MAGNETOM Free.Star

MRI for all.

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SIEMENS
Healthineers

The reach of MRI is limited today

As an extremely powerful imaging tool, MRI has proven to play a pivotal role in the fight against many of our world's most prevalent diseases. Today more than ever, access to MRI should be a matter of course. But the cost and complexity of deploying conventional MR scanners limit their reach. Their size and weight, the special infrastructure and servicing they require, plus the training needed to operate them are both technically and financially prohibitive for many healthcare providers.

Yet these barriers are often only imposed by conventions. If we dare to question conventions and pursue new avenues, we can break down those limitations and expand the reach of MRI.

"We know that the opportunities are large in India. We have a 1.4 billion population to serve, and we also know that the ratio of MRI scanners to a million population is low, if not the lowest in the world."

Dr. Prasanna Vignesh
Director Aarthi Scans and Labs, India

MRI for all.

MAGNETOM Free.Star – a disruptively simple approach to MRI that makes high-quality diagnostic imaging available for many.

- Where cost and complexity of deploying conventional MR scanners limited their reach, it fits seamlessly fits into a helium-free infrastructure.
- Where system monitoring and maintenance created an obstacle for healthcare providers, it maximizes system uptime and minimizes lifecycle costs.
- Where shortage of local expertise provided a constraint in operating a complex imaging modality, it empowers a seamless and automated workflow.
- Where investment returns were uncertain, it offers low total cost of ownership and high return on invest – on only 10 exams per day.[1]

Infrastructure radically simplified

MAGNETOM Free.Star – no helium infrastructure

Only the need for MRI should define where it is located. MAGNETOM Free.Star is our most compact whole-body MRI that radically reduces siting costs: No complex installation, no need for high power supply, no need for helium infrastructure, and no need for a quench pipe.

Key system* data at a glance

0.7 l	44 kVA	3.5 ton²	220 x 148 x 197	3.1 t
Liquid helium (sealed for life)	Line power supply (connection value)	Air conditioning tonnage	System dimensions (W x D x H in cm)	System weight

*Magnet in operation, incl. gradient coil, body coil, patient table, and covers

No quench pipe

With 0.7 l liquid helium sealed for life, a complex and costly installation of a quench pipe is not required.

New opportunities for installation

With its small footprint and light weight, it opens up new siting possibilities. It seamlessly slots into the smalles RF cabin sizes.

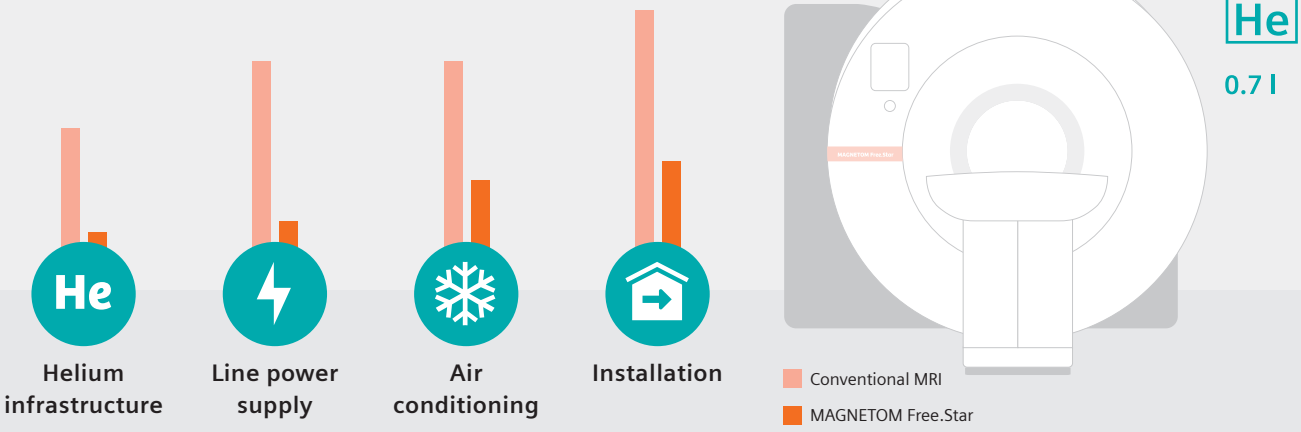
MAGNETOM Free.Star – no complex installation

With its compact design – weight of 3.1 t and height less than 2 m – it is designed to be wheeled into the scan room through regular hallways and hospital doors.

