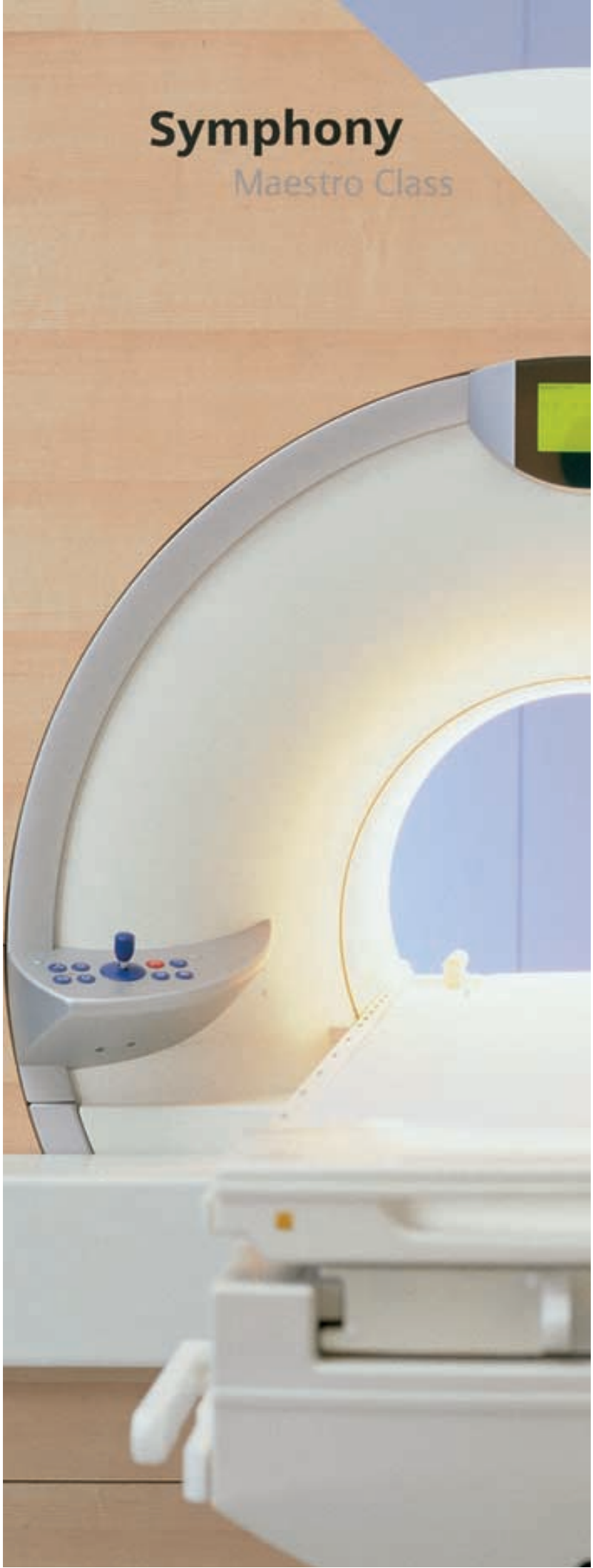
MAGNETOM Symphony [Maestro Class]
a new degree of perfection

SIEMENS
medical

Symphony

Maestro Class



MAGNETOM Family

The Perfection of Care

The aim of Siemens MR is the perfection of care.
To create products and services for physicians who can improve the quality of life of all persons who come into contact with them.
We do this by caring for the health of the patient, caring for the quality of the user's work – and caring about the owner's profit.

syngo

Siemens is the leader in cross modality common sense! *syngo* is a comprehensive computer platform engineered for medical imaging that runs on the majority of Siemens medical products. Different modalities use common intuitive icons to initiate shared tasks such as patient registration, imaging and 3D reconstruction etc.

All tasks and applications within your workflow are covered either with, or at your system: from patient registration, image acquisition, viewing and post-process-ing to filming as well as archiving. The web-based patient record, for example, provides quick access to important patient information. As an alternative you can view lab results at the console without time-consuming telephone calls to the ward.

Maestro Class is in

***syngo* – a console to feel comfortable with**

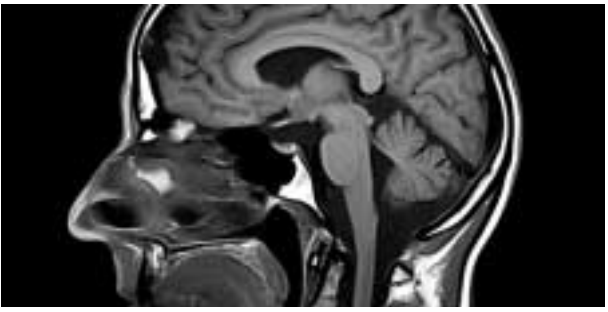
- Task Cards – for structured workflow
- Image Focus – images from all task cards can be processed simultaneously
- Automated Scan Programs – predefined protocols account for most of your daily routine, however, they may be easily adapted
- Flexible Parameters – offer more control over parameters that affect contrast and signal-to-noise ratio
- *syngo* Scan Assistant – a standard feature that immediately displays conflicting parameters and provides the technologist with a range of acceptable values

www.SiemensMedical.com

intelligence

Maestro Class thinks with you!

Maestro Class automates routine processes, making them faster and simpler. Giving you more time for the essentials - your diagnosis.



increased speed

Maestro Class saves time!

Speed is essential. Speed is not only a question of the strongest gradient systems, it is also a question of latest imaging techniques, high-speed computers, high-quality RF coils and last but not least the entire RF chain. Within the MAGNETOM Symphony all these components work perfectly together.

innovative applications

Maestro Class is setting standards!

Take the lead. Expand your application range from traditional to high-end applications, such as one-stop stroke imaging, one-stop cardio imaging, 3D ultra fast body imaging using VIBE, spectroscopy and more.

Siemens Medical Solutions: the Innovation Leader in MR Technology.
Maestro Class – a new degree of perfection in magnetic resonance imaging with a focus on intelligent technology, increased speed and innovative applications.

< Siemens – the Leader in MR Technology.
Our top of the line hardware is based on decades of R&D experience with homogeneous magnets and precise RF technology.

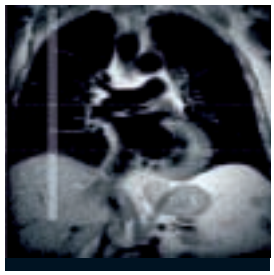
< Siemens stands for Innovative System Design.
Patient-friendly design, high-performance gradients and our groundbreaking integrated coil concept IPA™ help you arrive at efficient and comprehensive diagnoses.

