

“C” Shape Super Open Permanent MRI System
Model: i_open 0.36T



CONFIGURATION

Number	Description	Quantity	
HARDWARE			
1	C shape super open permanent magnet	1	
2	X、Y、Z active shield gradient coil set	1	
3	Gradient amplifiers for X, Y and Z axes	1	
4	QD Flat transmitting coil	1	
5	RF power amplifier with peak power of 6kW	1	
6	Quadrature receiving coils	Quadrature head coil	1
		Quadrature neck coil	
		Quadrature body and spine coil (medium size)	
		Quadrature knee coil	
		Build-in preamplifier	
		Auto tuning	
7	Console	Pulse generator system	1
		Gradient control system	
		Data acquisition and processing system	
		Second stage preamplifier	
8	Workstation	TFT-LCD monitor for medical	1
		CPU \geq 2.8GHz XEON	
		Memory \geq 1G bytes	
		Hard disk \geq 160G bytes	
		Ethernet card	
		USB standard keyboard	
		USB optical mouse	
Windows TM XP professional			
9	Printing module (DICOM3.0)	1	
10	Supporting system	Filter panel	1
		Filter set	1
		Connecting line sets	1
11	Standard phantom	Large cube phantom	1
		Small cube phantom	
		Large cylinder phantom	1
		Small cylinder phantom	1
12	Laser position system	1	
13	Cover & Shell	1	
14	Patient table	1	
15	Patient cushion	1	

16	Operating table	1		
17	Dual-way communication system	1		
18	Receiving coils interface	1		
19	Gradient hydrocooling system	1		
SOFTWARE				
20	System software	Scanning control software	1	
		Image reconstruction software		
		Image processing software		
		Image analyzing software		
		Image format conversion software (DCM, BMP, etc.)		
		Image view software		
		Real-time printing software		
21	Pulse sequence		1	
	Spin Echo	Scout image with Spin Echo		
		T1 weighted image with Spin Echo		
		Proton density weighted image with Spin Echo		
		T2 weighted image with Fast Spin Echo		
		Proton density weighted image with Fast Spin Echo		
		Dual Contrast image with Fast Spin Echo		
		3D Fast Spin Echo		
	Inversion Recovery Echo	T1 weighted FLAIR		
		T2 weighted FLAIR		
		T1 weighted STIR		
		T2 weighted STIR		
	Gradient Echo	Scout image with Gradient Echo		
		2D Rephase Gradient Echo		
		2D Dephase Gradient Echo		
		3D Rephase Gradient Echo		
		3D Dephase Gradient Echo		
	22	Magnetization Transfer Contrast (MTC)		1
	23	Movement compensation		1
24	Flow compensation	1		
25	Multi slice multi angle imaging technology	1		
26	Pre-saturation	1		
Other Hardware				
1	Quadrature body and spine coil (small)	1		
2	Quadrature body and spine coil (large)	1		

To

3	Quadrature breast coil		1
4	Quadrature shoulder coil		1
5	10/100 fast Ethernet switch		1
6	RESP gating system		1
Other Software			
1	Advanced image filter software		1
2	TOF MRA software	2D TOF MRA	1
		3D TOF MRA	
3	PC MRA software	2D PC MRA	1
		3D PC MRA	
4	Water imaging software	SSFSE	1
		MRCP	
		MRU	
		MRM	
5	Diffusion	DWI	1
		ADC	
6	Advanced 3D MRI	MPR	1
		MIP	
Other Items			
1	Two Weeks Abroad Application And Service Training For 2 Doctors		
2	ENGLISH MANUAL		1
3	Tools kit		1
Total Ex-work Price:			588,000.00USD

Terms & Conditions:

Manufacturer	WanDong
Approval Certificates	FDA, CE
Country Of Origin	Ex-work China
Price	In US Dollar
Validity	90 days
Delivery	2-3 months.
Warranty	One year comprehensive warranty including labor, coils and spare part
Response Time	Maximum 24 hrs.
Up Time	Maximum 72 hrs.
Parts Availability	7 Years
Up Grading	Free software and hardware upgrading for the system

Technical Specifications	
Super i_Open 0.36T MRI System	
Number	Description
1	Whole body open MRI (Super i_Open 0.36T)
	The Super Open i_0.36T is a whole body MR imaging system who operates at 0.36T. The comforting shape and size of the compact wide-open magnet relax patient before and during examination.
	The Super Open i_0.36T can fully simultaneous scan, reconstruction, display, filming, networking and post processing.
	The Super Open i_0.36T has an excellent performance in neurological locomotor, cardiovascular, digestive, urinary and reproductive system imaging.
	The Super Open i_0.36T incorporate flexible utility, ease of use and low cost features in the following components:
<u>System Component includes</u>	
Permanent super open magnet and patient table	
High-performance gradient system	
RF transmitter and receiving system	
Console and electronics	
User interface	
Integrated software package	
<u>1. Permanent super open magnet and patient table</u>	
The Super i_Open 0.36T magnet provides high performance imaging with a lightweight and compact design to facilitate an efficient installation.	
The 0.36Tesla permanent magnet made of Nd-Feb material provides high homogeneity and stability.	
The eddy current is controlled to the minimum through using special high resistance material.	
The magnet homogeneity being optimized during installation with mechanical passive and computer digital active shimming procedure.	
Patient table provides maximum patient comfort and enhance direct patient access for interventional procedures.	
	Lightweight 16,000Kg
	Operating field vertical at 0.36T
	Imaging up to 400mm FOV
	Magnet dimension (LxWxH): 180 x130 x 180cm