-34%
installation costs

Compared to conventional MRI system at University Hospital Basel, Switzerland[3]

Infrastructure cost savings



"All we have to do is take down a few glass sliding doors and that's it. It's more convenient, it's less expensive and it's faster. So, from a siting perspective there are only benefits, not a single disadvantage. This is great." [3]

Prof. Elmar M. Merkle, M.D.
Chief Physician in Radiology and Nuclear Medicine
University Hospital Basel, Switzerland

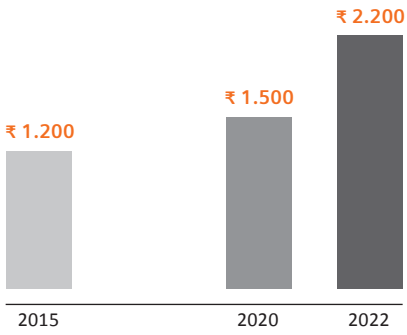
Designed for maximum robustness

MAGNETOM Free.Star – freedom beyond helium

Designed for durability it's a highly reliable MRI in its class. It even eliminates the dependency on helium for refill. Accompanied by preventative, remote services and 24/7 monitoring it maximizes system uptime and minimizes lifecycle costs.

Helium price increase accelerates in India[4]
The price of helium in India has been rising by about 5% per year since 2015. Since 2020, the annual price increase has accelerated significantly to 21% per year. In 2022 a litre of helium costs ₹ 2,200.

Helium price history in India (₹/litre)

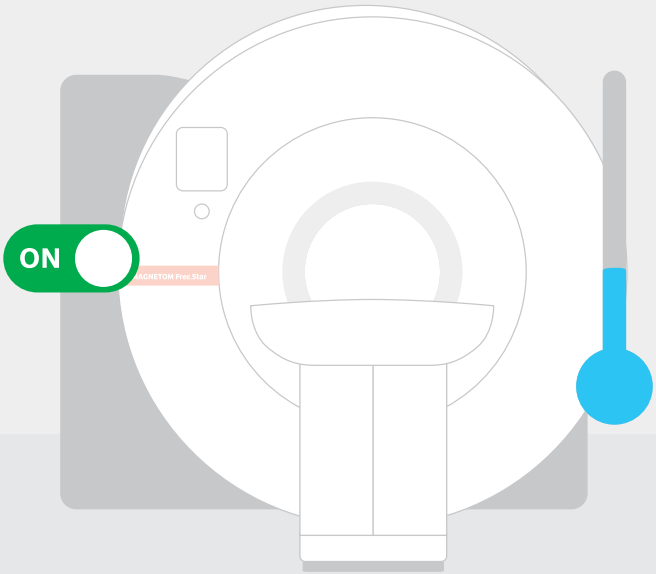


Mastering power-outage scenarios

MAGNETOM Free.Star monitors the power conditions. In the event of a power-outage, it automatically ramps itself down while preserving its built-in helium. It can easily be ramped-up once power comes back.

This eliminates the risks of costly helium refill and down-time while the helium is delivered, which are associated with conventional MRI systems.

Automatic power-off



"A scanner with remote support for trouble-shooting would go a long way to making MR available to the Indian population."[6]

Ankur Goyal, M.D.; Devasenathipathy Kandasamy, M.D.; Raju Sharma, M.D.
All India Institute of Medical Sciences (AIIMS), New Delhi, India

