

Astar-3150 MRI system



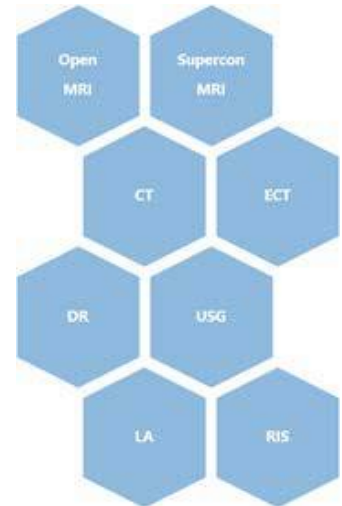
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There is permanent MRI systems series with magnet field strength goes from 0.20T, 0.30T, 0.35T, 0.42T to 0.50T, superconductive MRI systems series with magnet field strength goes from 0.5T, 0.7T, 1.2T, 1.5T to 3.0T. CT series with 16 slice, 32 slice and 64 slice. X-ray series like Ceiling suspension DR, U-arm DR, digital fluoroscopy, mobile digital X-Ray, digital mammography, etc. Full digital portable and trolley color Doppler ultrasound series; nuclear medicine series like single-photon emission computed tomography (SPECT), wide FOV gamma camera, etc.; medical linear accelerator, BHG-300 gamma ray head stereotactic radiotherapy series; and medical information software. With the high-quality, high-tech and high performance-price-ratio products, so far its markets have covered more than 50 countries and regions, including all domestic provinces, cities & autonomous regions; and Europe, America, Africa, Middle East and Southeast Asia, etc.

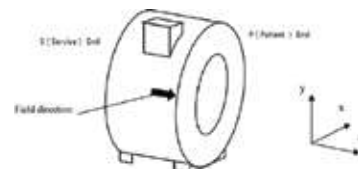


1. Astar-3150 Superconductive MRI

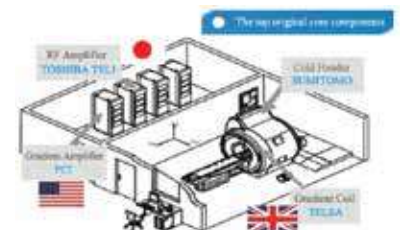
ATL is one of the first India's 1.5T superconductive MRI manufacturers, completely broke the high-end MRI monopoly by foreign brands. Astar-3150 is a new generation of superconductive MRI product launched in 2012, has the advantages in novel design, excellent performance, high comfort and more patient care technology. The system adopts the international advanced hardware platform together with ergonomic operating software design, its advanced scan sequences and imaging technology, produces the customer with high stability and excellent performance, high signal-to-noise ratio, high resolution, high contrast clinical imaging and faster scanning speed



- 1) It config 4k cold head from Japan, the brand is Sumitomo, that provides "zero" consumption of the liquid helium.



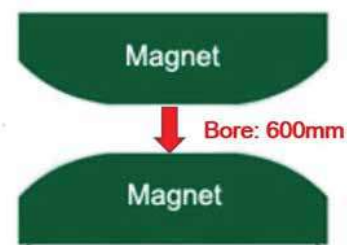
- 2) Its bore size is 60cm that helps to reduce the patient's claustrophobic fear, effectively avoid the involuntary movement which may cause the image artifacts and other potential risk.
- 3) It has fastest scanning speed, and the image quality is also much better than permanent MRI.
- 4) It using all famous parts suppliers ensuring the stable system quality.



Magnet sub system

Astar-3150 using advanced active shielding superconductive magnet, has the following features,

1. The magnetic field uniformity is excellent;
2. Good magnetic field stability;
3. Config with "zero liquid helium consumption" technology, the liquid helium refill time interval is more than 4 years;
4. Magnet diameter is 600mm, the bore openness is suitable for most of the obese patients



►► Gradient sub system

Gradient sub system directly determine the spatial encoding of MRI system, it produces the signal information, at the same time it can perform GR series sequence scanning, it is the foundation of MRI system's spatial resolution ability, gradient sub system also directly affect the scanning image thin slice scanning. The linearity of gradient system of MRI system determine the accuracy of spatial location information, ensuring that in any acquisition, the image distortion is limited Gradient switching rate is an important factor of MRI scanning speed. Astar-3150 using the self-shielding gradient coil and high duty cycle gradient amplifier system, together with eddy elimination technology and design, can avoid the eddy current between the metal shielding layers, raise up the spatial encoding ability of the magnetic resonance signal and make the scan more precise, ensure high resolution image quality. During superconductive MRI scans, the noise is much bigger than permanent MRI systems, and staying in a closed environment, the patient is easy to fall into tension. Astar- 3150's gradient sub system adopts special hardware noise reduction design technology, the gradient noise is reduced to 2/3, provide patients with friendly scanning environment. The gradient system is equipped with automatic detection function, if the temperature is too high, the system can intelligently stop the scanning, to protection of hardware from being damaged. The system use water chiller to produce a stable running condition

