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AIRIS Vento

Advanced Open MRI



HITACHI

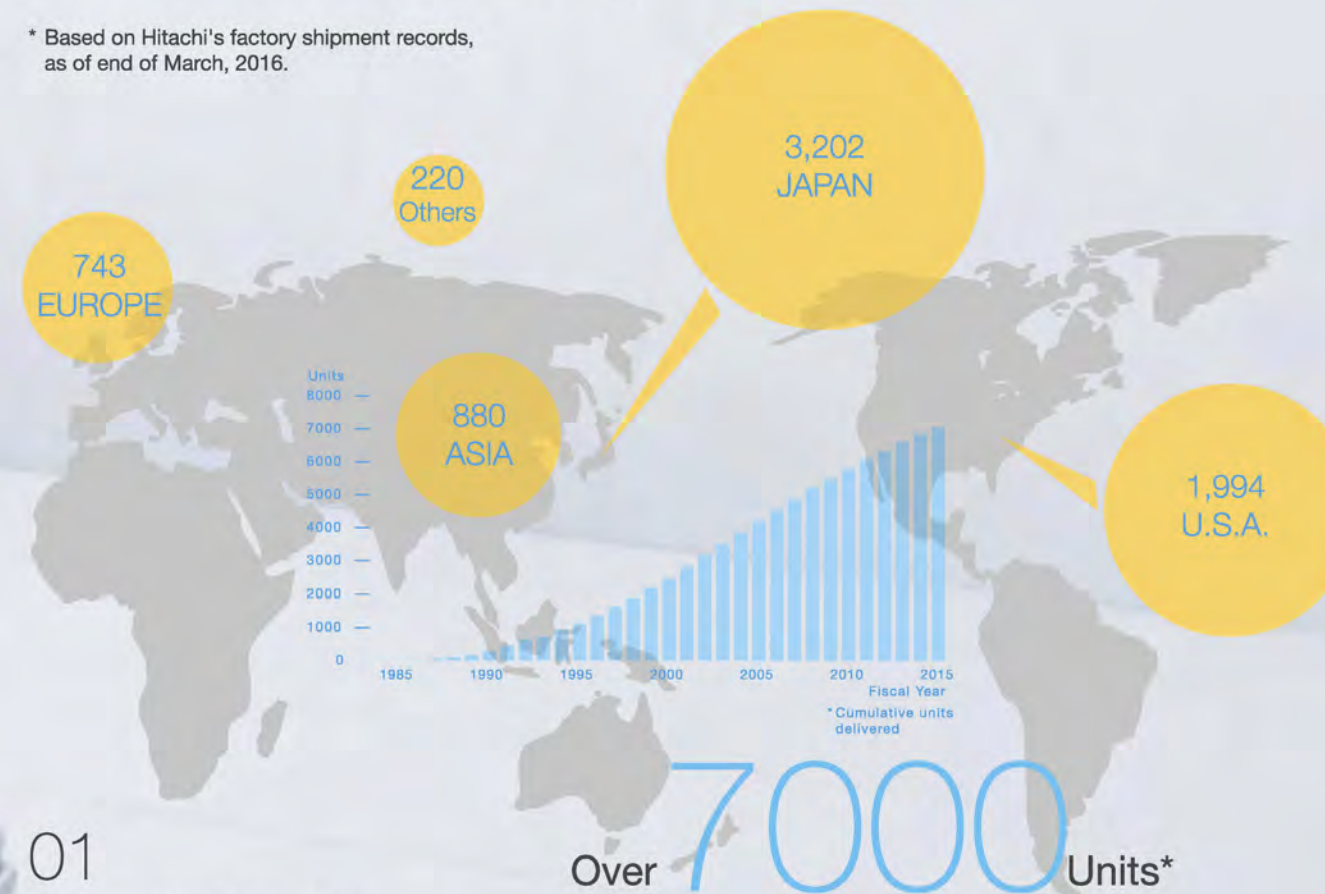
Inspire the Next



WHY CHOOSE HITACHI?

For more than 30 years, Hitachi has been leading the way in Open MRI.
With more than 7,000 systems delivered worldwide*,
Hitachi is at the forefront of MRI technology.

* Based on Hitachi's factory shipment records, as of end of March, 2016.