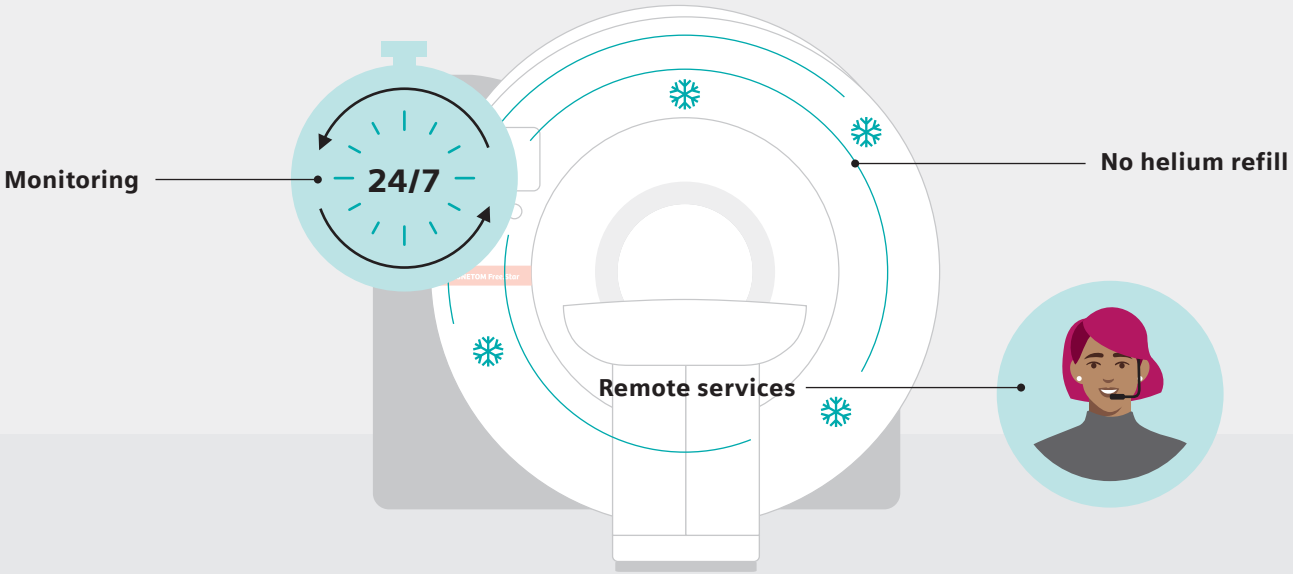
Stay connected to be one step ahead

While you focus on caring for your patients, we stay connected to care for your MRI system. Our innovative service uses the preventive intelligence of Guardian Program to solve technical issues before downtimes occur. We stay connected to keep you one step ahead.

Maximized system uptime

Optimized service efficiency

High system availability



Diagnostic confidence for daily excellence

MAGNETOM Free.Star with High-V MRI

The world's first High-V MRI brings the digital revolution to your practice. By introducing deep learning-based reconstruction MAGNETOM Free.Star excels in excellent and consistent image quality.

Power of digitalization
Image processing innovations

+

0.55T
Inherent clinical benefits

High-V MRI
Value beyond barriers

Rapidly increased computational power

Increasingly efficient acquisition techniques

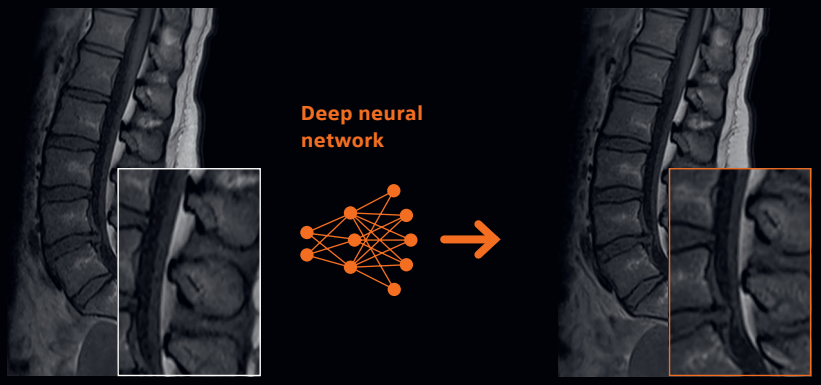
Simultaneous Multi-Slice, Compressed Sensing and more

AI-based image reconstruction

Deep Resolve – the new paradigm in clinical performance

Deep Resolve – the power of neural networks

Deep Resolve is our latest cutting-edge AI-powered image reconstruction technology. Equipped with especially trained deep neural networks and targeted denoising, Deep Resolve is able to increase image sharpness and reduce scan time.