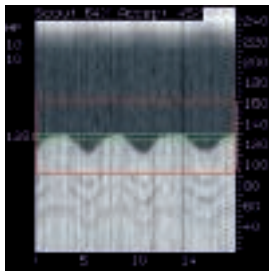
< Siemens is Setting Standards with *syngo*.
We are the first medical solutions provider to offer a software standard for different modalities. *syngo*® stands for a common user interface and a common operating system, offering true compatibility.

Maestro Class

is in telligence

PACE Prospective Acquisition and CorrEction – Motion under control!
1D PACE – Free breathing, the perfect alternative to breath-hold scanning. Detect respiratory motion – accept data only during expiration – and get to see the results, quickly and easily!



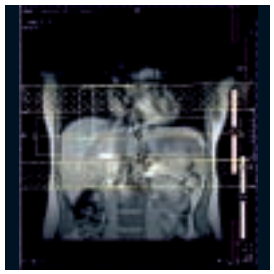


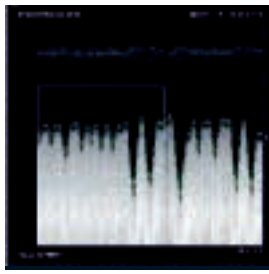
Inline display of diaphragm position
define expiration phase to accept data

Inline Technology – Processing instead of Post-Processing

The complete exam is finished as soon as image acquisition is finished. Inline technology uses an intelligent on-the-fly feedback loop to control scanning, reconstruction and processing. This means motion is detected and corrected in the acquired image, providing you with excellent image quality every single time.

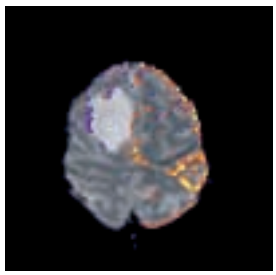
2D PACE – Improve selectivity and precision in abdominal MRI. Automatically align each multi breath-hold – compensate for unwanted patient movement – and obtain fast and reliable diagnostic results.



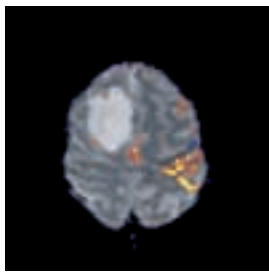


Inline display of diaphragm position
define to accept data

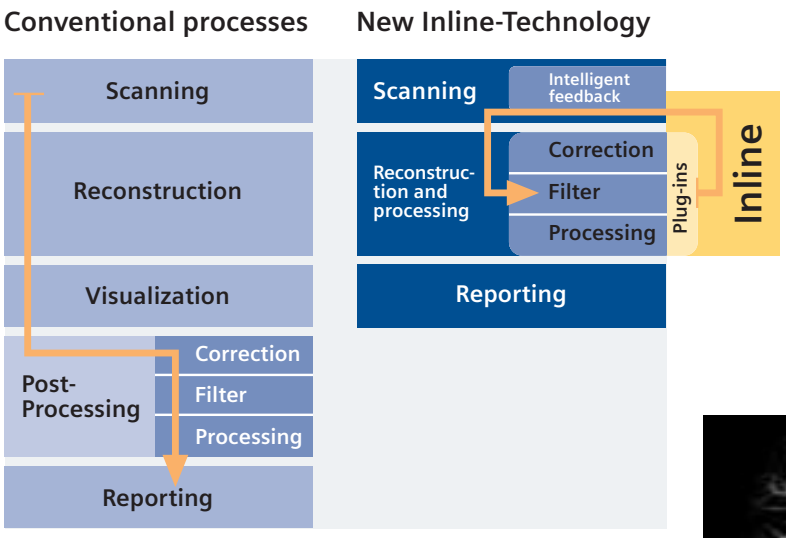
3D PACE – Freeze patient motion!
< 3D motion correction on-the-fly
< Improve spatial selectivity in functional MRI with the push of a button. The benefits are accurate neurosurgical planning and improved therapy follow-up after stroke.



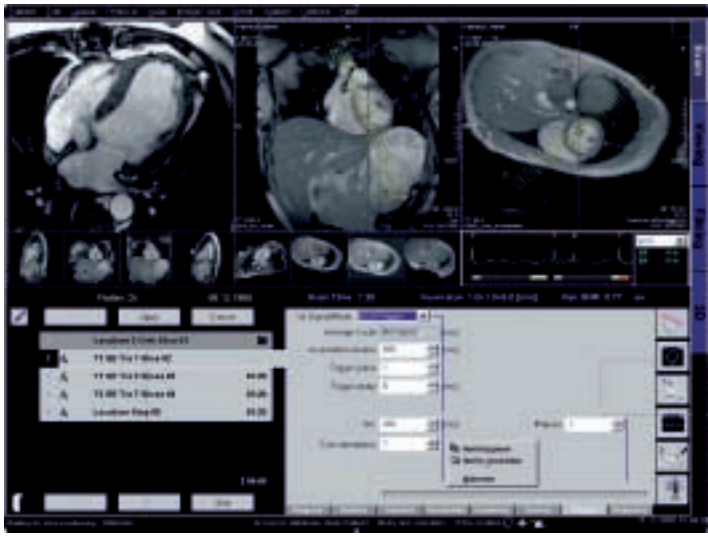
without motion correction



with motion correction



Maestro Class thinks with you!
MAGNETOM Symphony automates routine processes, making them faster and simpler. Giving you more time for the essentials – your diagnosis.



Contrast-enhanced MRA at your fingertip
Complete both data acquisition and peripheral MRA results at the same time. Simplify and automate standard measurement procedures. Use the acquired data to get to the MIP directly (no database operation required). SuperMIP – automatically provides a scout image across the entire region of interest and lets you accurately plan for additional procedures. Allows you to spend more time with your patient.