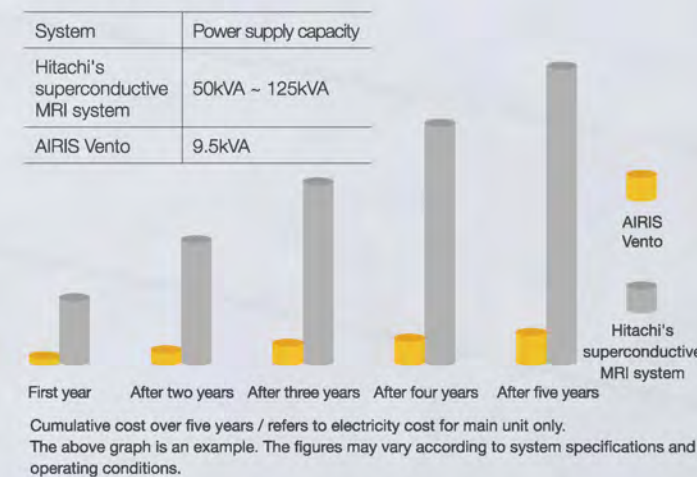
01

Making MRI Affordable

Low running costs together with an attractive initial investment accelerate your MRI business and offer an excellent return on investment

In permanent magnet Open MRI technology, the magnetic field barely changes over the lifetime of the system. Unlike superconductive MRI, there is no need for additional equipment and infrastructure in order to maintain the magnetic field, thereby keeping costs low.

A low capacity power supply means the initial power system costs can be kept to a minimum and lowering energy consumption reduces monthly running costs, too. The AIRIS Vento does not require a gradient cooling system negating the need for a complex and costly infrastructure and the installation area can be minimized as a result.

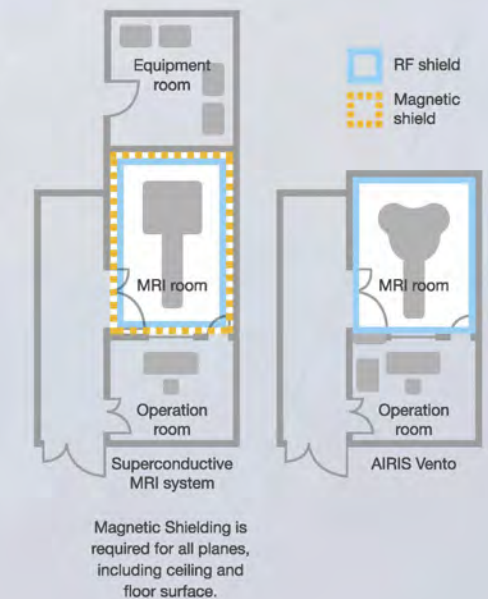


02

Ease of Installation

Reduced construction costs with easy siting

MRI installations usually include two types of shielding: RF shielding to block any high frequency noise from the outside and magnetic shielding to suppress leakage of the magnetic field from the inside. However, a permanent magnet MRI system generally does not require any specific magnetic shielding, so the cost of construction is reduced. Removing many of the construction processes usually associated with superconductive systems results in faster and easier installation ensuring your Open MRI is up and running in a shorter timeframe.

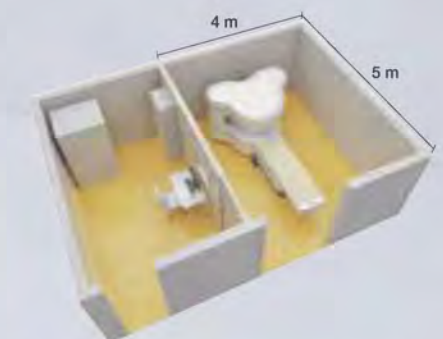


03

Small Footprint

AIRIS Vento's compact design significantly reduces the space required for installation

AIRIS Vento consists of three main units: the gantry, console and power supply system; fewer than its superconductive counterpart. The magnetic field leakage is also kept low, and in turn, the imaging room can be small. As an equipment room is unnecessary, the overall footprint is reduced and the space saved can be used for other purposes.

