Physiological triggering (ECG, pulse, respiratory, or external trigger) to mimimize breathing artifacts
- GRE-based shim optimized for spectroscopy applications

SVS techniques SE and STEAM
- Short TEs
- Fully automated adjustments including localized shimming and water suppression pulse tuning
- Interactive control over adjustments
- Optimized for brain applications

Incorporates GRACE (GeneRAlized breast speCtroscopy Exam), an SVS-SE technique for specialized breast spectroscopy, with spectral lipid suppression pulse

Unique Siemens Healthineers water reference detection for normalized choline ratio visualization

Automated Inline frequency shift correction to minimize breathing related artifacts

CSI 2D: Chemical-shift imaging `Option`

Integrated software package for 2D multivoxel spectroscopy

Preequisite: **SVS**

- Matrix Spectroscopy – phase-coherent signal combination from multiple coil elements for maximum SNR, with prescan-based normalization configurable for optimal homogeneity
- Hybrid CSI with combined volume selection and field-of-view (FOV) encoding
- Short TEs available (30 ms for SE, 20 ms for STEAM)
- Automated shimming of higher-order channels for optimal homogeneity in larger CSI volumes
- Weighted acquisition reduces exam time versus full k-space coverage while maintaining SNR and spatial resolution
- Outer volume suppression (OVS)
- Spectral suppression
- Semi-LASER sequence for CSI examination of the brain

CSI 3D: Chemical-shift imaging `Option`

Integrated software package for 3D multivoxel spectroscopy

Preequisite: **SVS**

Same features as **CSI 2D**, additionally:
- Prostate spectroscopy

MAGNETOM Flow.Ace XA70

Advanced technique packages

For therapy applications

Advanced interactive real time `Option`

Interactive real time scanning

Uses fast sequences for high image contrast. Real-time reconstruction of the acquired data. The user can navigate in all planes on-the-fly during data acquisition.

Real-time examinations

Real-time interactive slice positioning and slice angulation for scan planning

Capability for multi-slice acquisition, definition of acquisition order, pausing, mosaic display, and skipping of the physiology trigger

Tracking `Option`

Prerequisitie: Advanced interactive real time

Adds software capability for adjusting the real-time imaging slice position and orientation so as to follow interactive devices equipped with receive micro-coils

Additional packages

Open Recon[1] `Option`

Allows adding external algorithms into the acquisition workflow

Algorithms such as alternative reconstructions or image processings can be provided by SHS or external companies and the resulting images can be processed normally for diagnostic purposes

Open Recon is a more flexible reconstruction system for incorporating third-party software components for image reconstruction or image processing on the MaRS in an isolated way

MR-Injector Coupling `Option`

Simplifies synchronized contrast injection and scanning by establishing an active coupling between compatible MR injectors[2] and the MRI scanner (Requirement: Medrad® MRXperion MR Injection System with ISI interface box)

The user is guided through an intuitive workflow, with clicks and interactions reduced to the essentials

A direct connection between the MRI scanner and the injector control system allows the technologist at the MR operator console to release injections remotely and synchronized with sequences

Projection `Option`

For acquisition of projection data in different orientations, which can be used to calculate the position of micro-coils within the scanner

The calculation of position information is not performed within the Siemens Healthineers software and the projection data can be sent in real time (via Access-i interface) to a third party client that needs to calculate the location coordinates

Access-i `Option`

Interface to enable the connection of a 3rd party workstation to the MR *syngo* Acquisition Workplace via a network router and secure local network connection

1) The product is still under development and not commercially available yet. It's future availability cannot be ensured.

2) The information shown herein refers to products of third-party manufacturer's and thus are in their regulatory responsibility. Please contact the third-party manufacturer for further information.

Advanced technique packages

MR protocols module `Option`

Basic package
For first installation by SHS service the Basic License of MR protocols module is required once and includes the first MRI scanner connected

Includes one installations and a connection to the first MRI scanner

Additional scanner option
For every additional MRI scanner to be managed by the MR protocols module a Connect License is required

Remote Assist[1] `Option`

Direct computer link to the local Siemens Healthineers service department or the Siemens Healthineers service centers (via router with telephone connection)

Image transfer for further evaluation
• Image and file transfer in batch mode
• Reading of entries in the error logbook
• Remote troubleshooting
• Remote access to service manuals written in easy-to-use HTML format
• Remote access to Service Site Database
• Start of preventive maintenance and quality assurance routines
• Remote access granted only with permission of the institution, data security is ensured by secure access

IDEA license `Option`

(Integrated Development Environment for Applications)

Allows the use of C2P (Core competence partnership) applications which have been developed by collaboration partners. Specific terms and conditions apply.

For further information, please contact the local Siemens Healthineers Collaboration Manager/Contact.

