DISCLAIMER
Some products and features described here are optional and not commercially available in all countries. We cannot guarantee that the system and all of options are available in all area due to regional restrictions. Please contact your local Toshiba sales representatives for the most current information.

Made for Life™

TOSHIBA MEDICAL SYSTEMS CORPORATION
http://www.toshibamedicalsystems.com

MCAMR0080EA 2013-12 TME/D

Toshiba Medical Systems Corporation meets internationally recognized standards for Quality Management System ISO 9001, ISO 13485.

Toshiba Medical Systems Corporation Nasu Operations meets the Environmental Management System standard ISO 14001.

Printed in Japan

TOSHIBA
Leading Innovation

Premium 1.5T MRI System

Vantage Elan

Maximum Patient Throughput

Rapid examinations can be performed while maintaining outstanding image quality expected from a high performance 1.5-T MRI.

Ease of Use

Intuitive software allows even a new operator to acquire excellent image quality every time.

Patient Friendly Environment

A comfortable examination environment for all types of patients.

High image quality
Smaller installation space
Quiet
Comfortable scanning environment

Vantage Elan provides all of these while saving you money

No Compromise MRI is a Reality with

Vantage Elan™

Next Generation 1.5-T MRI system

Next Generation 1.5T

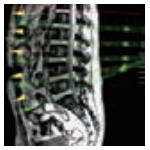
Better Image Quality for All of Your Patients

Optimal diagnostic images for any part of the body

Slice images and desired planes can be generated from a volume image acquired in 3D imaging. 3D rendering produces a range of image types required for diagnosis.

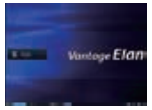
Next-generation of clinical applications from Toshiba, the leader in non-contrast-enhanced MRI

Vantage Elan incorporates our advanced techniques to visualize hemodynamics with non-contrast-enhanced imaging, eliminating the risk of allergic reaction to contrast medium. All vascular examinations, from initial diagnosis to follow-up examinations, can be repeated as many times as needed without safety concerns. This technique expands the capabilities of MRI diagnosis while increasing safety for your patients.



EasyTech will help to select the correct imaging planes

Scan positioning in MRI has long relied on the experience and knowledge of the operator. EasyTech locates anatomical landmarks of the targeted region, regardless of the patient's body size or gender, and provides quick and highly accurate positioning.



M-Power™ - Toshiba's User-friendly interface

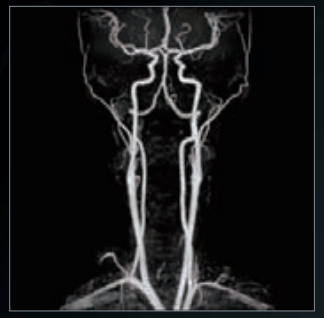
Toshiba's M-Power provides an easy-to-view interface and intuitive operation corresponding to clinical workflow requirements. Our interface unifies operational functionality for Toshiba imaging modalities, enabling efficient operation of diagnostic imaging systems.

Image Gallery

Toshiba's State-of-the-art imaging technology supports a full range of examinations, from screening to follow-up.

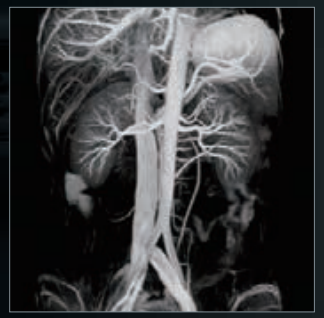
Non-contrast MRA

A complete suite of non-contrast MRA techniques can fully meet the clinical requirements needed for vascular imaging. These techniques minimize risk to patients while producing exceptional images.



TOF MRA

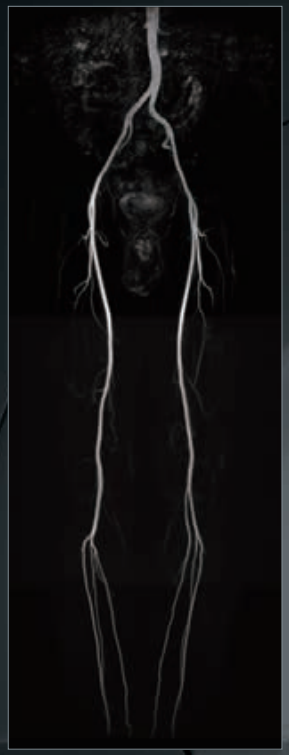
Covering a wide range of anatomy within a short scan time.