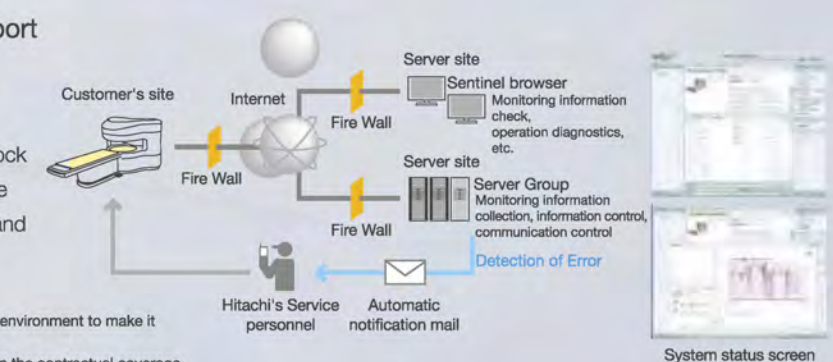


The area for standard layout of scan room is 5 m x 4 m. Actual layout will vary according to installed environment.

Open Your Vision,
Make a Smart Choice.

Sentinel Customer Support

This ensures that your system is kept running smoothly and efficiently through round-the-clock monitoring. It provides proactive first class reliability for stability and maintenance.



Users are required to set up their network environment to make it compatible with Sentinel. The level of service may vary depending on the contractual coverage.

AIRIS Vento has been created to offer a complete MRI solution around a flexible design concept for limited spaces, whilst also achieving excellent image quality, ease of operation and patient comfort. With AIRIS Vento's truly open design, Hitachi is leading the way in Open MRI.

Operation

Efficient Operation

One of the important challenges in MRI is improving throughput. Ease of operation together with image sharing capabilities enhance workflow and support efficient and reliable diagnosis.



Enhanced operability to support efficient and reliable diagnosis, including ease of operation and image sharing.

Operation made more efficient

Technology

High Precision Imaging

One of the most significant factors required for high definition imaging relies on the performance of the magnetic circuitry. Hitachi's magnetic circuit technology and unique diagnostic functions enable imaging of body regions that can frequently be challenging in conventional MRI systems.

Design

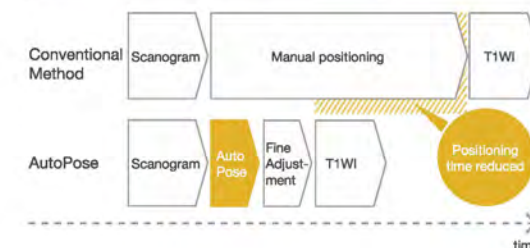
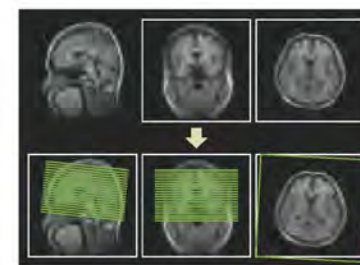
Designed for Comfort

MRI examinations are known to be time-consuming and easily affected by motion artefacts. To acquire high-quality images, a comfortable and relaxed examination environment is essential. The wide open gantry and compact gantry design of AIRIS Vento reduces anxiety and provides patients with a high degree of comfort during MRI examinations.

AutoPose*1

Supports correct image cross-section settings and reduces strain on the operator

AutoPose is a function that automates slice line positioning. This function allows faster set-up of the OM or AC-PC lines used in head examinations and reduces strain on the operator. Prior settings such as teach/register and 3D data acquisition are not required.



Unified, eye-friendly colour to minimize eye strain

A user interface that is easy to understand and operate

A soft celadon-based colour set has been adopted for the GUI (Graphical User Interface). MR imaging parameters that can be complex are more easily displayed on the Windows-based wide screen.



Customization of Protocols

Supports efficient registration and alteration of protocols

Routine protocols can be easily registered and changed by the operator, even during the examination, to optimize the settings according to the patient and clinical requirements.



User Interface (UI) Suggestions

Supports alteration of imaging parameters

This function provides guidance for parameter settings. During protocol change, several options are displayed to allow the operator to select the parameter most appropriate for that particular scenario.



DICOM Function

Offers various interfaces

The DICOM interface is included as standard in the AIRIS Vento which adapts to the hospital's current networks and will continue to evolve and upgrade over time. DICOM MWM, SWF, and PIR functions are also supported.

Curved MPR

Reconstruction capability of various cross-sectional images from 3D image data

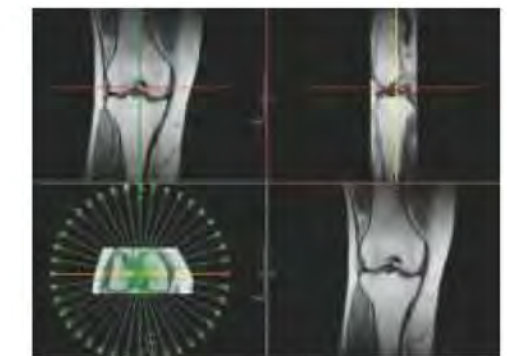
Arbitrary curved cross-sections can be reconstructed using data acquired through 3D imaging sequences. In addition, multiple curved-sections can be reconstructed simultaneously.