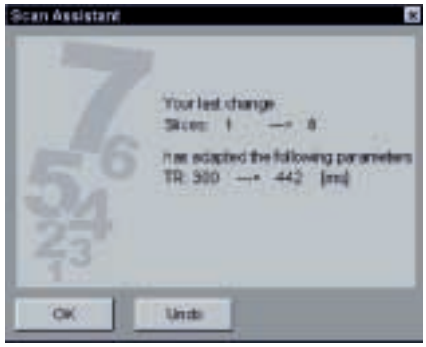
Maestro UI – Your cockpit for dynamic MRI

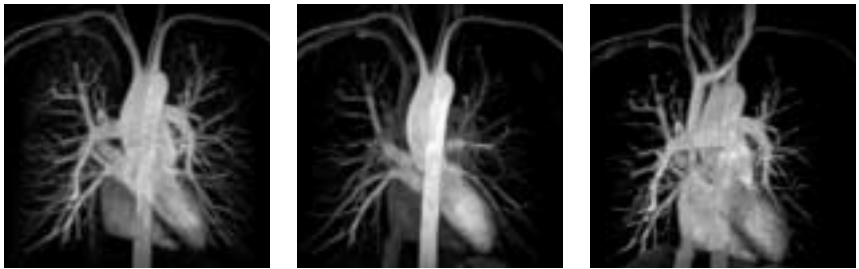
You are in the driver seat to optimize your clinical workflow with ease. Create a process not just for data acquisition but for instant diagnostic results as well.

- Simplify procedures with Inline task cards, e.g. a comprehensive cardio study from morphology to perfusion, or a complete stroke protocol from anatomy, to diffusion, perfusion and function.
- Get a quick overview with Image Stamps – our easy direct access to what you want to see.
- You want to apply exactly the same imaging parameters as used for an existing image? Go ahead, use Phoenix, our easy drag and drop function. Insert the image into your measurement queue and let the system extract all applicable parameters into the measurement card. It's time to start the scan.

syngo Scan Assistant – Your MR consultant

Did you change one of the MR parameters? The *syngo* Scan Assistant visualizes the effect and proposes different parameters in case of conflict. This is the sure way to consistently high image quality.





Maestro Class

is increased speed

Maestro Class saves time!

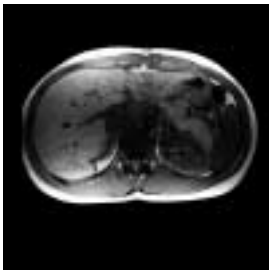
Speed is essential. Speed is not only a question of the strongest gradient systems, it is also a question of latest imaging techniques, high-speed compu-ters, high-quality RF coils and last but not least the entire RF chain. Within the MAGNETOM Symphony all these components work perfectly together.

The solution to speed up your acquisition times – iPAT

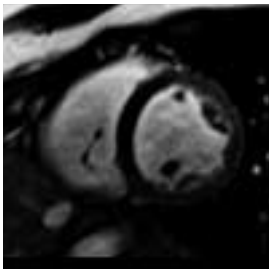
iPAT with Siemens MAGNETOM Symphony means Integrated Parallel Acquisition Techniques. And the term speaks for itself:

- Integrated feature
- Integrated into the MAGNETOM IPA philosophy (Integrated Panoramic Array, our revolutionary coil concept), use up to 8 independent channels
- Integrated auto-calibration
- Combines the convenience of IPA and IPP (Integrated Panoramic Positioning) for many applications

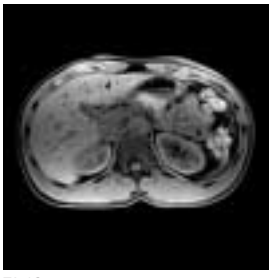
And iPAT is even more than just a sequence. Each clinical demand needs a different approach to achieve high image quality in the shortest time possible. iPAT provides the flexibility to answer specific questions.



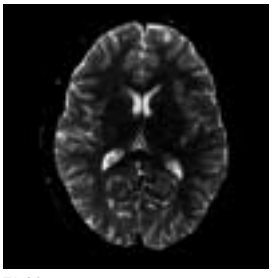
TA 11 s



TA 5.7 s



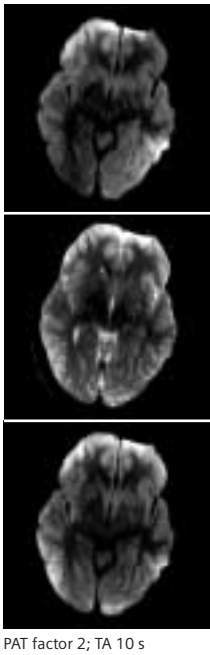
TA 13 s



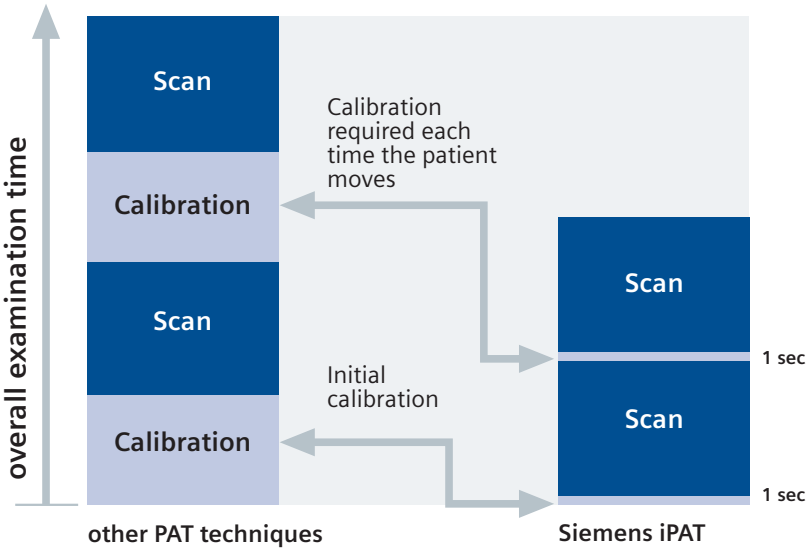
TA 20 s

iPAT factor 2 is standard!
With MAGNETOM Symphony an iPAT speed factor of 2 is standard. iPAT is fully compatible with the Siemens-unique IPA.
What are the benefits of iPAT?

- Higher patient comfort – shorter acquisition times due to shorter breathholds during abdominal imaging. In sum, patient comfort increases.
- More diversified patient load – comfortable, short breathhold times allow for a greater range of patients to be examined than ever before.
- Higher temporal resolution – in both cardiac and abdominal MRI, e.g. dynamic 3D VIBE liver imaging or cine cardiac imaging.
- Less blurring artifacts – shorter measurement times ensure less blurring anywhere in the body.
- More details in 3D ceMRA.
- Improved diagnostic confidence in stroke imaging – shorter measure-ment times, higher resolution and less distortion artifacts in single-shot EPI.