	Homogeneity: 5 ppm over/40cm DSV (RMS measurement technique)
	High performance off center field-of-view imaging: The friendly and super open enclosures are designed to maximize patient comfort. The super open enclosure provides a patient friendly appearance to minimize anxiety and avoid interrupted studies. The exterior features gentle arching line, pleasant textures and colors:
	Patient positioning features: Laser alignment lights; Axial, sagittal, coronal reference planes
	Two-way intercom system
	Patient alarm
	CD music
	In bore lighting and airflow ventilation system
	Patient table is Integrated to Magnet Design and is accommodate patient weight up to a maximum of 180Kg
	The super open design will help to:
	Ease patient anxiety and accommodate larger patient
	Enable patient to see outside the magnet with an unobstructed view.
	Enable an easy access to patient by the operator for interventional procedures
	<u>2.High Performance Gradient System</u>
	i_Open unique design of active shield flat gradient system decrease the eddy current to the minimum and completely avoid the biggest problem of eddy current that seriously trouble most of the permanent MRI system.
	The most advanced design of inversion method makes the gradient system have very high linearity and slew rate.
	The high gradient performance provides excellent small Field-of-view, thin slices imaging option for both 2D and 3D imaging volume.
	The active shield flat gradient system provides excellent performance for both high spatial and temporal resolution acquisitions and provide controlled and uniform gradient magnetic field in the x, y, and z planes.
	The gradient system provides high productivity gradients
	Gradient strength: 18mT/m
	Gradient linearity: Better than 5%
	Cooling: water
	Slew rate: 55mT/m/ms
	<u>3. RF Transmitter And Receiving system</u>
	Quadrature design of flat transmitter coil has contributed significantly to improvement in high uniformity and high efficient and make i_open as a fully open type.
	The special design of quadrature receiving coil improves the signal to noise ratio.
	Low noise build-in preamplifiers in the coils reduce the signal attenuation and effect of noise greatly.
	Auto tuning system simplifies operation and keeps the system working in the best

condition.	
	Center frequency: 15.3MHz ± 0.25MHz
	Power of transmitter: 6kW
	Power splitter: high isolation and low insertion loss
The coils combining quadrature and low noise build-in preamplifiers design include head, neck, breast shoulder, body and knee coils that can meet whole body MR examination.	
<u>4.Console And Electronics</u>	
Coupling up-to-the-minute technology (DSPs and FPGAs) with standard PC architecture, the console and electronics of i_open 0.36T are completely digital.	
Main Computer System:	
	The i_open 0.36T system platform provides high performance computer, image reconstruction and image processing power that significantly enhances clinical productivity. This design allows multiple processors to simultaneously process functions, including data acquisition and reconstruction.
	Main CPU: Windows XP/NT workstation using a Dual Intel Xeon 2.8GHz with 1GB RAM memory.
	Reconstruction Speed is up to 45ms for 2D FFT of 256x256 images.
	160 GB Hard drive
	CDROM drive 48X speed integrated in front of the operator console for easy access
	DICOM exam scan also be selected and networked between i_open and any imaging system or hardware supporting the DICOM 3.0 protocol for point to point send, receive and pull/query and DICOM print.
	Color Flat panel monitor is included with the system. It is a 18 inches LCD color medical specialized monitor.
<u>5.User Interface:</u>	
Operator Interface	
	The user interface has been designed to promote ease of use and fast simple operation. Icon and one screen operation simplify scan setup and display.
	Standard features provide operation of scan, patient management and data management processes.
	Support and provide predefined professional report templates
	Support hot key in real time and customized toolbar.
	All clinical applications are manageable through 4 virtual desktops or application manager:
	Patient Desktop / Scan Desktop / View Desktop / Report Desktop
Desktop	
	Patient Desktop

	Patient information can be entered prior to the patient arrival saving time and improving efficiency at examination time. Multiple patients can be pre- registered and stored in the system memory.
	Pre-defined or custom protocol can be linked to registered patient information, selection of the patient name downloading automatically the protocol.
	Scan Desktop
	This desktop provides the entire clinical tool necessary to set-up patient studies like: graphic prescription, scan data acquisition, image reconstruction.
	Auto-view: Image will automatically be displayed at the end of the acquisition for quick review.
	View Desktop
	This desktop provides all tools to display, process and printing features.
	Display and analysis functions are accessible from the standard operator workstation and could be accessible at any time during acquisition and reconstruction increasing significantly the productivity.
	Image display features in supporting multiply windows, recognize and cine playing function.
	View desktop provide Professional image enhancement function and customized image information.
	Printing features the WYSWYG printing interface and varies printing forms.
	Image filtering feature included in the configuration provide post-processing capabilities to decrease the apparent noise level on the images by applying an adaptive filter to the image raw data. The user can also filter images if necessary.
	Report Desktop
	The report desktop support report writing: The system predefined a professional knowledge base in which it can provide many report templates. The report templates can be added, edited and reserved.
	6.Integrated software package
	The Super Open i_open MRI system is delivered with Scan and Sequence Tool, which include all the standard and advanced sequences to enhance fast acquisition and techniques.
	Scan and Sequence Tool include:
	3 Plane localizer: for fast localizer series acquire 3 images in each orthogonal plane.
	2D: Multi-slices imaging, including contiguous slices up to 120
	3D: Volume imaging, including 8 to 128 slices locations in increment of two
	(depending of the selected pulse sequence).
	Direct Axial, Sagittal, Coronal,