IDEA SDK `Option`

The IDEA (Integrated Development Environment for Applications) SDK (Sequence development kit) is an extensive programming environment used to create pulse sequence and reconstruction algorithms, offering a maximum of flexibility for own developments

Mandatory prerequisite:
• IDEA training course
• Master Research Agreement including IDEA Terms & Conditions

For further information, please contact the local Siemens Healthineers Collaboration Manager/Contact.

1) In conjunction with a Siemens Healthineers service contract

Advanced patient handling

ComfortRest `Option`

Modular soft cushion set conforms to the patient's body

ComfortRest Mattress on spine coil for increased comfort and reduced involuntary motion

Advanced Workflow Package `Option`

Streamlines overall patient preparation time

Facilitates a comprehensive patient-side workflow

InRoom Registration `Option`
Simplifies patient check-in
• Patient registration at the scanner via Select&GO interface
• Easy selection, review, and correction of patient details
• Input of patient orientation, weight, and height
• Facilitates registration of the next patient for scanning

BioMatrix Position Sensor `Option`
Automates patient positioning in the iso-center with BioMatrix Contour coil

Eliminates the need for laser positioning or manual body region selection

InRoom Start `Option`
Expedited measurement initiation: Select&GO interface enables scanner-side measurement start

Reduces total time patients spend on the table

MAGNETOM Flow.Ace XA70

System

Techniques

Applications

Workflow

RF Coils

Options

Postprocessing options

syngo.MR applications Option

Each *syngo*.MR application can be individually selected as an option

• *syngo*.MR 3D Lesion Segmentation
• *syngo*.MR BreVis
• *syngo*.MR Oncology
• *syngo*.MR OncoTrend
• *syngo*.MR Spectro CSI
• *syngo*.MR Spectro SVS
• *syngo*.MR Spectro Extension
• *syngo*.MR Spectro Research
• *syngo*.MR Tissue 4D
• *syngo*.MR Prostate AI [1]
• *syngo*.MR Brain Morphometry
• *syngo*.MR Neuro fMRI
• *syngo*.MR Neuro Perfusion
• *syngo*.MR Neuro Perfusion Mismatch
• *syngo*.MR Tractography
• *syngo*.MR Cardiac 4D Ventricular Function
• *syngo*.MR Cardiac Flow
• *syngo*.MR Cardiac Perfusion
• *syngo*.MR Vascular Analysis

[1] *syngo*.MR Prostate AI is not commercially available in some countries. Due to regulatory reasons their future availability cannot be guaranteed. Please contact your local Siemens Healthineers organization for further details

Postprocessing options

OpenApps Option

OpenApps platform hosts additional applications on your system

Apps, including those from partner vendors, are available in the Digital Marketplace

• Access the Digital Marketplace directly from your workplace
• Download and install required apps easily
• Apps are ready for immediate use

Siemens Healthineers is neither the provider nor reseller nor legal manufacturer of any partner applications mentioned here. Any claims made for these products are under the sole responsibility of the legal manufacturer. Additionally, the partner applications mentioned here may not be commercially available in all countries. Please contact the legal manufacturer for more information.

MAGNETOM Flow.Ace XA70

System

Techniques

Applications

Workflow

RF Coils

Options

Accessories & supplies

Patient video monitoring [Option]

Dedicated video camera for thorough observation in the examination room

• Up to two in-room cameras for front and rear patient observation

• Color 1920 × 1080 pixel LCD monitor, positionable at the *syngo* Acquisition Workplace or a convenient wall spot

Foot switch [Option]

In-room foot switch featuring two pneumatic buttons to start and stop a preset MR sequence

• MR-compatible, positioned near the patient table on the examination room floor

syngo MR Workplace [Option]

Additional integrated workplace connected to the *syngo* Acquisition Workplace's host computer for postprocessing and image evaluation

• Same user interface as the *syngo* Acquisition Workplace, excluding scan control functions

• Shares a database with *syngo* Acquisition Workplace, eliminating the need for image copy time

Host computer and LCD monitor technical data:

> Computer system

Workplace table [Option]

Ergonomically designed table for:
• Color monitor
• Keyboard
• Mouse
• Patient communication unit
• Patient supervision display

Accessories & supplies

System start timer [Option]

Timer clock that can be installed with MAGNETOM Flow.Ace to automatically start the system at user-defined times

• Eliminates waiting times during system boot up

• Allows setting three different startup times for various days

Coil storage cart [Option]

Non-ferromagnetic cart designed for easy storage of commonly used coils and accessories

• Can be rolled to convenient locations in the examination room

• Additional storage space inside the doors when opened

Coil storage	Width cart closed		140 cm (4'7")
	Width cart opened		280 cm (9'2")
	Depth		54 cm (1'9")
	Height		121 cm (3'12")
Upper drawer		Height	13.3 cm (0'52")
Tray			9.0 cm (0'35")
Lower drawer			24.0 cm (0'94")

1) Upper drawer
2) Tray
3) Lower drawer