Transform your Cardiac MRI practice with our cutting-edge applications

↗ siemens-healthineers.us/cardiovascular-mri

Cardiac MR (CMR) exams in under 30 minutes—what once seemed impossible is now a reality. Achieving this milestone requires years of research, collaboration, and innovation. At Siemens Healthineers, we make it possible through highly automated, free-breathing exams that extend cardiac MR to a broader range of patients, delivering accessible, comfortable, and fast exams without compromise.

SIEMENS Healthineers

1 Cardiac Suite: Your core application package for quality CMR exams

Cardiac Suite, our core cardiac applications package, enables high-quality diagnostic cardiac MRI exams on all Siemens Healthineers scanners. This toolkit includes the applications required to address fundamental clinical questions, such as cardiac morphology, function, and tissue characterization.

Anatomy and morphology

- 2D breath-hold and free-breathing techniques for visualization of cardiovascular anatomy and structural pathologies
- Techniques including dark blood TSE, HASTE, and T1- and T2-weighted imaging

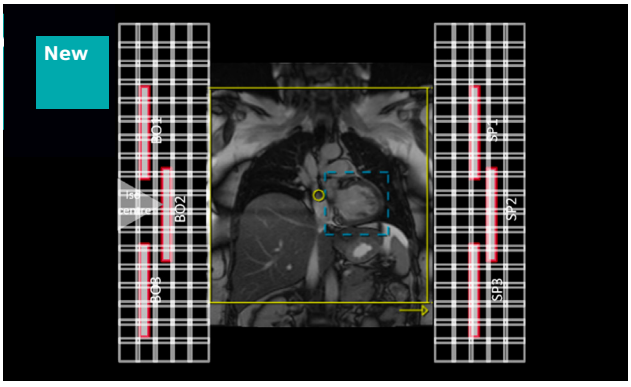
Functional imaging

- Assessment of regional wall motion abnormalities, valve function and quantitative assessment of stroke volume and ejection fraction, for example
- Accelerated functional Cine imaging techniques (segmented TrueFISP/FLASH) with prospective triggering or retrospective gating using parallel imaging to enable high temporal and spatial resolution
- Real-time Cine functional imaging for quality diagnostic scans, even in patients with arrhythmias and those who cannot hold their breath

Study ID 1aaaa4048

Myocardial tissue characterization / viability

- TrueFISP/FLASH techniques to support physician evaluation of scar burden
- TI (Inversion Time) scout for optimization of tissue contrast between lesion and healthy myocardium
- 2D Phase-Sensitive Inversion Recovery (PSIR) imaging with reconstruction of magnitude and phase
- PSIR HeartFreeze with motion compensation algorithms for high-resolution PSIR imaging in free-breathing



AutoMate Cardiac

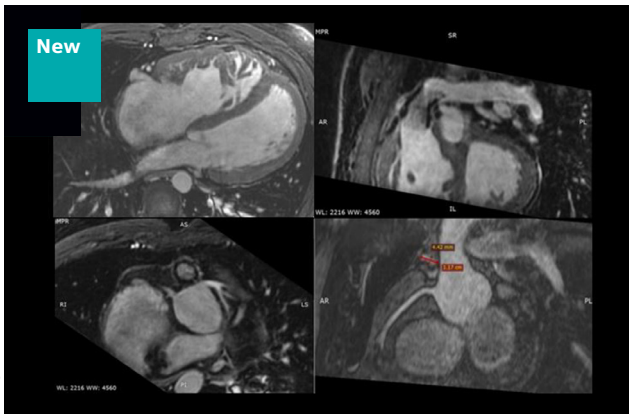
Automated workflows to set up scan parameters, ensuring robust image quality regardless of operator expertise.

AutoMate Cardiac optimizes CMR exams making them more efficient and reproducible with features like AutoPositioning, AutoRestingPhase detection, and AutoTI proposal.

The basic Cardiac Suite can be enhanced with an additional cardiac package which includes tools like 3D cardiovascular imaging (3D Cine functional imaging, 3D PSIR, 3D Whole Heart non-contrast coronary imaging in free-breathing).

