

# MRI HANDBOOK

All you need to know about mri scanners

## Revolutionizing MRI

Innovative Approaches  
shaping the future  
of medical imaging

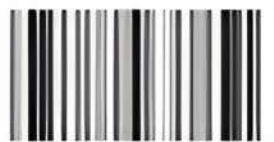


## Precision in diagnostics

Empowering  
healthcare with  
next-generation  
imaging technology

## Advanced Mri solutions

Discover how Sunrays  
is empowering  
healthcare with  
next-generation imaging  
technology





# Welcome

Sunrays Image Technology is India's leading provider of refurbished medical imaging equipment. Our mission is to make state-of-the-art medical technology accessible and affordable to healthcare institutions across the country.

# CONTENTS

## → MRI MARVEL

Understanding the powerful imaging tool transforming diagnostics..

## → MRI MACHINE NEED

Why every modern healthcare facility requires MRI technology.

## → CHOOSING THE RIGHT MRI

Key factors to consider when selecting the ideal scanner.

## → TROUBLESHOOTING MRI ISSUES

Essential tips to address common MRI scanner problems.

## → SIEMENS MRI COMPARISON

Evaluating Siemens' MRI models for optimal performance.

## → 1.5T VS 3T MRI

Comparing the strengths of 1.5T and 3T MRI systems.

## → MRI FUTURE TRENDS

Exploring innovations shaping the next generation of MRI technology.



# THE MRI MARVEL

## UNLOCKING THE POWER OF IMAGING

Magnetic Resonance Imaging (MRI) is a groundbreaking, non-invasive technique that has revolutionized medical diagnostics. By harnessing powerful magnetic fields and radio waves, MRI delivers exceptional clarity in imaging soft tissues, making it an indispensable tool for diagnosing a wide range of conditions without the use of harmful ionizing radiation. Developed in the 1970s and 1980s, MRI has quickly become a cornerstone in modern healthcare, with companies like Sunrays Image Technology playing a key role in making high-quality MRI systems accessible to hospitals and clinics. These high-resolution images are essential for diagnosing neurological, musculoskeletal, and cardiovascular diseases.

SUNRAYS IMAGE TECHNOLOGY

## UNVEILING THE INNER WORKINGS OF MRI TECHNOLOGY

An MRI machine relies on several critical components to produce detailed images. The main magnet generates a magnetic field up to 30,000 times stronger than Earth's, aligning hydrogen atoms for precise imaging. Gradient coils act as the system's GPS, pinpointing signal locations, while RF coils transmit and receive radio waves to gather raw data. The computer system processes this data into high-resolution images essential for diagnosis. Sunrays Image Technology ensures these components in refurbished MRI systems work seamlessly, providing reliable, high-quality imaging that remains a cornerstone of modern healthcare.

# MRI MACHINE NEED

SUNRAYS IMAGE TECHNOLOGY

**// MRI MACHINES ARE THE GATEWAY TO  
DEEPER UNDERSTANDING, ENABLING  
HEALTHCARE PROFESSIONALS TO SEE  
BEYOND THE SURFACE AND UNLOCK  
CRITICAL INSIGHTS INTO THE HUMAN  
BODY'S MOST COMPLEX STRUCTURES //**

## WHY SUNRAYS IMAGE TECHNOLOGY?

With years of experience and expertise, Sunrays Image Technology is a trusted partner for healthcare institutions looking to optimize their imaging capabilities. We understand the challenges of running efficient healthcare diagnostics and are committed to helping providers overcome these hurdles. Through collaborative problem-solving and a deep understanding of medical imaging, we deliver solutions that not only meet but exceed the expectations of our clients, allowing them to improve patient outcomes with high-quality MRI systems.