Time–SLIP

(Time-Spatial Labeling Inversion Pulse)

The combination of a high temporal resolution and the ability to freely set the tagging pulses allows to selectively visualizes target vessels.

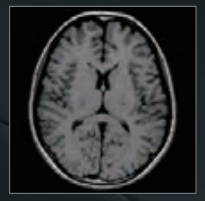


FBI (Fresh Blood Imaging)

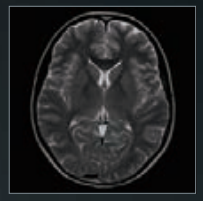
Both arteries and veins can be depicted in images acquired during diastole, while the veins are dominant in images acquired during systole. FBI utilizes this difference to depict target vessels separately.

mNeuro

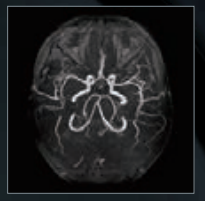
Vantage Elan minimizes scan time for routine neuro examinations while Toshiba advanced techniques provide high image quality.



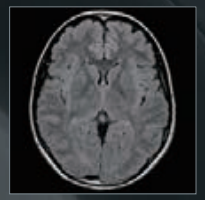
T1WI 01:13



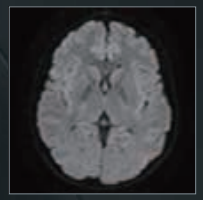
T2WI 00:33



MRA 02:19



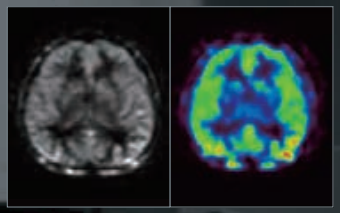
FLAIR 00:59



DWI 00:30

Carotid MRA 00:52

Total Exam Time 06:26



3D ASL

Perfusion- weighted images can be generated without contrast medium. Semi-quantifiable analysis is available.

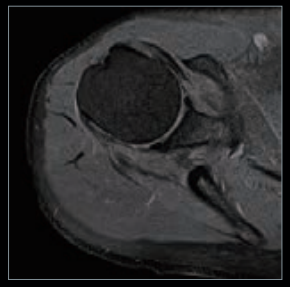
DTT and FSBB (Flow Sensitive Black Blood)

Fiber tracking is available on console. FSBB shows details of arteries and veins in addition to T2* contrast, depicting more detailed vessels which cannot be acquired by TOF.

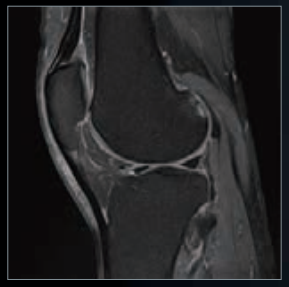
Image Gallery

mOrtho

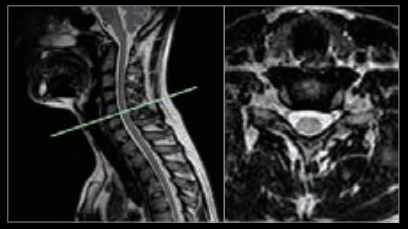
Together with advanced high-sensitivity RF coils, Vantage Elan provides excellent image homogeneity with high spatial resolution for orthopedic examinations.



Shoulder PDWI with Fat SAT



Knee PDWI with Fat SAT

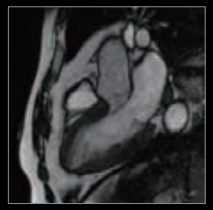


C-Spine T2WI

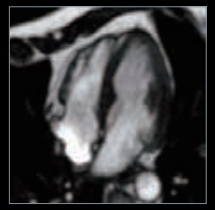
3D post-processing in any plane makes diagnosis much more flexible while saving time.

mCardiac

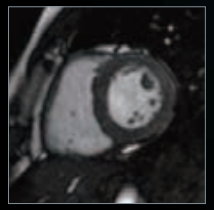
Clinical cardiac imaging performed with ease on the Vantage Elan system.