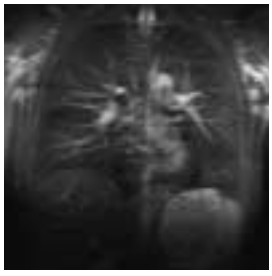
PAT factor 2; TA 10 s



iPATplus – iPAT factor 4
Experience a new era of high-speed imaging with iPATplus – speed factor 4 (optional). Combine this high-speed imaging technique with the 8 channel neuro array coil and the 6 channel body array coil for even greater speed and resolution. This is how you advance complex imaging techniques, e.g. stroke imaging, another step forward.

Computer power

MAGNETOM Symphony comes with a Dual Pentium 4 processor and a panoramic Recon Image processor, providing ultimate reconstruction speeds of up to 872 images/sec (256^2 FFT, 25% rec. FoV). The result: real-time image calculation parallel to scanning.


without iPAT; 20 s


PAT factor 3; 16 s


without iPAT; 1:24 min


PAT factor 4; 24 s

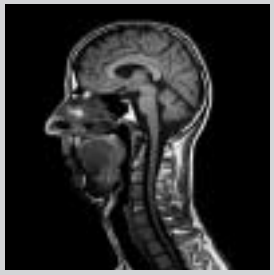
Maestro Class

is innovative applications

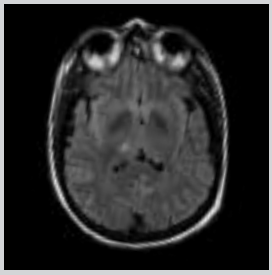
One-stop stroke examination complete with morphology, diffusion and perfusion in less than 5 minutes

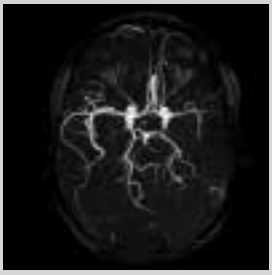
Clarify neurological problems with routine T1/T2 imaging, angiography to diffusion and perfusion as well as functional MRI (BOLD) using the latest MAGNETOM innovations. Neuro MR provides high-contrast images including finest anatomic details for diagnostic speed and confidence.

< Easy patient set-up with highest patient comfort.



< High-resolution images with varying contrast levels provide for perfect anatomical images with good pathological tissue visualization.

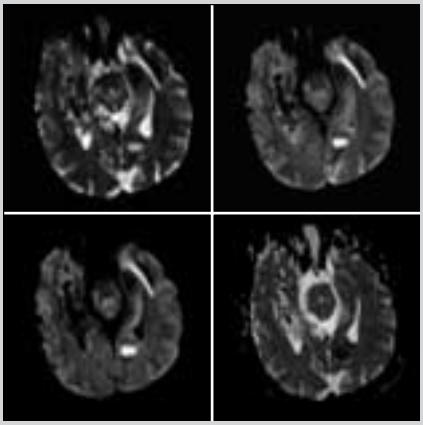




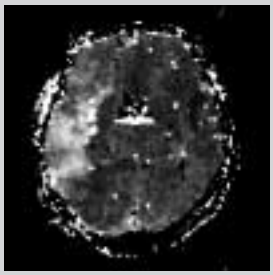
< MR Angiography is an easy add-on to display vessel details.

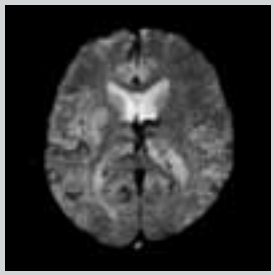
Maestro Class is setting new standards!

Take the lead. Expand your application range from tradtional to high-end applications such as one-stop stroke imaging, ore one-stop cardio imaging, 3D ultra fast body imaging using VIBE, spectroscopy and more.



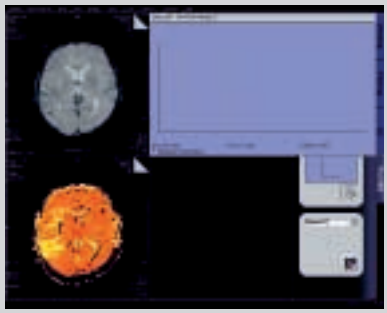
< Diffusion-weighted MRI (DWI) in combination with perfusion-weighted MRI is highly sensitive to early cerebral ischemia (within the first 30 minutes to 6 hours). It may predict the severity of the stroke as well as the level of expected recovery.





< The ADC map (Apparent Diffusion Coefficient) helps to estimate the age of stroke lesions. Calculate ADC maps automatically with Inline Technology at the end of the scan.

< Trace-weighted images help to differentiate between infarcted regions and normal tissue. Acquisition may be directly in a single-shot exam or by combining individual diffusion-weighted images.

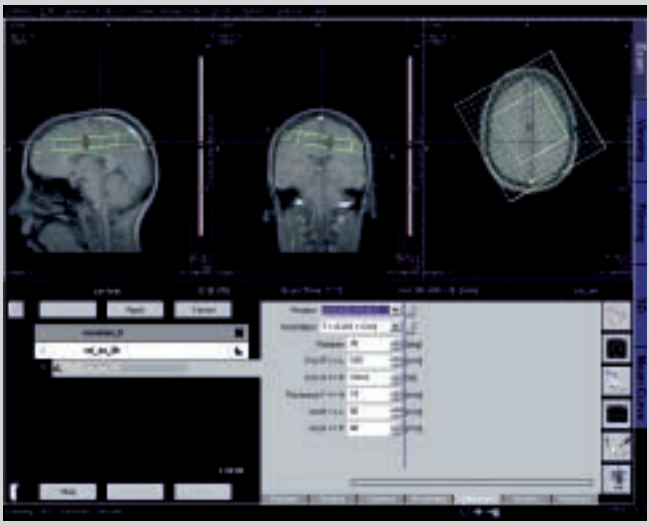


< Parameter map calculations, such as Time-to-Peak and relative MTT (Mean Transit Time), are performed automatically using Inline Technology.