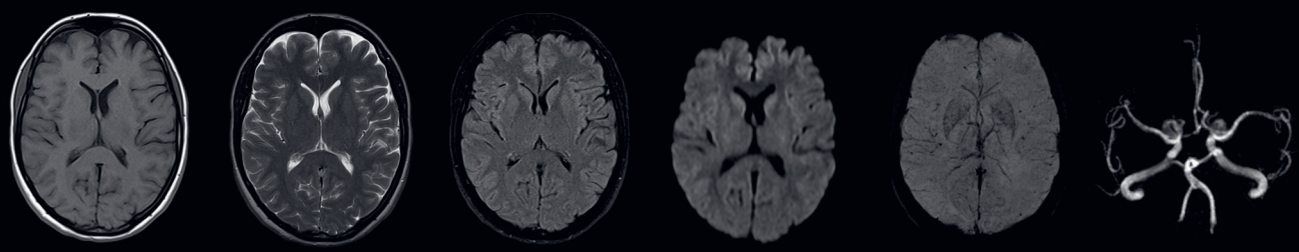
7aaaa0162

Conventional
Matrix: 192 x 256
TA 2:12 min

Deep Resolve
Matrix: 384 x 512
TA 2:12 min

Powered by
artificial intelligence

Neuro imaging



7aaaa0195

T1 SE
0.4 x 0.4 x 5.0 mm³
TA 2:50 min

T2 TSE
Deep Resolve
0.4 x 0.4 x 5.0 mm³
TA 2:50 min

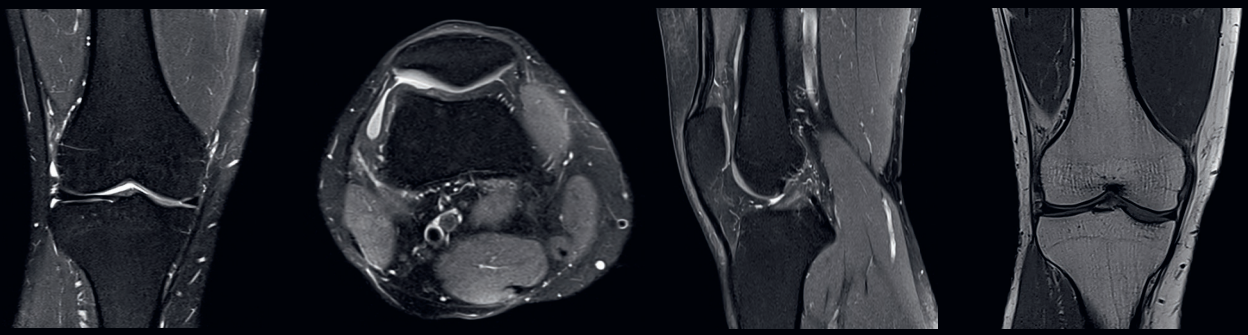
T2 TSE Dark-Fluid
Deep Resolve
0.5 x 0.5 x 5.0 mm³
TA 4:00 min

DWI b1000
PAT 2
0.7 x 0.7 x 5.0 mm³
TA 2:54 min

EPI SWI
Deep Resolve
0.8 x 0.8 x 1.8 mm³
TA 4:23 min

Time of flight
0.5 x 0.5 x 0.5 mm³
TA 4:05 min

Orthopedic imaging



7aaaa0198

PD TSE Fat Sat
SMS 2 | Deep Resolve
0.3 x 0.3 x 3.0 mm³
TA 2:46 min

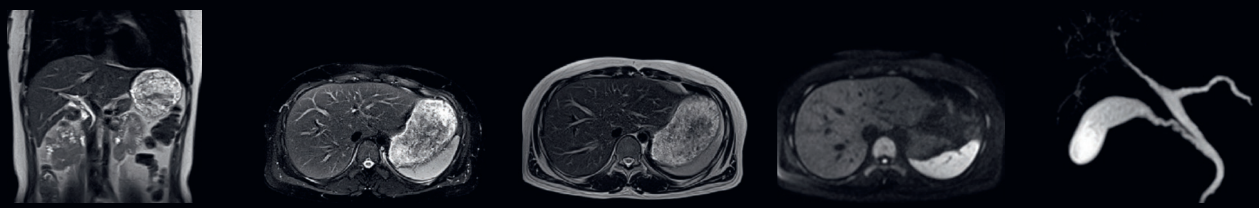
PD TSE Fat Sat
SMS 2 | Deep Resolve
0.3 x 0.3 x 3.0 mm³
TA 2:16 min