Three chamber view



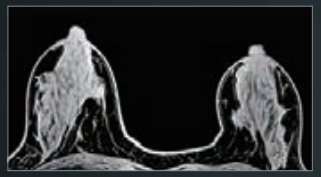
Four chamber view



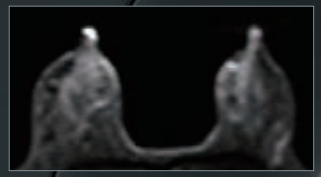
Short axis

mBreast

The combination of uniform field homogeneity and Toshiba's original fat suppression technique provides high-quality fat-free images.

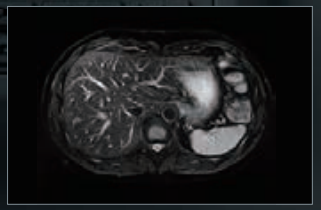


T1WI with Enhanced Fat SAT



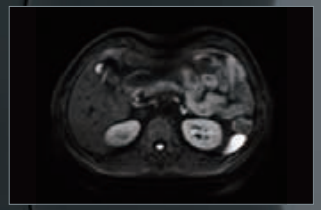
DWI with SPAIR Fat Saturation pulse

mBody



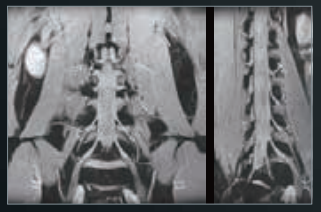
Abdomen T2WI with JET

JET effectively suppress motion artifacts, which is useful for many examinations.



Abdomen DWI with SPAIR Fat Saturation pulse

With high SPEEDER factor, high-quality image with less distortion can be acquired.



MR Myelography

Acquiring images of nerve root without contrast medium is available. 3D post-processing in any plane makes diagnosis much more flexible while saving time.

MRCP

2D RMC (Real-time Motion Correction) enables MRCP examinations with free-breathing in a short time, providing high image quality and reproducibility.

Achieving High Image Quality

Both Toshiba's innovative hardware and software technologies support to acquire outstanding image quality.

Our design concept for Vantage Elan supports Toshiba's commitment to excellent image quality

High Image Quality in a Compact System

To achieve these conflicting challenges, Toshiba has developed a range of innovative technologies for Vantage Elan.
The most up-to-date technologies have been applied, especially to magnetic field control, which is the key to high image quality.
Vantage Elan achieves excellent imaging performance in a compact 1.5-T MRI system.

Reason 1
Higher Quality Magnet

Reason 2
Gradient Coil Design

Reason 3
Integrated RF coils

Achieving High Image Quality

Toshiba's original advanced hardware technologies enable to acquire excellent image quality.

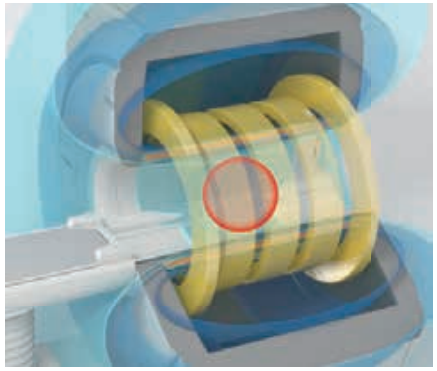
Reason 1

Higher Quality Magnet

The newly-developed Advanced Magnet system ensures a highly homogeneous static magnetic field

The quality of MR images is dependent on the homogeneity of the static magnetic field generated by the superconducting magnet. Toshiba has developed the Advanced Magnet system, a key technology which generates a highly homogeneous static magnetic field and ensures a wide scanning range and stable image quality.