►► Gradient sub system

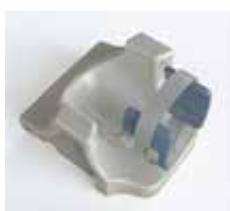
The RF sub system is the source of MRI proton excitation energy, its efficiency directly affects the MRI relax signal. RF receiver receive MRI relax signal, a good receiving coil can improve the SNR of image. The RF sub system is similar as highway lane, the more lanes, the faster flow of vehicles. Vice versa, the more the RF system channels, the faster parallel acquisition, thus the system can process the greater the amount of data in the same time, reduce the imaging time. Astar-3150 suing 8 / 16 channel radio frequency receiving, combined with the latest parallel sampling technology, using the DDC digital direct sampling, can short the scan time and get excellent image quality.



►► Rich coil configuration

The Receiver coil, together with parallel acquisition technology, improve the signal-to-noise ratio and image quality. The customer can choose according to the clinical needs (specific configuration of the coil number and types will be subject to final contract).

1. Head coil
2. Neck coil
3. Body coil
4. Knee coil
5. Shoulder coil
6. Ankle coil
7. Wrist coil
8. Breast coil

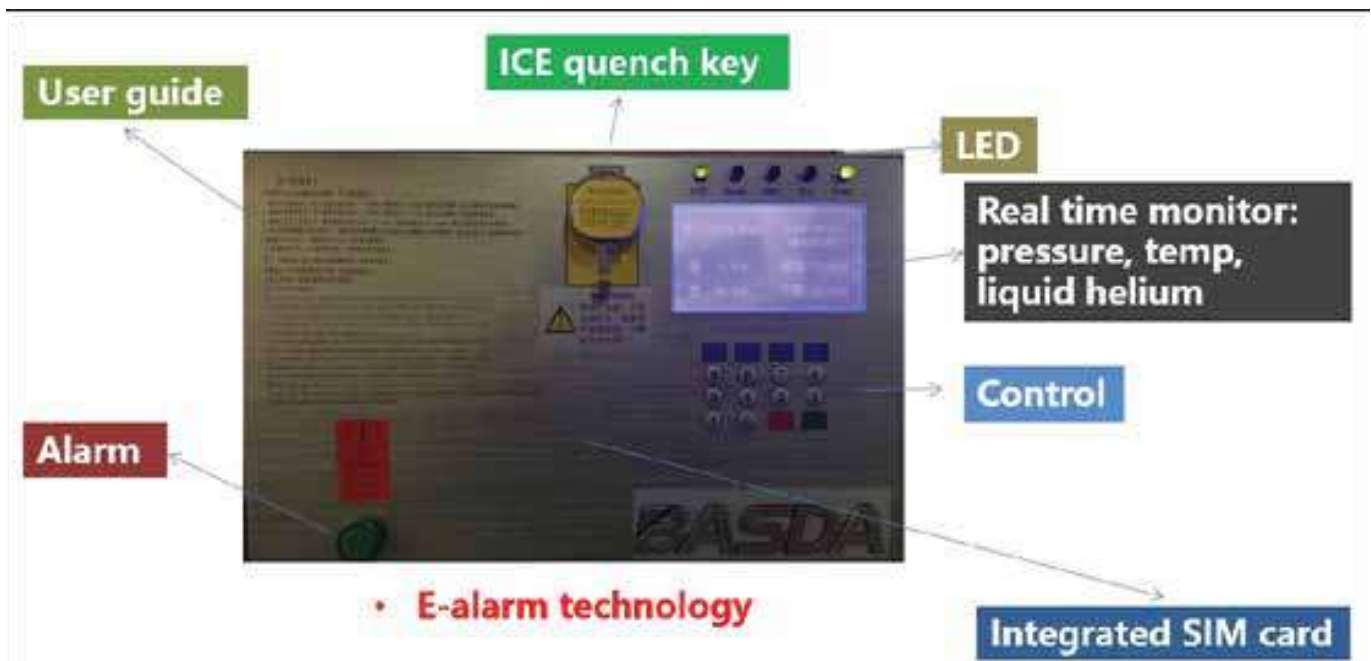


Astar-3150 provide comprehensive scan kit and scanning sequence, with rich clinical application of the full body, with a full range of scan plan, assist the customer's clinical diagnosis. Advanced scanning sequence are provided as well as all routine scan, the system also can take vascular imaging, MRU/M-RCP/MRM imaging, SWI, DWI imaging and other advanced imaging sequences. Rich post-processing software can optimize images in case necessary to help in complex diseases diagnosis. The fool-proof coil interface design makes the coil live longer.