2 Our solutions for advanced Cardiac MRI

Free breathing exams



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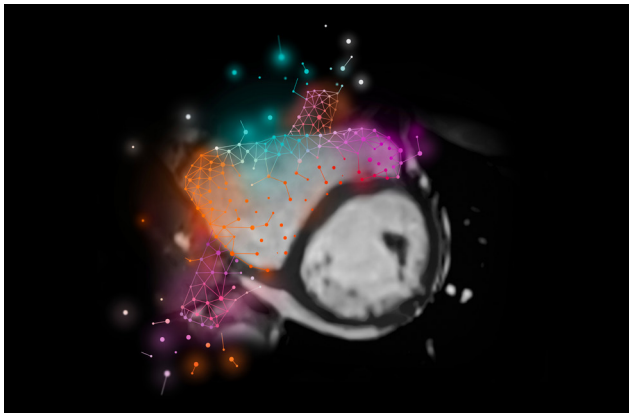
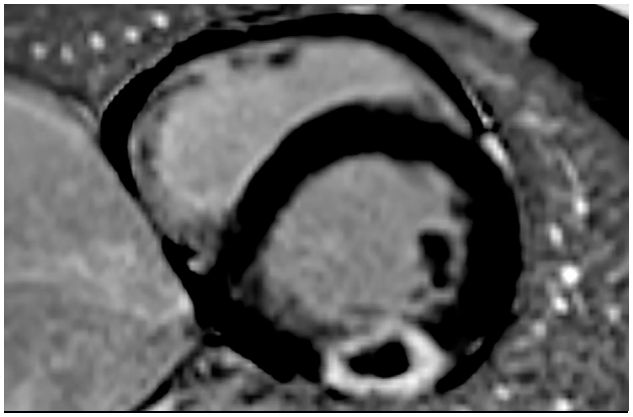
3D WholeHeart Pro

3D WholeHeart Pro tracks the heartbeat to provide a predictable scan time, offering high isotropic resolution and 3D tissue characterization essential for evaluating small lesions and extensive tissue damage. The technique incorporates advanced automation algorithms for virtually artifact-free images and accurate coronary artery visualization in free breathing.



Compressed Sensing Cardiac Cine

Compressed Sensing enables segmented Cine imaging in high spatial and temporal resolution within very short breath-holds. The Compressed Sensing real-time technique enables high diagnostic image quality in free-breathing which is particularly beneficial for patients with arrhythmias and for those who cannot hold their breath.



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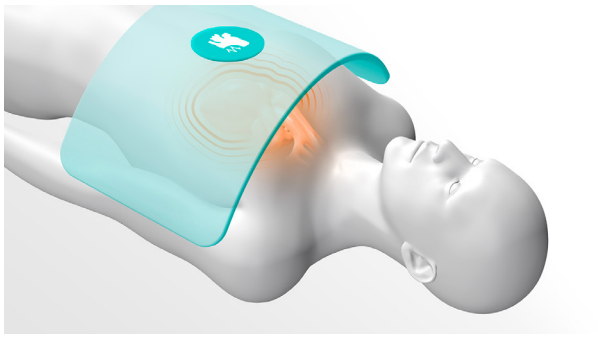
PSIR HeartFreeze

HeartFreeze, with motion compensation algorithms, enables high-resolution imaging in free-breathing.

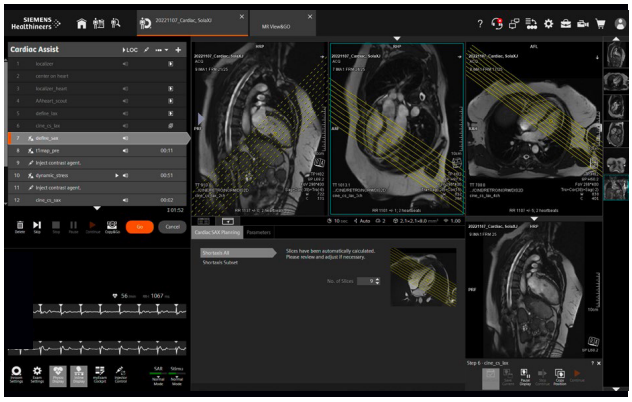
This technology extends the benefits of detailed viability assessments to patients with arrhythmias or those unable to hold their breath.

Highly efficient, automated CMR exams



BioMatrix Beat Sensor

BioMatrix Beat Sensor enables users to perform CMR exams without ECG. This break-through technology uses the heart's own pulsile motion to trigger the exam. The result is faster CMR exams and improved patient experience.