Conventional



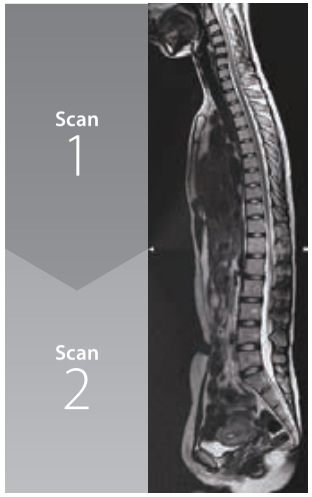
Vantage Elan

Outstanding magnet characteristics enable whole-spine imaging in two scans

With the Advanced Magnet system, it is possible to acquire data for a range of 50 cm in the body-axis direction and 55 cm in the width and thickness directions in a single scan. This is advantageous in whole-spine imaging, which can be performed in just two scans, making spinal examinations easier.

Off axis imaging proves the high performance of our magnet

If the static magnetic field homogeneity is low, the quality of the offset imaging is difficult. However, Toshiba's high-performance magnet provides highly detailed images for off-center regions of the body.

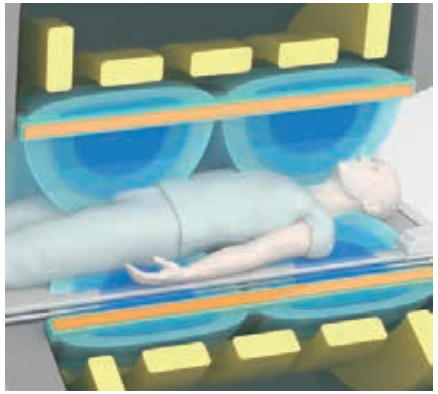


Reason 2

Gradient Coil Design

Toshiba's Advanced Shielded Gradient Coil generates the most uniform gradient parameters

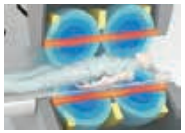
The performance of the gradient coil significantly affects image quality. Our Toshiba Advanced Gradient Shielded Coil System with a completely new concept, which replaces the conventional short gradient coil. Our new gradient coil minimizes eddy currents and this results in clearer patient images.



Vantage Elan

High performance comes from a micron-level cutting technology

Toshiba has developed unique gradient coil cutting technology that cuts high-purity copper ingots into 3D shapes at the micron level. This technology ensures excellent stability and highly effective eddy current suppression.



Conventional

Reason 3

Integrated RF coils

Toshiba's unique RF technology transmits high-precision images with minimal noise

The RF technology employed in Vantage Elan accurately receives the faint MR signals from the human body, amplifies and then transmits them while suppressing noise. This contributes to high image quality.

The RF coil amplifies the MR signals immediately after it receives them. Amplification of the MR signals immediately after reception allows high signal intensities to be achieved before they are affected by noise. These high signals are then converted by direct digitization to make the MRI images.

Multi-Channel RF System supports Parallel Imaging for fast scanning

Vantage Elan employs Octave SPEEDER™ coils, which optimize the aperture and arrangement of the receiving elements according to the patient's body size and the size and location of the target organ. Octave SPEEDER coils accurately receives the faint MR signals emitted from deep regions of the human body. They are easy to position, helping reduce stress to the patient, improving throughput, while providing excellent image quality.

Octave SPEEDER Head

Octave SPEEDER Spine

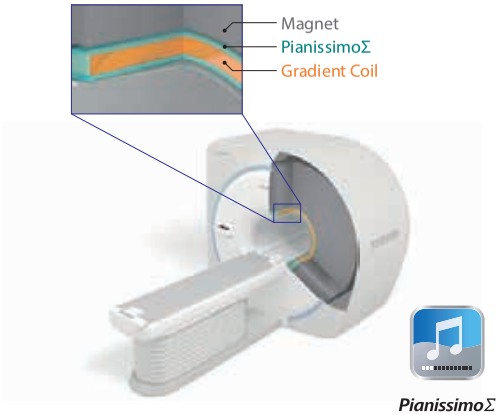
4ch Flex SPEEDER

Improving the Patient's Environment

Vantage Elan is designed for maximum comfort for your patients.

Pianissimo™ Σ, Toshiba's unique silent scanning technology, enables quiet MRI examinations

The sound generated during MRI scanning is caused by the vibration of the gradient coil.
Pianissimo Σ reduces the noise level significantly in all types of scanning and provides quiet examinations for patients.