PD TSE Fat Sat
SMS 2 | Deep Resolve
0.4 x 0.4 x 3.0 mm³
TA 2:56 min

T1 SE

0.3 x 0.3 x 3.0 mm³
TA 1:51 min

Abdominal imaging



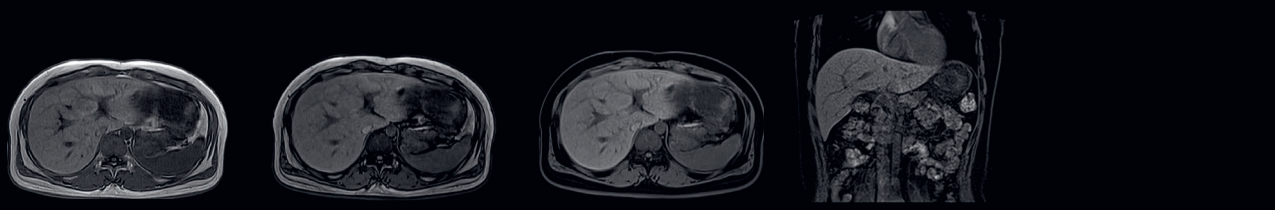
HASTE
PAT 2 | Deep Resolve
1.5 x 1.5 x 6.0 mm³
TA 1:23 min

T2 BLADE Fat Sat
PAT 2
1.2 x 1.2 x 6.0 mm³
TA 4:36 min

T2 BLADE
PAT 2
1.2 x 1.2 x 6.0 mm³
TA 3:27 min

DWI b800
PAT 2 | Deep Resolve
1.5 x 1.5 x 6.0 mm³
TA 3:38 min

MRCP
PAT 3 | Deep Resolve
0.6 x 0.6 x 1.0 mm³
TA 2:43 min



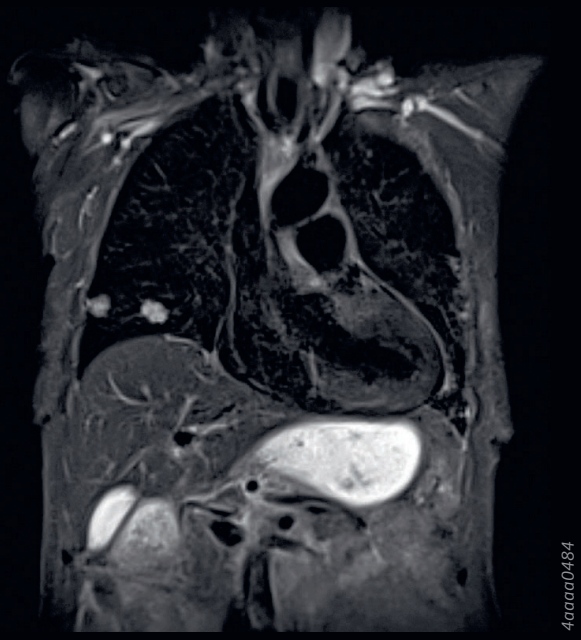
7aaaa0165

T1 VIBE Dixon
(in-phase, opposite-phase & water)
CAIPIRINHA 2 | Deep Resolve
0.8 x 0.8 x 3.0 mm³
TA 4x 0:16 min

T1 VIBE Dixon
(in-phase, opposite-phase & water)
CAIPIRINHA 2 | Deep Resolve
0.9 x 0.9 x 3.0 mm³
TA 4x 0:17 min

MAGNETOM Free.Star – exciting new clinical opportunities in MRI

High-V MRI offers inherent physical benefits that overcome the limitations of today's MR imaging. It opens up exciting new clinical applications:



4aaaa0484

Pulmonary imaging has been notoriously difficult with MRI as the magnetic signal gets destroyed at the interfaces between air and tissue due to large susceptibility differences.

With MAGNETOM Free.Star new opportunities arise as fewer susceptibility artifacts compared to conventional MRI systems allow improved pulmonary imaging.

4aaaa0508

Metal implant imaging is particularly challenging in MRI and often results in imaging artefacts. As patient demographics are changing, metal implants become more and more frequent in MR imaging. It is estimated that more than 1,20,000 knees and about 70,000 hips are replaced in India each year.[5]

MAGNETOM Free.Star offers inherent benefits for implant imaging. Its High-V MRI technology helps to reduce metal artefacts.