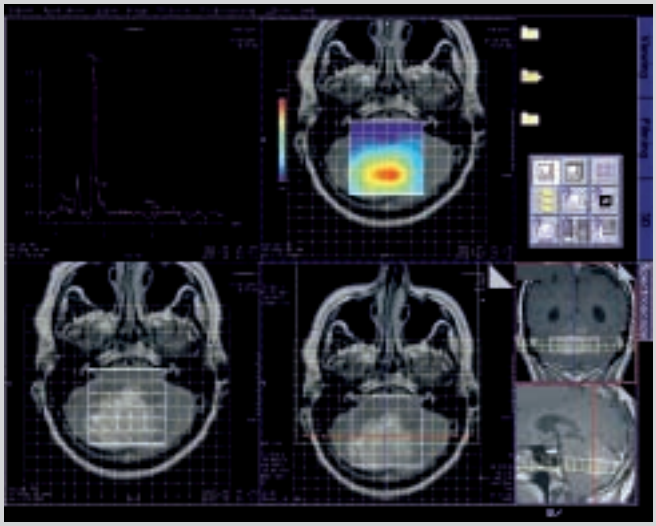
Maestro Class

is in novative applications

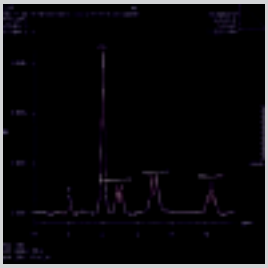
Spectroscopy – High flexibility from clinical routine to research



- Easy and efficient "single-button" spectroscopy, with spectra annotation and quantification at the click of a mouse. Keep your focus on the clinical questions at hand.
- Free slice positioning – just use the mouse to tailor both slice position and orientation to your patient.
- High research flexibility – MAGNETOM Symphony provides the possibility to interact with the whole procedures for research approach.
- 3D CSI (Chemical Shift Imaging) for complete anatomical coverage or weighted encoding for faster 3D CSI.
- Fully automatic data post-processing with instant display for, e.g. spectral maps that show spectra in the selected voxels.
- Metabolite images are showing the voxel dependent peak intensities or peak ratios as grayscale or color overlay onto a reference image.
- Table of metabolites for easy reporting.
- 31P and multi nuclear spectroscopy benefit to the same extent from the post-processing functionality.



< Neoplasm. CSI spectroscopy, CSI_Se 144 ms; VOI dimension 60x60x15 mm; TA 5,58 min. Showing severely depressed NAA peak, increased choline and inositol peak. Automatic post-processing including spectral map and metabolite image.



< 31P-Spectrum of a calf muscle

Maestro Class

is innovative applications

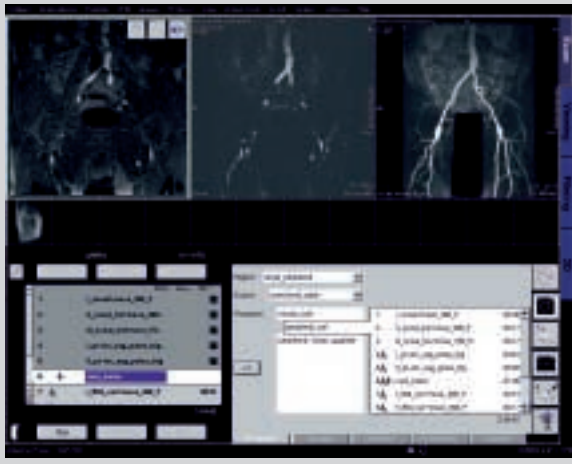
Easy and completely automatic – High-resolution peripheral MRA from diaphragmatic level to distal vessels

Speed and high resolution are essential for MR. The high-performance gradients of the MAGNETOM Symphony provide the shortest TR and TE parameters. All you have to do is inject contrast agent and go.

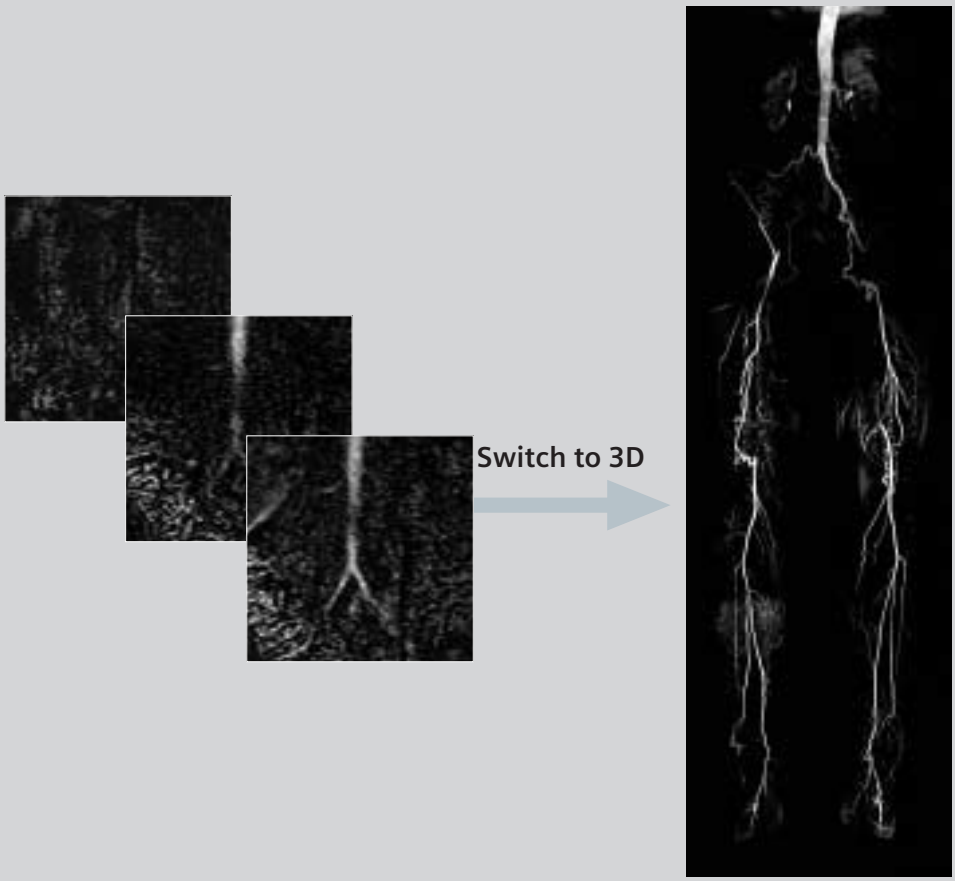
Use the Body and CP Head Array Coil or a multiple CP Array Coil set-up with automatic table feed using Integrated Panoramic Array (IPA) and Integrated Panoramic Positioning (IPP). Your optimized workflow is only a mouse click away.

< The Body Coil and CP Head Array Coil combination provide vessel over-views and may be used for post- operative exams.