	Oblique plane imaging
	Multi-Slice Multi-Angle is an important MR imaging technique. This technique allows the user to scan multiple slices at multiple angles.
	The benefit of this feature is the opportunity to enhance diagnostic confidence as a result of implementing the capability to view the anatomy of interest at the appropriate (desired) scan plane orientation.
	2D Inversion recovery (IR) and Fast IR
	2D Spin Echo (SE)
	2D Sequential and 3D Volume gradient echo (GRE)
	2D Multi-Planar Gradient echo (GRE)
	2D/3D Dephase Gradient echo (SPGR)
	2D SSFSE , Single Shot Fast Spin Echo
	2D/3D FAST SPIN ECHO provides the capability to perform 2D/3D acquisitions on the RF pulses are designed to reduce SAR and minimize image blurring.
	2D/3D FSE allows the acquisition of t1-weighted, proton-density and t2-weighted spin echo studies at substantially reduced acquisition times.
	2D T1/T2 FLAIR: Fluid Attenuated Inversion Recovery pulse sequence enables acquisition specifically tailored for brain imaging applications. The Flair is a software that allows an interleaving acquisition technique for better GM / WM differentiation.
	2D/3D Time Of Flight (TOF) relies on the flow of fully -magnetized blood into the imaging plane. The TOF allows maximum flexibility and tailoring of inflow enhancement to the desired anatomy. 2D gated TOF improve image quality by reducing the pulsating artifacts.
	2D/3D phase contrast (PC) has excellent background suppression, especially for vein and big aneurysm. It's better than TOF for slow blood flow and PC film can also be used for quantitation of blood flow.
	Line Scan Diffusion: For diffusion imaging with less susceptibility and an encoding up to 512 lines.
	Magnetization transfer contrast has good background suppression and can improve MRA image contrast.
	Auto image filter can improve image quality.
	Pre-saturation can decrease the signal of the site not interested.
	The slice thickness, spacing and field of view matrix could be setup independently according to the examination needs.
	2D Acquisition: The 1.5mm to 20mm slice thickness in 0.1 mm increments (depending on pulse sequences). The operator could set a variable inter-slice spacing in increment of 0.1mm or interleave for multi-slice imaging.
	3D Acquisition: Slice thickness from 0.5 to 10mm in 0.1mm increments (depending on pulse sequences). .
	Field of View: The field of view could be set from 20mm to 400mm in 10mm increments, continuous and in all planes.
3	Two Weeks Abroad Application And Service Training For 2 Doctors / 2 Engineers.

Executive Overview: Acquired skills to operate at basic level on Wandong MR
Course Level: Basic knowledge on Wandong MR
Who should attend? Radiologists, Technologists, Bio Medical Engineers
Pre-requisite: familiar with PC and windows environment. Trained on MR basics
Course description: 10 entitled days of Application starting - The training is starting from Monday to Friday
- First Part- Initial training after new MR installation - 10 days duration on 2 weeks
Day 1: 2 patients needed. Training overview, general system overview, power up/power down and boot procedures, emergency procedures and associated safety systems, patient screening and preparation
Day 2: 4 patients needed. Patient scanning Parameter selection, Display feature manipulation, filming and archive procedures.
Day 3: 4 patients needed. Pulse sequences, Parameter selection: effect on SNR, resolution and scan time.
Day 4: 5 patients needed. Pulse sequences and imaging options
Day 5 and 6: 6 patients needed. Image options, origin of artifact and suppression. Theory and practice of MR Abdominal imaging.
Day 7: 6 patients needed. Theory and practice of Basic MR vascular imaging and basic post-processing.
- Second Part - Revisit
Day 8: 10 patients needed. Reviews all applicable pulse sequences and coils available. Parameter selection and trade-offs as well as clinical and productivity benefits are discussed.
Day 9: 10 patients needed. Teaches contrast-enhanced MR angiography.
Day 10: 10 patients needed. Application review.
Participant will be able to:
Understand and apply safety procedures, start and stop the system,
Properly use all image management tools (filming, archiving, networking, display functions)
Properly use different parameters on image option to modify SNR.
Properly run and process current exam procedures such as: bone, head, spine etc.
Properly run and process vascular exams using different imaging options
Properly create post-processing on vascular imaging.
Properly run and process abdominal exams.
Delivery mode: Abroad
Langue: Local language when available or English
Material needed: User manual
Number of participants: 4 maximum