Curious for more?

Choose from 25 cases and scroll through image stacks online
https://www.siemens-healthineers.com/en-in/magnetic-resonance-imaging/high-v-mri/web-viewer

Intuitive operation for any professional

MAGNETOM Free.Star breaks down the barriers of complex MRI operations. Built-in AI and intelligent guidance allow for true push-button operations for any professional.

myExam Companion – consistent results. Every time.

Think of myExam Companion as an intelligent, built-in software assistant. It turns data into and tailored assistance to proactively guide techs of any skill level. By optimizing acquisition and reconstruction parameters for the individual patient and procedure it helps generate the comprehensive information radiologists need. myExam Companion offers 3 different modes:

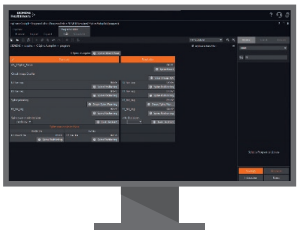
myExam Autopilot
Automate intelligently

> 70% of MRI exams – just with a simple click[2]

myExam Assist
Flexible and guided

90% of MRI exams – guided exam workflows[2]

myExam Cockpit
Customize intuitively



Intuitive customization – according to your needs

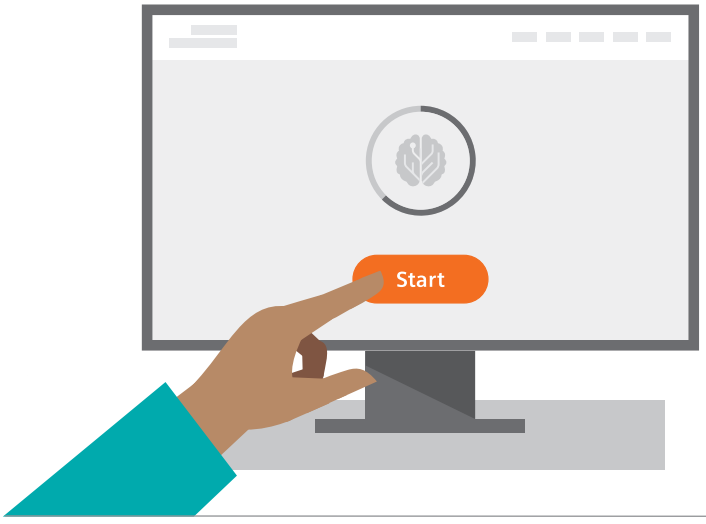
Tailored user assistance, enabling every level of expertise and experience.

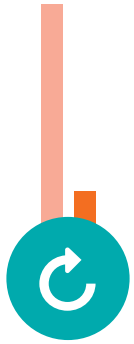
myExam Autopilot

As the name implies, myExam Autopilot offers users advanced and intelligent automation. It allows them to perform more than 70% of all MRI exams consistently, and at a high quality level, with just a simple click.[2] Supported body regions are brain, spine, and knee.

- MRI operation drastically simplified
- Automated protocol without the need for any manual adjustments
- Clear design with a focus on what users need – and without any distractions
- Novel usability with touch or click interaction

Reduced risk of human error





Rescan rate

Conventional MRI

MAGNETOM Free.Star

Maximum patient comfort

Contour Coils provide your patients with greater comfort while they undergo an MRI exam. The soft and lightweight coils flexibly adapt to your patients' body contours. Straps are not needed to hold Contour Coils in place, making positioning fast and easy.

Portfolio of local coils for MAGNETOM Free.Star

Contour S Coil

- E.g. for small joints
- 6 elements

Contour M Coil

- E.g. for large joints
- 12 elements

BioMatrix Contour L Coil

- E.g. for abdomen, lung
- 6 elements

Coil Link

- Exchangeable coil cable for Contour S & L

Contour Coils with SlideConnect

- Blanket-like coils for increased comfort
- Improved ergonomics with SlideConnect
- Plate-type connectors for better cleanability & reliability