►► E-alarm technology

At the same time, in Astar-3150 configuration there is a special monitoring system, it is simple and easy to operate, it can real-time monitoring the magnet internal pressure, temperature and liquid helium level, if the magnet condition is abnormal, the monitoring system can automatically send alarm information to the user's phone, it can greatly reduce the risk of magnet quenches



►► Interactive environment

1. Motor-driven patient table, 200kg weight capacity.
2. Built-in-magnet high resolution 8 inch screen, the operation is convenient.
3. Have emergency stop function, protect the patients.
4. High positioning accuracy.
5. Support operation on both sides of the magnet, convenient and quick.



►► Water chiller set

Intelligent touch screen design, visual operation, and be convenient for maintenance.



Automatic overheating, leaking, fault detection, safe and reliable.
One key recovery function.
Config with a set of spare water chilling unit, no need to have any worry about the system downtime



2. Astar-3150 Specification

No.	Item	Specification
1	Magnet System	
1.1	Magnet Type	Superconductive
1.2	Field Strength	1.5T
1.3	Shielding Method	Active
1.4	Shimming Method and Type	Active + Passive + Dynamic
1.5	Magnet stability	$\leq 0.1\text{ppm/h}$
1.6	Homogeneity (DSV, VRMS)	
1.6.1	45cm	$\leq 0.832\text{ppm}$
1.6.2	40cm	$\leq 0.323\text{ppm}$
1.6.3	30cm	$\leq 0.107\text{ppm}$
1.6.4	20cm	$\leq 0.041\text{ppm}$
1.6.5	10cm	$\leq 0.01\text{ppm}$
1.7	Length of magnet(exclude cover)	157cm
1.8	Inner diameter of magnet	600mm
1.9	5 Gauss fringe field(X , Y , Z axis)	$\leq 2.5\text{m} \times 2.5\text{m} \times 4.0\text{m}$
1.10	Total capacity of liquid helium (100% liquid helium full filled)	800L

1.11	Filling liquid helium period	≥4 Years
1.12	Liquid helium “zero” consumption technology	Yes
2	Gradient System	
2.1	Maximum gradient field (single axis, invalid)	41mT/m
2.2	Maximum gradient slew rate (single axis, invalid)	187mT/m/ms
2.3	Minimum gradient rise time	0.22ms
2.4	Maximum gradient field and slew rate reached at the same time	Yes
2.5	Gradient cooling system	Water cooling
2.6	Full digital real-time transmit and receiving gradient control system	Yes
3	RF System	
3.1	Max RF amplifier power	18kW
3.2	Center frequency	63.87MHz
3.3	Real-time digital RF energy monitoring	Yes
3.4	Real-time digital RF short-term accumulation monitoring	Yes
3.5	Real-time digital RF long-term accumulation	Yes
	monitoring	
3.6	Parallel working RF receiver channels	8/16
3.7	Parallel working RF A/D converters	8/16

3.8	Each coil unit has corresponding pre-amplifier	Yes
3.9	Parallel acquisition technology platform	Yes
3.10	Maximum bandwidth of each parallel acquisition receive channels	$\geq 1.0\text{MHz}$
3.11	Transmission bandwidth	550kHz
3.12	Maximum receiver signal resolution	$\geq 16\text{bit}$
3.13	Fully digital RF system	Yes
3.14	RF receiving amplifier noise level	$\leq 0.45\text{dB}$
3.15	Multi-channel phased array receiver coil	
3.15.1	Head coil	Available
3.15.2	Neck coil	Available
3.15.3	Body coil	Available
3.15.4	Knee coil	Available
3.15.5	Shoulder coil	Available
3.15.6	Ankle coil	Available
3.15.7	Wrist coil	Available
3.15.8	Breast coil	Available
	Remark: The coil configuration is subject to the	
	final contract	
4	Scan environment	
4.1	Patient table driven mode	Motor-driven
4.2	Position accuracy	$\leq 0.5\text{mm}$