PianissimoΣ

Octave SPEEDER coils reduce examination time and the stress on patients

Vantage Elan uses a combination of Octave SPEEDER Head and Octave SPEEDER Spine.
An optional tilting device is available for the head coil. The tilting device allows elderly patients who are unable to lie on their back with their neck held straight to be scanned in comfort. It is also possible to set the coil elements for the neck section flexibly to conform to the shape of the neck, which varies from patient to patient.

Standard Head Examination

Examination with Adaptive Tilting Device

Feet-first examination

Thanks to ultra-short magnet, patients can have their examinations in the most relaxed positions.

Knee Examination

Abdomen Examination

Ease of Use

M-Power helps you navigate effortlessly through each step of the study. It provides intuitive operability for any level of the operator.

Empower you to do more

M-Power

With ultimate ease of use, M-Power guides user operation according to the workflow, from patient registration to image reconstruction and transfer. A wide variety of applications can support scan positioning and parameter settings, increasing operational efficiency. Formerly, these were dependent on the operator's knowledge and experience, requiring complicated and time-consuming image processing.

Examination flow	M-Power features	
Registration	DirectPAS	Registrating patient information and scan settings in advance
	Registeration for extended period	Able to set registeration six months ahead
Scan	Atlas Compass	Automatically setting coil elements
	Scan Offset	Moving patient table from operator room
	mTool bar	Frequently used scan tools can be optimally customerized
	EasyTech	Automatically setting scan planes
	Waveform display	Displaying gating infromation on console
	Operation mode	Switching of operation modes is available
	InScan	Automatic post-processing after scan and reconstruction
Result	AutoView	Displaying acquired images in real time
	AutoTransfer	Automatically transfer acquired images to the network

DirectPAS facilitates efficient examination scheduling, including patient registration and setting of scan conditions

Orders for MRI examinations can be obtained from the hospital information system using DICOM MWM. The anatomical region to be examined and the protocols to use can be registered in advance.

Atlas Compass simplifies routine examinations

The system automatically recognizes and selects the coil elements that most efficiently should be used during scanning. This facilitates quicker routine examinations.

EasyTech supports scan positioning and setting of scan conditions

EasyTech assists scan positioning and condition setting to insure that the optimal positions and conditions will be easily set by any user. Previously parameter settings differed among operators and this resulted in differences in vascular visualization. EasyTech includes DelayTracker, which assists scan condition setting for FBI, and NeuroLine, which assists scan positioning for brain imaging.

InScan enables one-stop setting of scan and analysis conditions

You can set the scan conditions and then the analysis conditions based on the scan result at the same time. Processes from scanning and reconstruction to analysis, which previously required separate steps, can be executed automatically. This streamlines the examination process.

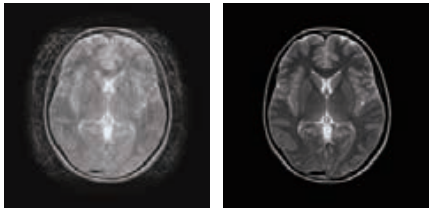
Insuring Diagnostic Quality

Cutting-edge clinical software further improves the quality of diagnosis.

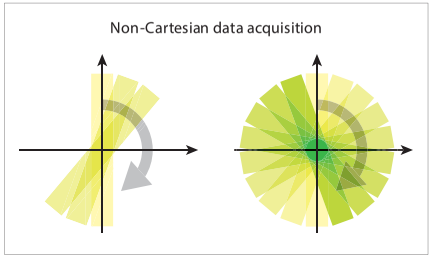
Scanning with motion correction

JET™

In JET scanning, data in the k-space is acquired in radial mode. By acquiring data for the central part of the k-space repeatedly, motion artifacts can be suppressed. In addition, this application analyzes the motion of the scan target region and corrects for it in postprocessing. JET suppresses motion artifacts in scanning of regions with respiratory motion and peristaltic motion, or scanning of patients who cannot remain still.