Radial MPR

Offers simultaneous image reconstruction of multiple cross-sections

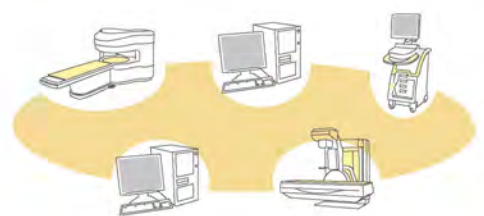
Radial MPR images are created which can be useful when diagnosing complex structural tissue such as that found within the knee joint.



IHE PDI Function

Extensive coordination for compatibility with the hospital's in-house and external network systems

Support for the IHE PDI standard is provided to enable various data exchanges, such as image zoom and rotation display, with other systems supporting the PDI standard. Ability to write DICOM data and simple browser software*2 to a CD-R are also included.



■ RADAR*

Motion reduction capability

RADAR uses radial scan technology to mitigate motion artefacts caused by voluntary or involuntary patient movement. It is available with T2WI, T1WI and FLAIR imaging in any plane and any anatomical region including the head and shoulder joint, which are susceptible to respiration movements, and the cervical spine, which can be affected by swallowing movements. RADAR can help reduce repeat scans and improve image quality.

■ 3D-GEIR*

Acquire high contrast 3D sequences at high spatial resolution

This function offers high-speed T1WI by combining Gradient Echo sequences with IR pulses. This allows high contrast 3D images to be acquired at high spatial resolution which can be used for measurement of volume data when imaging the head.

■ VASC-ASL*

Non-contrast MR Angiography

VASC-ASL is a non-contrast MRA imaging function that uses 3D BASG (Balanced SARGE) to visualize the blood flow labelled with IR pulses. This function is used to produce images of portal veins, renal arteries, and upper and lower extremity arteries.

■ VR (Volume Rendering) Function*

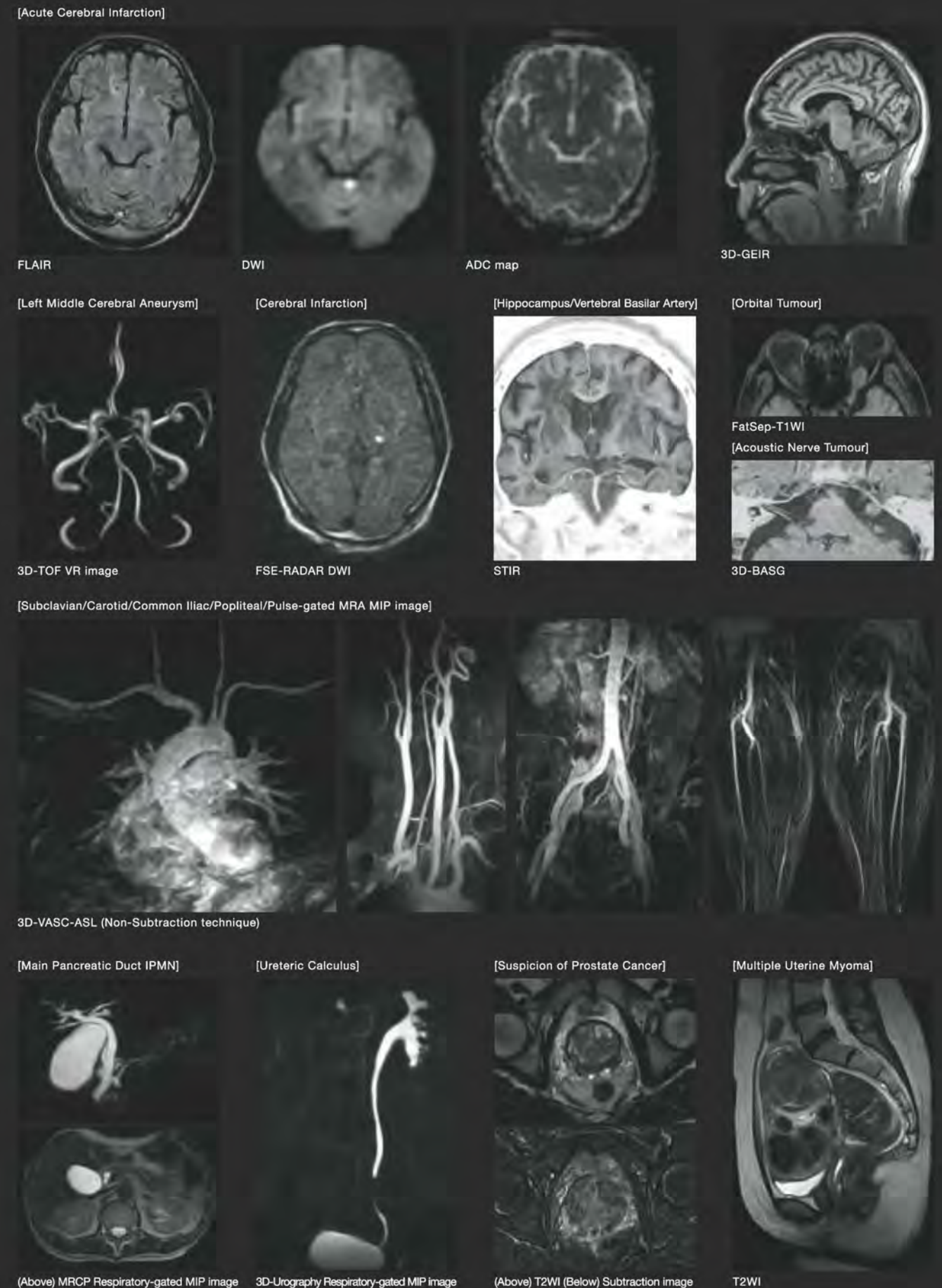
Supports diagnosis of complex vascular structures