4.3	Table length	2400mm
4.4	Horizontal movement range	2055mm
4.5	Horizontal motion maximum speed	≥200mm/s
4.6	Patient table lowest height	675mm
4.7	Maximum patient weight	200kg
4.8	Feet-first entry mode	Yes
4.9	Table can be controlled by machine cover in case of emergency	Yes
4.10	Table control system on both side of rack	Yes
4.11	Lighting, ventilation, call system	Be able to adjust
5	Computer system	
5.1	MRI software	ATL
5.2	System software	WINDOWS 7
5.3	CPU	≥3.1GHz
5.4	Main memory	≥4GB
5.5	Hard disk	≥500GB
5.6	Color LCD monitor	24"
5.7	Monitor resolution	1920×1200
5.8	External storage	DVD/USB
5.9	DICOM3.0	Yes
6	Scanning parameter	
6.1	Spin-echo sequence	Yes

6.1.1	SE 2D/3D	Yes
6.1.2	FSE 2D/3D	Yes
6.1.3	FSE sharing	Yes
6.1.4	Single shot FSE	Yes
6.1.5	Spin echo fat-suppression imaging	Yes
6.1.6	Spin echo frequency fat suppression imaging	Yes
6.1.7	Spin echo water suppression imaging	Yes
6.2	GRE 2D/3D	Yes
6.3	DWI	Yes
6.3.1	Max. b value	10000
6.4	IR sequence	Yes
6.4.1	IR	Yes
6.4.2	FIR(water / fat suppression)	Yes
6.4.3	FLAIR	Yes
6.4.4	STIR	Yes
6.4.5	Water-fat Separation	Yes
6.5.1	Pre-saturation	Yes
6.6	Gating	Yes
6.7	Accelerated sequence	Yes
6.8	Anti-movement scanning technology	Yes
6.9	Min. 2D thickness	0.1mm
6.10	Min. 3D thickness	0.05mm

6.11	Max. FOV	50cm
6.12	Min. FOV	1cm
7	Advanced imaging technology	
7.1	Body Imaging	Yes
7.1.1	Ultra-fast imaging technology	Yes
7.1.2	Phase / de-phase imaging technology	Yes
7.1.3	MR cholangiopan-creatography (MRCP)	Yes
7.1.4	MR urography (MRU)	Yes
7.1.5	MR Myelography (MRM)	Yes
7.2	Neuro imaging	Yes
7.3	Diffusion weighted imaging set	Yes
7.3.1	Isotropic acquisition	Yes
7.3.2	ADC measurement	Yes
7.4	MR angiography(MRA)	Yes
7.4.1	2D/3D TOF technology	Yes
7.4.2	Continuous multi-layer 3D TOF technology	Yes
7.4.3	Contrast enhanced MRA	Yes
7.4.4	Magnetization transfer (MTC)	Yes
7.4.5	Maximum intensity projection	Yes
7.5	Susceptibility weighted imaging (SWI)	Yes
7.6	Parallel acquisition technology	Yes
7.6.1	Algorithm based on image	Yes

7.6.2	Algorithm based on K-space	Yes
7.6.3	Max. parallel acquisition acceleration factor	4
7.6.4	Automatic calibration technology	Yes
7.6.5	Applied direction of parallel acquisition factor	X、Y、Z
7.7	Artifact correction technology	Yes
7.7.1	Fluid compensation	Yes
7.7.2	Respiratory compensation	Yes
7.7.3	Head motion artifact correction	Yes
7.7.4	Elimination of magnetic sensitive artifact	Yes
7.7.5	Eddy current adaptive correction	Yes
7.7.6	Gradient linearity correction	Yes
7.7.7	Multi-echo phase correction	Yes
7.8	Rapid automatic correction technology	Yes
7.9	Automatic frequency tracking technology	Yes
7.10	Automatic coil recognition technology	Yes
7.11	Automatic phase correction technology	Yes
7.12	Echo navigation technology	Yes
7.13	RF balance drive technology	Yes
7.14	RF de-phase technology	Yes
7.15	Gradient de-phase technology	Yes
7.16	Section scanning technology	Yes

3. Astar-3150 Configuration

Standard Configurations	Unit	Quantity
Standard Hardware include:		
RF shielding room	set	1
1.5T active shielding superconductive magnet	set	1
Spectrometer	pc	1
RF amplifier	set	1
Gradient amplifier	pc	1
Gradient coil	set	1
Computer	set	1
Imaging monitor	set	1
Operation table	set	1
Electric patient bed	set	1
Laser positioning and diagnostic bed control apparatus	set	1
Head coil	set	1
Neck coil	set	1
Small body coil	set	1
Large body coil	set	1
Knee coil	set	1
Quality control water phantom	set	1
Quench emergency cut-off device	set	1
Isolation transformer	set	1