< Obtain maximum coverage of 1.5 m (5 feet) in 4 steps by combining our Peripheral CP Angio Array Coil, with the CP Body Array Flex Coil and the Large Field of View Adapter. This combination is highly suitable for e.g. pre-operative planning.



< The scan program for the overall examination is already programmed using the Maestro User Interface with its multi-level scouts, automatic table travel and pre and post-contrast scanning. Each measurement (no. of slices, matrix) can be individually adjusted to the patient anatomy.



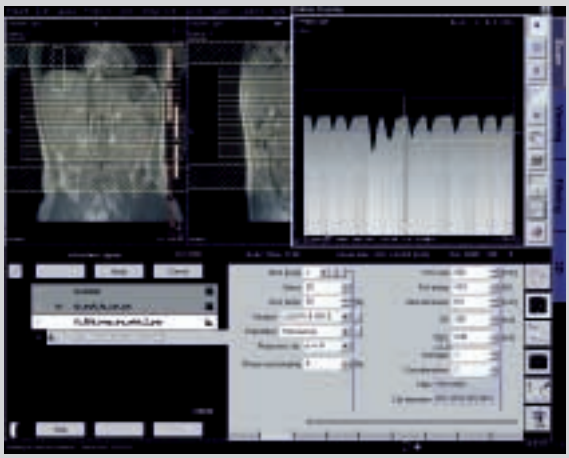
- Watch for inflow enhancement with Care Bolus real-time. There is no guess work, there are no calculations. You decide when to start the scan.
- Maestro Class Inline Technology automates the MIP (Maximum Intensity Projection) calculation for each anatomical level.
- Get the results while the patient is still on the table by using subtraction-on-the-fly. MIP will be displayed immediately on the Maestro User Interface.

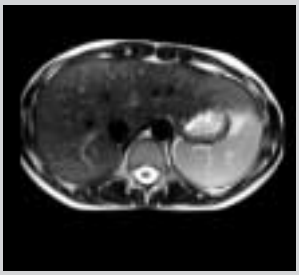
Maestro Class

is innovative applications

10 minute comprehensive upper abdominal MR exam

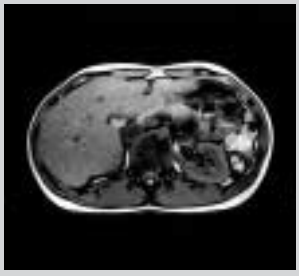
Abundance in gradient strength leads to new faster imaging techniques and shorter MR examination times. Maestro Class sets a new milestone in the expanded use of MR, making it the golden standard for solving many questions in routine clinical gastrointestinal problems.



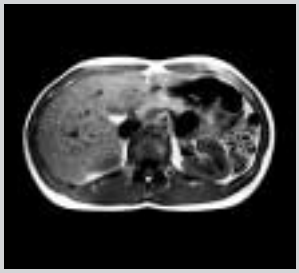


< Multi-breathhold 2D PACE with HASTE for strong T2 weighted imaging. You get all the information you need about the liver, bowels, fluid, lesions, as well as biliary and pancreatic duct in no time at all.

Get two in one!



Out of phase

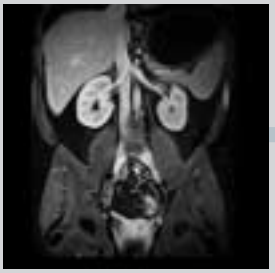


In phase

< Out of/In Phase FLASH for fatty liver and adrenal tumor imaging.

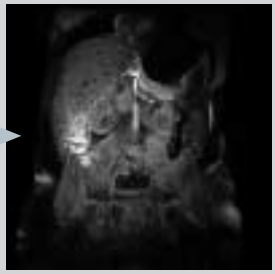
1 s

45 s



90 s

< VIBE (Volumetric Interpolated Breath-hold Examination) at 1, 45 and 90 seconds – for 3D dynamic imaging of the abdomen with isotropic voxels. High spatial resolution.

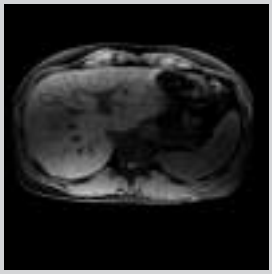


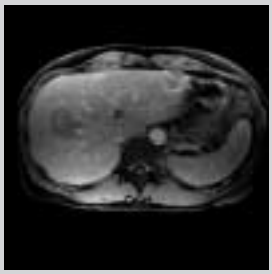
< **MIP for free!**
Click the MIP button and obtain vessel information in every phase of dynamic parenchymal imaging without additional contrast media. You can easily distinguish the arterial, portal-venous and late-venous phase.

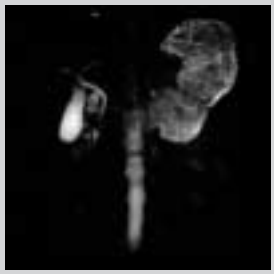
Maestro Class

is innovative applications

Expand your diagnosis



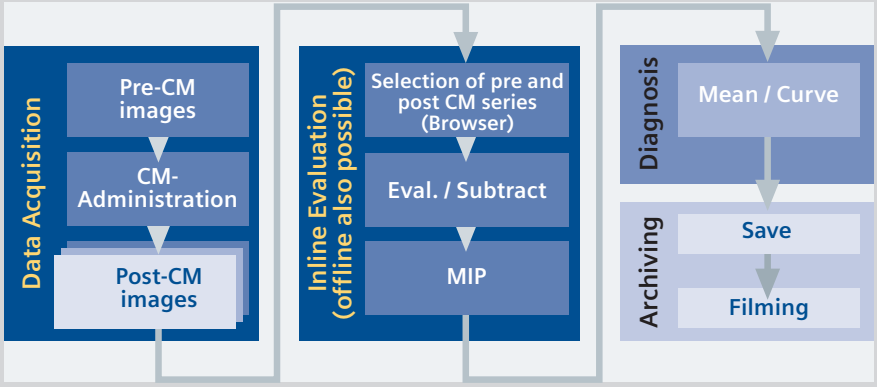


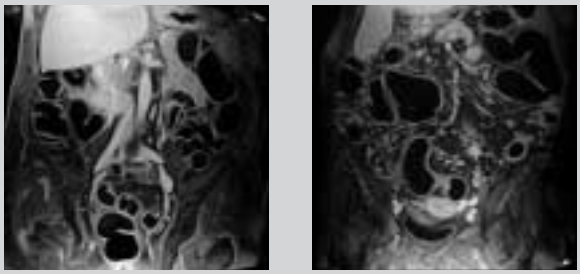


VIBE and iPAT
Combine VIBE and iPAT to speed up your body exams by a factor of 2. You are working with an ultra fast imaging technique that allows you to visualize the arterial phase even earlier in liver imaging. This may open the door to new diagnostic information.