# THE MOST COMMON CHALLENGES IN MRI DIAGNOSTICS

Healthcare providers face various challenges when it comes to MRI diagnostics, and Sunrays Image Technology helps solve these issues with advanced solutions. MRI machines play a critical role in diagnosing a range of conditions, such as brain aneurysms, tumors in the brain and spine, and traumatic injuries to the spinal cord. These machines also provide valuable insights into nerve compression issues and can analyze the spine's structure for abnormalities. Furthermore, cardiac MRIs are essential for examining the anatomy of the heart, diagnosing cardiovascular conditions, and evaluating heart muscle damage after a heart attack. MRIs are also vital for congenital heart disease cases, offering detailed images of heart and vessel structures in both children and adults.



## TARGETED SOLUTIONS FOR MRI DIAGNOSTICS

### Body MRIs

MRI is essential for diagnosing various conditions. It accurately detects tumors in the chest, abdomen, and pelvis and helps diagnose liver and pancreatic diseases such as cirrhosis. It also identifies inflammatory bowel diseases like Crohn's and ulcerative colitis, assesses vascular malformations, and safely monitors fetal development during pregnancy.

### Bone and Joint MRIs

MRI is instrumental in diagnosing bone-related issues, including detecting bone infections such as osteomyelitis. It also helps identify abnormal growths or tumors within the bones. For spinal health, MRIs are used to evaluate disk abnormalities, providing clear insights into potential issues within the spine. Additionally, MRI scans are vital in diagnosing joint injuries, particularly those caused by trauma, offering a detailed view for accurate treatment.

# Choosing The Right MRI



Sunrays Image Technology offers  
high-quality, refurbished MRI  
systems that ensure reliability,  
performance, and exceptional  
patient care.

# 3.0T MRI

The 3.0T MRI system is a cutting-edge imaging tool that offers superior resolution and enhanced signal-to-noise ratio, making it the preferred choice for specialized imaging needs. It provides unparalleled detail for detecting small lesions, evaluating complex anatomical structures, and performing advanced techniques such as functional MRI and diffusion tensor imaging. The increased magnetic field strength also allows for faster imaging, improving patient throughput without sacrificing quality. Ideal for research and high-level diagnostics, the 3.0T MRI empowers healthcare professionals to achieve precise and accurate results.

Magnetic Field Strength	Coil Configuration	Applications
3.0 Tesla	Advanced multi-channel coils	Neuro, Cardiac, Oncology, etc.

# 1.5T MRI

The 1.5T MRI is widely regarded for its versatility and reliability in diagnostic imaging. It strikes an excellent balance between image quality and patient comfort, making it ideal for a broad range of applications, including musculoskeletal, neurological, and abdominal imaging. Its strong magnetic field enhances resolution and sensitivity, enabling the detection of subtle pathologies while minimizing scanning time. Additionally, the 1.5T system is compatible with a variety of advanced imaging techniques, providing clinicians with the tools needed for comprehensive patient assessments.

Magnetic Field Strength	Coil Configuration	Applications
1.5 Tesla	Multi-channel coils	Neuro, MSK, Abdomen, etc.



# Troubleshooting MRI

SUN RAYS IMAGE TECHNOLOGY

## **MRI Mastery:**

Ensuring your MRI runs at peak performance can be challenging. Sunrays Image Technology is here to help with practical solutions for common MRI issues.

## **Common Glitches:**

MRI machines encounter daily challenges that can disrupt operations. From image artifacts to power problems, we provide quick, efficient solutions to ensure smooth functioning.

## **EXPERT SOLUTIONS:**



At Sunrays Image Technology, we take pride in refurbishing Siemens MRI systems to the highest industry standards. Our rigorous refurbishment process guarantees reliable performance, longevity, and precision imaging. With a diverse selection of MRI machines, tailored to meet various clinical and budgetary needs, you can trust that we offer the perfect solution to elevate your diagnostic capabilities and patient care.

- **Cryogen Cool**
- **Tech Reboot**
- **Patient Ease**
- **RF Block**
- **Gradient Fix**
- **Energy Boost**
- **Scan Speed**
- **System Sync**





# THE ADVANTAGES OF REFURBISHED MRI MACHINES

At Sunrays Image Technology, we specialize in providing high-quality refurbished MRI machines designed to deliver exceptional performance and value. Our refurbishment process goes beyond cosmetic improvements like cleaning, painting, and replacing covers; it also involves functional enhancements, such as parts replacement and unlocking advanced features of the model.