Japan's Sumitomo Heavy Industries cold head	set	1
Helium compressor station	set	1
Heat exchanger	set	1
Magnet monitoring device	set	1
Mattresses, head pillow, various parts of the fixed pad	set	1
Dual-voice-communication system	pc	1
QC phantom	set	1
Technical manual	pc	1
User manual	pc	1
Maintenance manual	pc	1
Standard Software include		
Imaging software	set	1
Pulse sequence	set	1
Imaging enhancement software	set	1
DICOM interface software	set	1
Cardiovascular imaging software	set	1
Diffusion functional imaging system package	set	1
(MR CINE)/ MR CINE	set	1
3D reconstruction function package	set	1
Accident analyzing software	set	1
image post processing software workstation package	set	1

Quality control software	set	1
Optional Modules	Unit	
Minimally invasive surgery MRI navigation system software	set	
Shoulder coil	set	
Sport joint coil	set	
Wrist Coil	set	
Breast Coil	set	
Flexible coil	set	
Flexible body coil	set	
Flat spine coil	set	
Remark: RF shielding room are including RF shielding room decoration, RF shielding door, observation window, transmission board, Waveguide plate, interior lighting; excluding room construction and flooring, outside decoration of RF shielding room, operation room, equipment room, air-conditioner room and		
air-conditioner, external electric access and independent ground lead.		

ATL will provide the technical staff for installation, including RF shielding room installation, MRI system installation, and training; The buyer shall bear round trip air ticket from China to installation country, local transportation, food and board of ATL's technicians in country of installation for the purpose of installation, training and service.		
Contents are subject to change without prior notice		

4. Service

ATL come to the market since 2000, got great improvement in service, gradually establish a set of mature service strategy, including

- Three-level service network

1. Local partner engineer: primary diagnosing + in site maintenance
2. ATL service engineer: remote technical support + in site service (in case necessary)
3. ATL R&D center: technical support

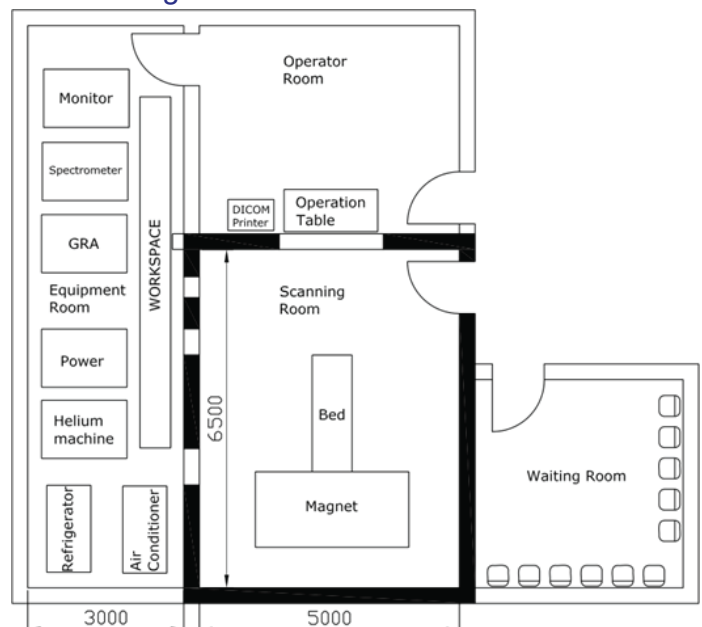
- Spare parts

1. Inventory is always ready
2. Delivery by express: within 2 working days pack off
3. Engineer carry-on: For big issue engineer will be in site with the spare parts service



6. Site requirements

Sample, Bstar-150 needs at least 3 rooms, shown as following:



6. Training plan

- Training plan including the following items

1. Operation training: how to use?
2. Technical training: how it work?
3. Service training: how to test?

►► Regulatory compliances



►► Corporate Social Responsibility

Analytical Foundation is a Nonprofit Organization (NGO) found for the purpose of:



Analytical Foundation

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2. Improving quality of life by offering YOGA Training courses, Work shops / Seminars etc.

3. ANALYTICAL FOUNDATION aims to DETOXYFY human minds, souls and body by means of Yoga, Meditation, Ayurveda, Health Care, Awards, Media, Events, Camps etc.

►► Reach us @



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