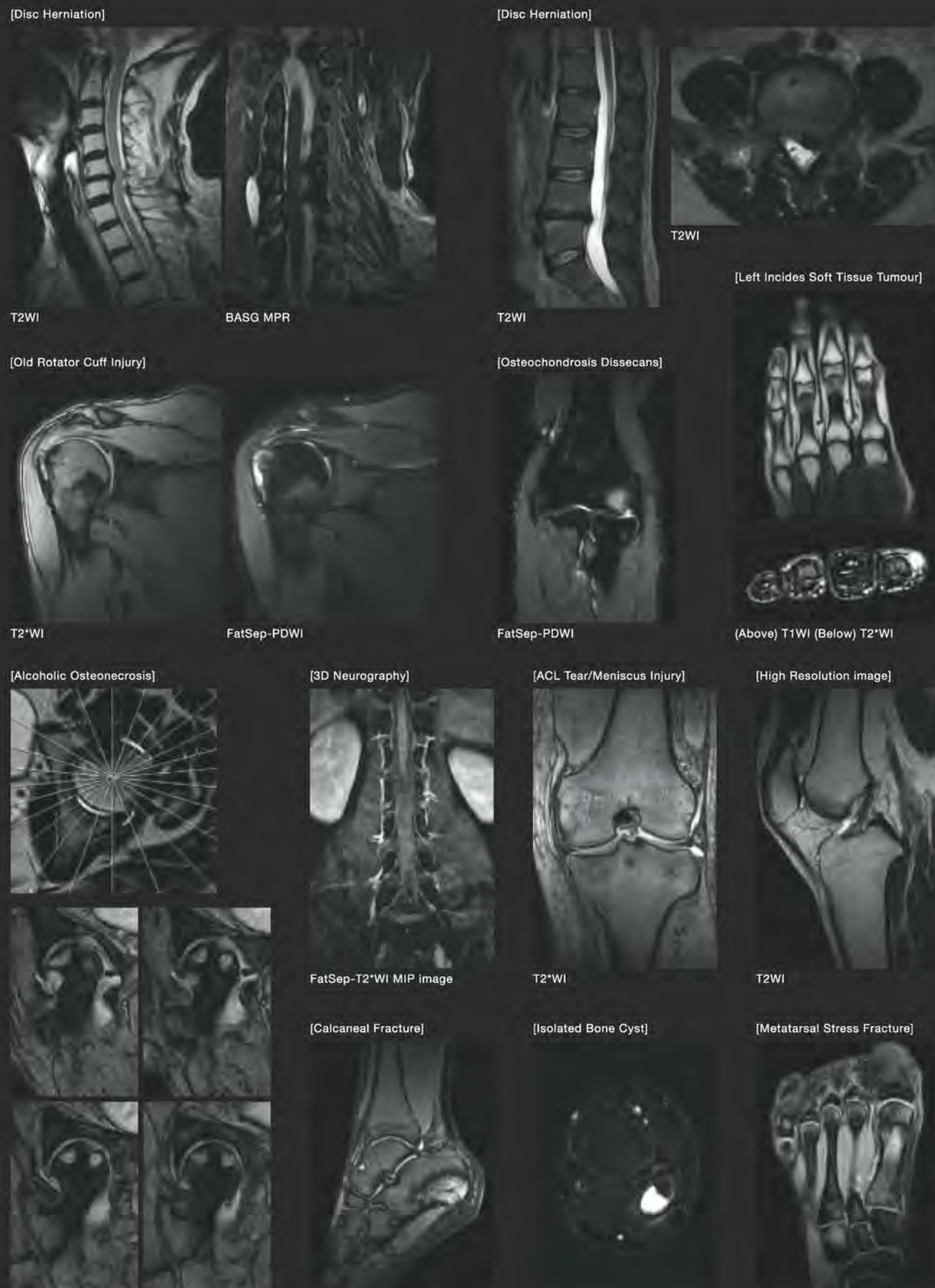
Volume rendering, a reconstruction method, can be created at the console. Blood flow can be depicted in 3D using MIP, providing diagnostic support in regions with complex vascular structures such as the head.