With our refurbished systems, you benefit from increased security and enhanced scanning quality at a fraction of the cost.



1.2M+

Medical scans performed

15+

Years of experience

380+

Service Maintenance Contracts

50+

Specialized service engineers.

99.9%

Customer satisfaction rate





# 1.5T vs 3T MRI

## Choosing the Right System for Your Needs

**“1.5T vs 3T MRI: Choosing the Right System”**  
**At Sunrays Image Technology, we offer both 1.5T and 3T MRI systems to meet diverse imaging needs. The 1.5T MRI is ideal for routine scans, offering excellent image quality and patient comfort at an affordable price. The 3T MRI provides higher resolution and faster scans, perfect for detailed imaging in complex cases like neuro and cardiac assessments. Whether you need cost-effective reliability or cutting-edge precision, we have the right refurbished MRI solution for you.**

Magnetic Field Strength	1.5T	3.0T
Image Resolution	Moderate image resolution	Higher image resolution and detail
Scan Speed	Generally slower scan times	Faster scan times due to higher SNR
Signal-to-Noise Ratio (SNR)	Lower SNR, which can affect image clarity	Higher SNR, resulting in clearer images
Safety and Comfort	Fewer concerns with magnetic field interactions; less intense noise	Increased acoustic noise; possible peripheral nerve stimulation; careful with certain implants
Cost and Maintenance	Less expensive to purchase and maintain	More expensive in terms of purchase and maintenance

# OBJECTIVES

## Developments in MRI Technology

Our project objectives for MRI technology advancement focus on the latest innovations that are transforming medical imaging and patient care:

01.

### Enhancing Magnetic Field Strength:

---

Develop and implement higher field strength magnets (7T and beyond) to improve image resolution and diagnostic accuracy. Ensure that the technology supports better clinical outcomes and aligns with industry advancements.

02.

### Advancing Imaging Techniques:

---

- Introduce faster imaging techniques to reduce scan times and enhance patient comfort.
- Improve diagnostic precision with cutting-edge methodologies in imaging.

03.

### Leveraging Artificial Intelligence:

---

- Utilize AI for image reconstruction and analysis to streamline workflows and improve diagnostic capabilities.
- Incorporate machine learning algorithms to enhance image quality and accuracy in medical interpretations.

04.

### Expanding MRI Applications:

---

Support MRI-guided interventions and surgeries to broaden the use of MRI in real-time medical procedures. Enhance the efficacy and safety of these procedures through precise imaging guidance.



## OUR VALUES

---

### **INNOVATION:**

We're driven by innovation in healthcare, pioneering advanced refurbishment techniques and delivering cutting-edge equipment to be the standard of care.

### **AFFORDABILITY WITH QUALITY:**

We're committed to bringing advanced medical tech to all. Through affordable, high-quality solutions, we empower healthcare providers to elevate services and improve outcomes..

### **INTEGRITY & TRANSPARENCY:**

At Sunrays, integrity and transparency are fundamental. We prioritize honesty in all dealings, building trust with clients, partners, and employees through ethical practices..

### **RELIABLE CUSTOMER SUPPORT:**

We pledge unwavering customer support for our equipment's entire lifecycle. Sunrays is dedicated to delivering responsive, reliable service to our clients.



**Ravi Rulania**

Managing Director of  
Sunrays

## OUR MISSION

---

Empowering healthcare accessibility through affordable and innovative refurbished medical equipment. Sunrays Image Technology Pvt Ltd is dedicated to ensuring quality diagnostics for all.

## OUR VISION

---

Through innovation, transparency, and a commitment to social responsibility, we empower medical professionals to deliver superior healthcare services, particularly to underserved communities, ultimately contributing to a healthier and more equitable society.



INNOVATION  
PRECISION  
QUALITY  
RELIABILITY  
SUPPORT



**"Sunrays Image Technology: Delivering accessible,  
innovative, and reliable MRI solutions for superior care."**

**SUNRAYS  
MEDICAL**