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myExam Cardiac Assist

myExam Cardiac Assist is a unique offering from Siemens Healthineers which supports comprehensive Cardiac MR examinations in under 30 minutes.

This highly automated tool leverages algorithms like AutoAlign to facilitate automatic planning of all cardiac views, ensuring standardized and reproducible cardiac scans. With its step-by-step guidance, myExam Cardiac Assist simplifies the complexities of cardiac exams. It can be used alone or in combination with AutoMate Cardiac.

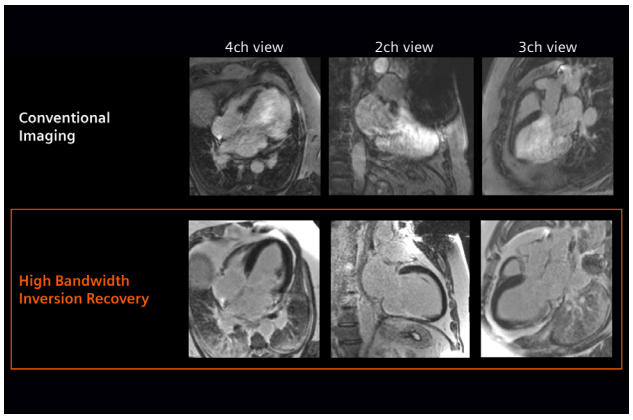
GOHeart[1] Workflows for myExam Cardiac Assist

GOHeart offers fast, automated workflows for cardiac MRI exams in under 30 minutes:

- GOHeart 12-minute exam in free-breathing for vulnerable patients which provides cardiac function
- GOHeart 30-minute ischemic heart disease exam

These workflows feature our free-breathing technologies Compressed Sensing Cardiac Cine and PSIR HeartFreeze, and our tissue characterization application MyoMaps. Thanks to the automation features of myExam Cardiac Assist, the user is assisted throughout the exam. This results in highly reproducible exams in predictably short slot times.

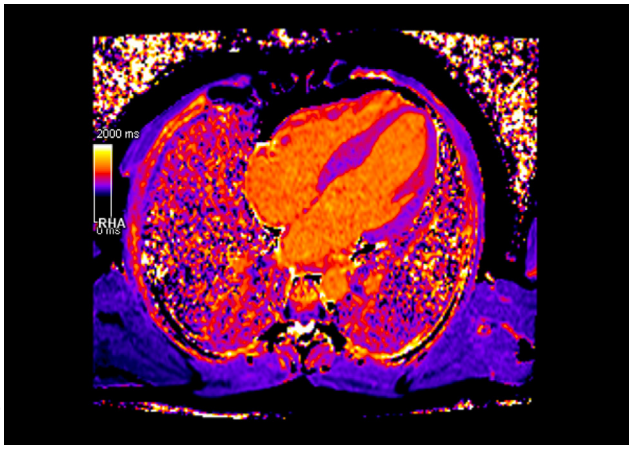
Dedicated CMR appliactions



Study ID 0aaaa0012

High Bandwidth Inversion Recovery²

High Bandwidth Inversion Recovery (HBIR) significantly improves the quality of CMR imaging in patients prone to susceptibility artifacts. This advanced sequence employs wide-band techniques to minimize distortions, which enhances tissue characterization for optimal imaging of myocardial injuries.



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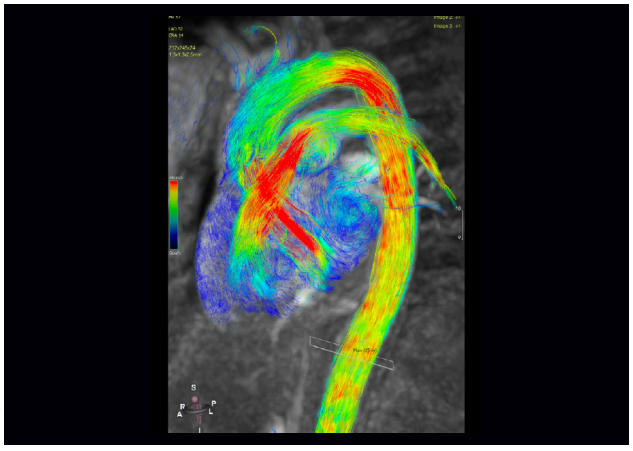
MyoMaps

MyoMaps enables characterization of myocardial tissue damage. Used together with HeartFreeze, our motion correction algorithm, MyoMaps supports the inline generation of pixel-based quantitative T1, T2 and T2* parametric maps for differential diagnosis of myocardial tissue.