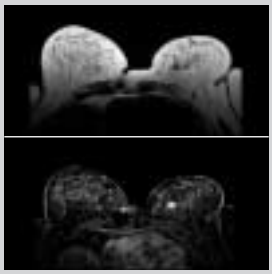
High patient comfort, optimised workflow and complete anatomical coverage. Use CP Body Flex Array Coil, CP Body Array Extender and the Integrated Panoramic Positioning (IPP) with automatic table feed as well as remote patient handling for the entire abdomen (covering upper abdomen and pelvis) in a single study.
There is no need to reposition patient or coil.

MR Cholangiography
Non-invasive pathological evaluation of the biliary and pancreatic system, presenting the ducts, millimeter-sized stones, and minimal dilatations.





MR Colonography –
how patient-friendly is it?
Convince yourself.
MR Colonography provides an additional non-invasive technique for the physician viewing the inner surface of organs (vessels, colon, etc.)



MR Mammography –
Early diagnosis needed!
What is required: High-resolution images and dynamic information – fast and accurately. The Inline Technology of MAGNETOM Symphony provides a streamlined workflow beginning with patient set-up and ending with the automatic display of the subtracted images.

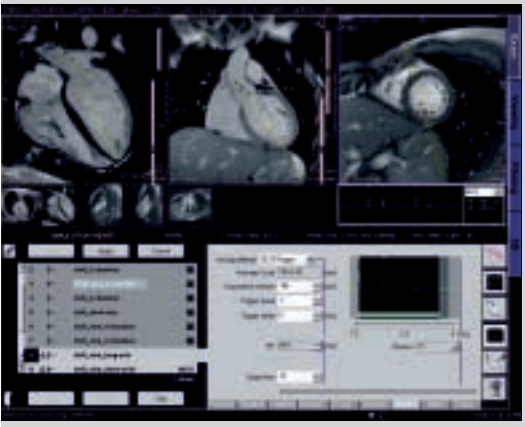
Maestro Class

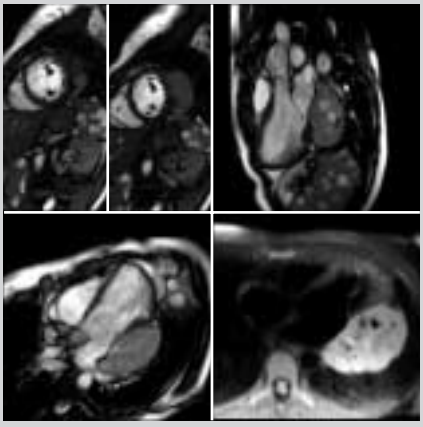
is innovative applications

One-stop cardiac examinations

Cardiac MRI

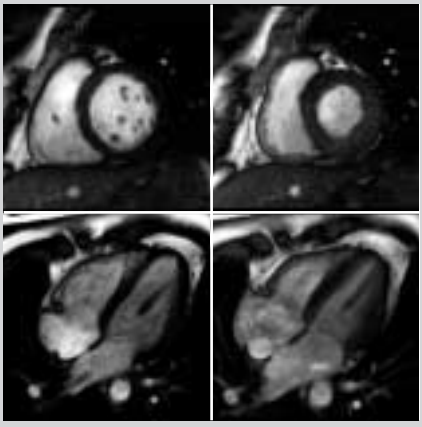
Complex anatomy and motion are the challenges in cardiovascular imaging. To make complex things easy, we have implemented the most comprehensive approach in MR with the MAGNETOM Symphony. It provides answers to your clinical questions in less than 30 minutes, including evaluation of morphology, ventricular and valve functions, as well as angiography. From real-time dynamic image acquisition to 3D TrueFISP and reporting, we support your workflow for cardiac imaging with an intelligent technology that leads to fast and reliable results.



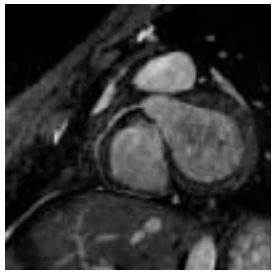


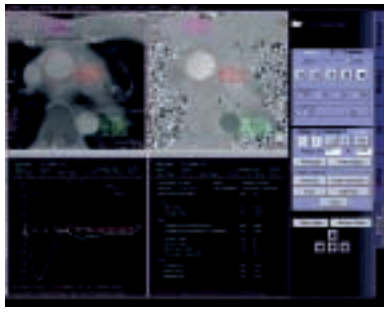
< Morphology: Plan oblique anatomical planes easily with 3 point localization. Display your results automatically with the Auto Movie function.

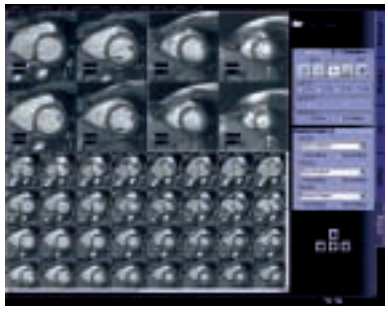
< Always on the right track – image stamps may be loaded into the movie function, the post-processing card, or the measurement queue.



< Function: Real-time TrueFISP allows rapid assessment of ventricular function.