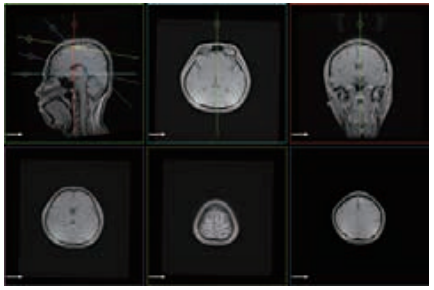
JET OFF | **JET ON**



Fast, highly precise scan positioning

NeuroLine

NeuroLine automatically measures and analyzes the shape of the brain, determines the optimal slice position in each plane, and displays them within seconds.



SpineLine

Generally, in spinal examinations, the reference line for the AX plane is manually drawn parallel to the target intervertebral disc or vertebral body. SpineLine automatically measures and analyzes the shape of the spine, determines the positioning ROI in each plane, and displays them within seconds.

Using Your Money Wisely

This extremely compact system reduces both construction and operating costs which saves you money.

A minimum footprint of 23 m², the smallest in its class

In addition to the reduced system size, the installation method, cooling method, and control cabinet have been innovatively redesigned. Vantage Elan does not require separate computer room. The overall installation area is approximately 29% smaller than previous 1.5T systems.

*The minimum footprint may not be applied to some cases depending on each site situation.

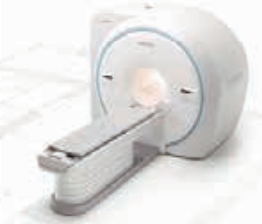
Energy-saving design reduces power requirements by 68%*

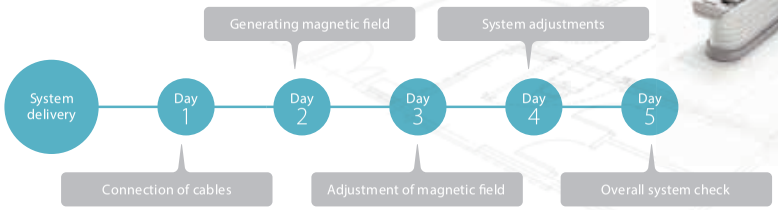
A significant reduction in power requirements leads not only to reduced running costs but also to lower installation costs for power supply facilities and less construction work. Vantage Elan provides cost reduction over the entire life cycle of the system.

*Comparison with Toshiba conventional system.

Rapid installation time
Installation completed in as little as 5 days

With a new installation, you can start using the system in as little as 5 days after delivery. Downtime in installation work can be minimized.





*This installation schedule is a standard schedule for the system and may vary depending on site situation and progress status of the installation.

Friendly to Your Patients and Our Environment

Eco mode keeps running costs down and contributes to environmental conservation.

TOSHIBA eco style

Total power requirement of 25 kVA, the lowest in this class

Vantage Elan has achieved a substantial reduction in power consumption through optimization of the gradient system which typically consumes a lot of electric power, integration of electronic components, and improvement of the chiller. The power capacity required for the entire system including the refrigerator is 25 kVA. This results in significantly lower running costs.

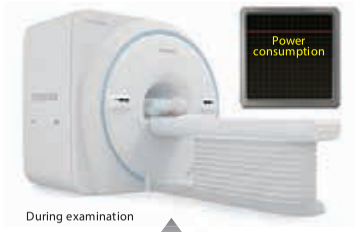
Our Highest Priority is Patient Comfort

Toshiba's Vantage Elan, close attention is paid to the MRI examination environment for the patient.
With the capability to apply non-contrast-enhanced examinations to a wide range of body regions, the risk of allergic reactions to contrast medium is reduced.
In MRI examinations, the patient's cooperation is essential, and it is important to eliminate psychological discomfort and help the patient relax. Vantage Elan, with Pianissimo Σ silent scan technology, provides a comfortable examination environment and extends the range of applicable patients.

Pianissimo Σ

Substantial reduction in power consumption with Eco mode
Recovery from Eco mode within 1 second

Vantage Elan comes with Eco mode, in which the system enters standby when the couch is lowered, and other measures which allow operators to save energy automatically. The maximum power consumption is approximately half that of previous models and this contributes to cost reduction and environmental conservation. The system can recover from Eco mode within 1 second to be ready for scanning, quick enough to cope with even emergency patients and unscheduled examinations.



During examination

After examination (ECO mode)