Hitachi technology group know-how improving image quality



*Option





Strengthening technological capabilities

Hitachi's unique magnetic circuit technology combined with advanced diagnostic functionality enable sharper, higher definition imaging of challenging body regions.

■ SuperShim

Reduces magnetic field non-uniformity which cannot be corrected with primary shimming

SuperShim is a technology that increases the uniformity of the static field, which is of paramount importance in MRI. Non-uniformity in the magnetic field cannot be fully corrected with first order shimming which performs linear correction. SuperShim is provided to reduce non-uniformity in the magnetic field by enabling high order shimming.

■ FatSep Function

Provides fat suppression imaging with high SNR

FatSep (fat water separation) enables imaging at different TEs to acquire in-phase and out-of-phase images simultaneously. The two types of images are added to form fat suppressed images. Through this additional process, FatSep provides fat suppressed images with a good SN ratio and clarity. It can also provide a Fat image through a subtraction process.

■ High Reconstruction Matrix Imaging

Supports high-definition imaging

This function enables high spatial resolution imaging resulting in higher definition images of joint regions as required for orthopaedic examinations. An image reconstruction matrix of 2048 x 2048 is achieved through the high-speed imaging processor.

■ High Sensitivity Receiver Coils

Especially effective for images with a small FOV and high spatial resolution

Regions that require a small FOV and high spatial resolution, as in orthopaedics, need higher sensitivity receiver coils. The solenoid coil adopted in the AIRIS Vento delivers this high sensitivity. The small diameter coil is tailored to fit the body and the target region is easily positioned to the centre of the coil where sensitivity is at the highest.



Open design- patient comfort

The AIRIS Vento offers an expansive, panoramic open aspect designed to reduce patient anxiety and provide a comfortable examination environment.

■ Lateral Slide

Enables high-definition imaging even in off-centered regions

In MRI, the highest image definition is obtained at the centre of the gantry where the uniformity of both the static field and RF field is at a maximum, in conjunction with the highest linearity of the gradient magnetic field. AIRIS Vento's table can be moved laterally (right and left) inside the gantry. Therefore, any region that is out of the midline (shoulder, knee, etc.) can be centralized to the magnetic field.



■ Free-moving Table

Designed for comfort, accessibility and isocentric imaging

The lateral slide function allows the free-moving table to move right and left inside the gantry and the target region can be positioned easily in the centre of the magnetic field. The table can be lowered to a minimum height of 490 mm, allowing easier accessibility for children and elderly patients. The 700 mm wide table top offers patients both comfort and a 'feel-good' factor, helping to reduce claustrophobia.



AIRIS Vento's wide open design offers extraordinary comfort within a calm scanning atmosphere for a patient-friendly experience, relieving anxiety and reducing feelings of claustrophobia. Friends or relatives can accompany the patient, offering reassurance throughout the scan.

■ Footswitch

Allowing the operator to focus on the patient

The footswitch enables hands-free control of the table in the vertical and horizontal direction, allowing the operator to focus on patient care.



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