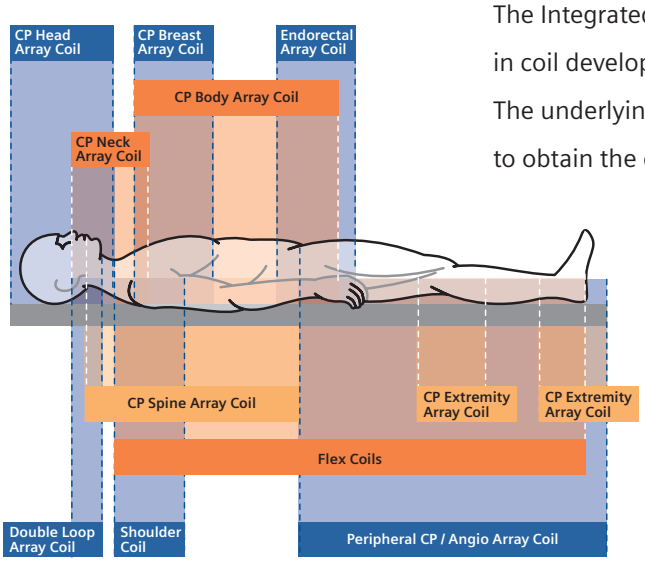


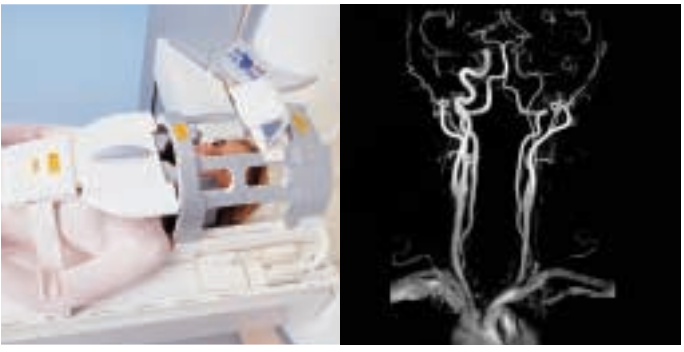
Easy add-on
Flexibility to acquire 3D TrueFISP images of the coronaries with submillimeter resolution and high signal either in a 20 sec breath-hold or during free breathing with PACE and online slice correction.

The Argus Flow Quantification software does what it says. Vessel and valve flow results are quantified, reported in DICOM format, and for a more thorough assessment of cardiac function, the Argus Ventricular Function software is used as well.

IPA

The Integrated Panoramic Array (IPA) coil concept is the unmatched revolution in coil development as well as a major leap forward in productivity.
The underlying philosophy: combine various coil elements from different coils to obtain the optimal anatomical coverage including highest image quality.





CP Head+CP Neck+CP Spine=9 coil elements

- Efficient – reduces number of coils and patient set-up times.
  Up to 4 different coils may be connected simultaneously.
- Easy handling – coil elements from various coils can be combined for image acquisition.
- High patient comfort – light-weight, open design highly suitable for e.g. cardiac or oncology patients.

- High anatomic coverage – allows for multiple exams covering the largest field of view in the industry. Integrated Panoramic Positioning (IPP) and remote table feed support step-by-step high-resolution imaging of small regions. Table control and coil elements are selected at the main console.
- High image quality due to whole Body CP Array coil design.
- MAGNETOM Symphony receives signals from up to 16 CP coil elements of 4 different coils.

CP Spine Array+
CP Peripheral Angio Array+
CP Body Flex Array+
CP Body Extender Array+
Large FoV Adapter=
18 coil elements

EVOLVE

Within EVOLVE* you can choose between several options. You can upgrade your system to the latest generation or with the Symphony EVOLVE Package™ book a regular upgrade of hardware and software. The financial alternative to expensive new equipment is EVOLVE.

EVOLVE for MAGNETOM Symphony
We offer complete packages suitable for a number of specific applications. These packages include dedicated application software, coils and expanded system performance.

EVOLVE elevates existing MAGNETOM systems to Maestro Class
EVOLVE lets you upgrade your present generation of MAGNETOM system to Maestro Class performance quickly and cost-effectively. This is certainly the smart way to plan your future budget.

Your subscription to the future – the *syngo* EVOLVE Package
The performance level of computer chips doubles roughly every 18 months. This means that todays leading processors will be obsolete in a few years. Similar time frames are valid for software innovations.
Within the scope of the Siemens Performance TOP maintenance program your hard- and software is upgraded regularly. You will get the image processor and host computer of your *syngo*-based system updated twice over a period of six years. New software version will be made available to you. The choice is yours. Depending on your personal requirements, you can select one of our specific EVOLVE programs or the complete *syngo* EVOLVE Package.

*In the event that upgrades require FDA approval, Siemens cannot predict whether or when the FDA will issue its approval. Therefore, if regulatory clearance is obtained and is applicable to this package, it will be made available according to the terms of this offer.

design

High patient comfort
enhanced by a highly comforting environment. Harmonized controls, display and colored ring. The softly curved front panel invites tranquility and ease.

New design
Design using state-of-the-art materials sets a new precedence far beyond known system configurations. Choose the system that fits your private practice or hospital.

Easy patient positioning
with the floating table. It can be lowered to just 45 cm (17.5 in) from the floor and facilitates comfortable access since it moves without a support column. A detachable table allows you to set up patients outside the exam room.

efficiency

**Short exam times –
Higher patient throughput**
MAGNETOM Symphony translates into an increase in daily patient throughput by approximately 20%. You are definitely moving into the fast lane with such functions as Inline Technology-processing instead of post processing, automatic routines, more reliable results as well as optimal patient ease and system handling.

***syngo* – Learn it once,
know it for life**
Your staff costs will be effectively reduced through *syngo*. This Siemens-wide software standard reduces long learning phases. This allows you to schedule staff members across modalities and shifts, increasing both productivity and flexibility.

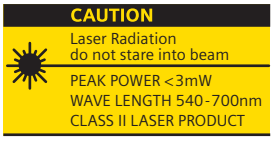
Living large in a minimum of space
MAGNETOM Symphony offers huge advantages in just 30 m^2 (325 sq. feet). That's the entire system, including the magnet, operating room, and the computer area. A dedicated computer room is not required.

Attractiveness that pays for itself
You'll attract more referring physicians using the innovative applications of the Maestro Class as your calling card. Consider, for example, body exams with VIBE and iPAT. These reduce exam times not only by half, but also provide information about the vasculature. And here are our one-stop stroke examinations completed in less than 5 minutes, from morphology to diffusion and perfusion. And beyond all that is our patient-friendly system design that adds to the well-being of your patients as well as to the image of your hospital or private practice.

Would you like additional information ...

just go to:

www.SiemensMedical.com



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Imaging Center Valencia, Valencia, Spain
New York University, New York, USA

The information in this document contains general descriptions of the technical options available, which do not always have to be present in individual cases. The required features should therefore be specified in each individual case at the time of closing the contract.

Siemens reserves the right to modify the design and specifications contained herein without prior notice. Please contact your local Siemens Sales representative for the most current information.

Note:
Original images always lose a certain amount of detail when reproduced.

This brochure refers to both standard and optional features. Availability and packaging of options varies by country and is subject to change without notice. Some of the features described are not available for commercial distribution in the US with *syngo* MR 2002B

The information about *syngo* MR 2002B is being provided for planning purposes. The product is pending 510(k) review, and is not yet commercially available in the U.S.

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