Head/Neck Coil

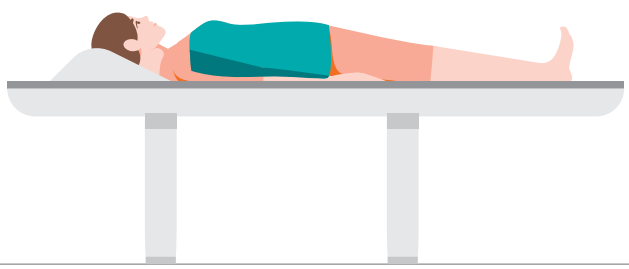
- **Fixed 9°** tilt for improved patient comfort
- DirectConnect
- 12 elements (Independent)

Head/Neck Coil

without cover

- Fixed spine coil in the isocenter
- 9 elements / FOV

Contour Coils – Designed for maximum comfort



Light-weight

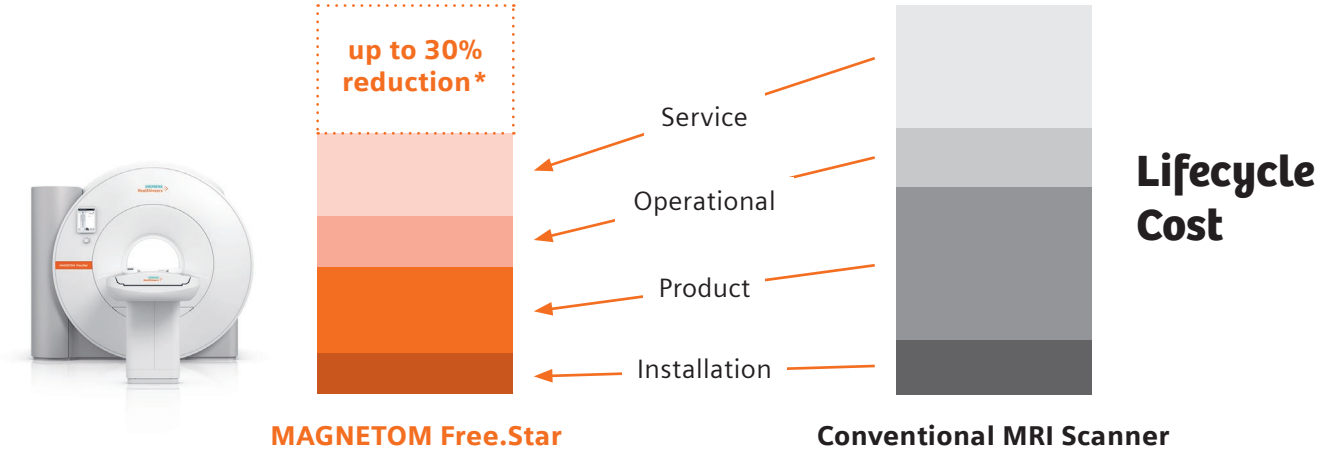
Flexibly adapting

Easy positioning

Profitable MRI with only 10 exams per day[1]

MAGNETOM Free.Star addresses head on, the issues of cost and complexity, enables new opportunities and ushers in a new era of MRI for all.

With radically simplified infrastructure, built-in helium for the entire product lifetime, and preventative, remote services MAGNETOM Free.Star is designed to maximize system uptime and minimize lifecycle costs – it allows for profitable MRI with only 10 exams per day.*



*Calculation based on internal records and estimates of present economical conditions.

Does it pay off?

The question for return of investment (ROI) is associated with any investment in major new technology. Use the interactive ROI calculator to see net available cash your practice can generate with MAGNETOM Free.Star and its internal rate of return (IRR).

http://siemens-healthineers.co.in/magnetom-free-star-roi

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For accessories, please visit: siemens.com/medical-accessories

[1] Calculation based on internal records and estimates.

[2] The value mentioned as AC requirement is under standard environmental condition. Actual AC requirement may vary based on the humidity and other environmental factors at the installation site.

[3] The statements by Siemens Healthineers' customers described herein are based on results that were achieved in the customer's unique setting. Since there is no "typical" hospital and many variables exist (e.g., hospital size, case mix, level of IT adoption) there can be no guarantee that other customers will achieve the same results. This statement is from a person, who or whose institution is engaged in a collaboration with Siemens.

[4] Data on file

[5] https://timesofindia.indiatimes.com/india/knee-implants-to-cost-up-to-69-less-as-government-caps-prices/articleshow/60094167.cms

[6] Raju, Sharma, Editorial MAGNETOM Flash (78) 1/2021

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