T1 mapping, based on the MOLLI technique, is typically used to detect myocardial inflammation. T2 mapping, based on T2-prepared single-shot TrueFISP technique can help identify edema. T2* mapping, based on multi-echo segmented GRE with black blood preparation can indicate iron overload. T2* is currently available for 1.5T.



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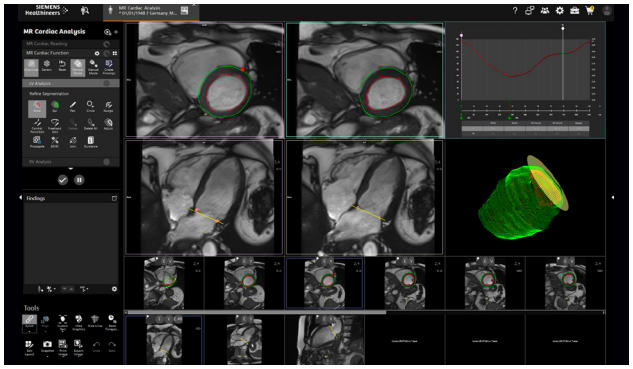
4D Flow

Flow quantification provides crucial insights into cardiac hemodynamics and function. ECG-triggered 2D phase contrast imaging enables non-invasive, quantitative assessment of blood flow. With retrospective reconstruction, full heart cycle coverage is achieved, allowing comprehensive analysis.

Our enhanced 4D Flow acquisition offers complete volumetric coverage, significantly improving the orientation and visualization of blood flow and velocity throughout the heart and thorax. This technical advancement facilitates the detailed analysis of key hemodynamic parameters over the entire cardiac cycle.

3 CMR postprocessing options



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syngo.MR Cardiology

syngo.MR Cardiology allows users to comprehensively review and postprocess CMR examinations for additional quantification and diagnostic insight. The *syngo*.MR Cardiology package enables postprocessing of cardiac flow and the analysis of ventricular function in 4D. The Volume Quant tool quantifies lesion volumes in the myocardium. This quantified data provides the basis for patient risk stratification and paves the way for personalized medicine.

Third party postprocessing software

Siemens Healthineers is proud to offer postprocessing options from major CMR software vendors in addition to our own powerful *syngo*.via solutions. Caas, Circle Cardiovascular Imaging, Medviso, NeoSoft and a growing number of other applications can be purchased via *syngo*.via OpenApps and fit seamlessly into the clinical workflow. Free trial licenses are available.

4 Our dedicated cardiac MRI scanner

MAGNETOM Sola Cardiovascular Edition

Outcome relevant decisions – redefining patient pathways

MAGNETOM Sola Cardiovascular Edition automatically adjusts to patient biovariability to overcome variations in cardiac MRI examinations:

- Free breathing exams with Compressed Sensing Cardiac Cine
- Tissue characterization with MyoMaps and HeartFreeze
- High Bandwidth Inversion Recovery
- Highly efficient CMR exams with BioMatrix Beat Sensor and myExam Cardiac Assist

Siemens Healthineers pioneers breakthroughs in healthcare. For everyone. Everywhere. Sustainably. The company is a global provider of healthcare equipment, solutions and services, with activities in more than 180 countries and direct representation in more than 70. The group comprises Siemens Healthineers AG, listed as SHL in Frankfurt, Germany, and its subsidiaries. As a leading medical technology company, Siemens Healthineers is committed to improving access to healthcare for underserved communities worldwide and is striving to overcome the most threatening diseases. The company is principally active in the areas of imaging, diagnostics, cancer care and minimally invasive therapies, augmented by digital technology and artificial intelligence. In fiscal 2024, which ended on September 30, 2024, Siemens Healthineers had approximately 72,000 employees worldwide and generated revenue of around €22.4 billion.

Further information is available at www.siemens-healthineers.com.

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1 myExam Cardiac Assist is a pre-requisite for GOHeart Workflows.
2 High Bandwidth Inversion Recovery is currently available for 1.5T.

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