OPENMARK 5000

High-level permanent MRI

MRI System Specification

SHENZHEN ANKE HIGH-TECH CO., LTD.

Ver: MROM05-2212

ANKE

I. Magnet system

Magnet Parameters	
Magnet type	Permanent
Magnetic field strength	0.51T ± 5%
Magnet appearance	Dual-pillar
Weight	21.8T ± 1.5%
Horizontal opening angle	280°
5 Gaussian fringe field	X, Y, Z directions ≤ 2.5m
Shimming	
Shimming methods: Passive Shimming + Active Shimming	
Magnetic field homogeneity (VRMS measurement method, 24 points 24 sides)	
40cm DSV (VRMS)	≤ 1.6ppm

II. Gradient system

General features	
Gradient type	Ultrafast solid-state technology
Gradient amplifier cooling type	Air cooling
Gradient coil cooling type	Air cooling
Gradient performance	
Max. amplitude (single axis)	30mT/m
Max. slew rate (single axis)	100T/m/s
Min. rise time	0.3ms
Resolution parameters	
Max. FOV	400mm
Min. FOV	5mm
Min. 2D thickness	1.0mm
Min. 3D thickness	0.1mm
Max. Acquisition matrix	1024×1024
Min. TE (Spin Echo)	5ms
Min. TR (Spin Echo)	11ms
Min. TE (Gradient Echo)	1ms
Min. TR (Gradient Echo)	3ms
Max. b-value of DWI	2000

III. RF (Radio Frequency) system

RF parameters		
Type of RF system		Full digital transmitting and receiving
RF amplifier maximum power		6 kW
Receiving channel number		4 channels
Receiving bandwidth		1.25 MHz
Standard PA (Phased Array) coils		
Head coil	Channels	4
	Inside dimension	260mm × 211mm × 234mm (L×W×H)
	Outside dimension	360mm × 340mm × 320mm (L×W×H)
	Weight	5.1Kg
	Applications	• Head imaging • Head MR Angiography • TMJ (temporomandibular joint) imaging
Neck coil	Channels	2
	Inside dimension	451mm × 169mm × 192mm (L×W×H)
	Outside dimension	451mm × 342mm × 312mm (L×W×H)
	Weight	3.3Kg
	Applications	• Neck imaging • Cervical spine imaging • Neck MR Angiography
Body coil - 20” (Large)	Channels	4
	Inside dimension	323mm × 508mm × 295mm (L×W×H)
	Outside dimension	323mm × 631mm × 337mm (L×W×H)
	Weight	7.0Kg
	Applications	• Thorax region imaging • Spine imaging • Abdomen imaging • Pelvis imaging • Hip imaging

Body coil - 17” (Medium)	Channels	4
	Inside dimension	323mm × 430mm × 280mm (L×W×H)
	Outside dimension	323mm × 552mm × 322mm (L×W×H)
	Weight	6.5Kg
	Applications	• Thorax region imaging • Spine imaging • Abdomen imaging • Pelvis imaging • Hip imaging
Knee coil	Channels	2
	Inside dimension	280mm × 144mm × 155mm (L×W×H)
	Outside dimension	328mm × 385mm × 328mm (L×W×H)
	Weight	3.2Kg
	Applications	• High resolution knee imaging • Lower limb joints imaging
Shoulder coil	Channels	2
	Inside dimension	180mm × 190mm × 200mm (L×W×H)
	Outside dimension	412mm × 255mm × 222mm (L×W×H)
	Weight	2.3Kg
	Applications	• High resolution shoulder imaging

Optional PA (Phased Array) coils [1]		
Body coil - 14” (Small)	Channels	4
	Inside dimension	323mm × 356mm × 244mm (L×W×H)
	Outside dimension	323mm × 463mm × 286mm (L×W×H)
	Weight	6.0Kg
	Applications	• Thorax region imaging • Spine imaging • Abdomen imaging • Pelvis imaging • Hip imaging
Ankle coil	Channels	2
	Inside dimension	180mm × 115mm × 175mm (L×W×H)
	Outside dimension	530mm × 170mm × 340mm (L×W×H)
	Weight	5.0Kg
	Applications	• High resolution ankle imaging • High resolution foot imaging
Wrist coil	Channels	2
	Inside dimension	160mm × 110mm × 60mm (L×W×H)
	Outside dimension	160mm × 210mm × 200mm (L×W×H)
	Weight	1.3Kg
	Applications	• High resolution hand imaging • High resolution wrist imaging
Breast coil	Channels	4
	Inside dimension	162mm × 162mm × 119mm (L×W×H)
	Outside dimension	355mm × 436mm × 148mm (L×W×H)
	Weight	3.1Kg
	Applications	• High resolution breast imaging

1) All the Optional coils are not included in the standard offer, please contact to ANKE for future information about technology and price.

IV. Patient handling system

Patient table	
Patient table type	Integrated floating patient table
Operation mode	Electric / manual dual-mode
Positioning type	Laser cross cursor positioning
Position horizontal accuracy	± 0.5mm
Max. Patient weight load	200kg (440lbs)
Patient table control	Touch screen control
Patient table display	Color LCD Monitor
Patient communication	
Intercom system	Two-way intercom, adjustable
Emergency call button	Provided
Respiratory gating	Provided

V. Console system

Host computer	
Computer operating system	Windows professional (64-bit)
Operation software	APEX intelligent operation platform
CPU	≥ 2.8GHz (Intel-i7, 8-core)
RAM	≥ 16GB
Hard disk	1TB × 2
Media drives	CD/DVD drive
External storage of image data	DVD/USB
Image transmission interface	DICOM 3.0
Image storage capacity (256×256 Matrix, uncompressed)	Approx. 6,500,000 (256 × 256)
Image reconstruction speed (256x256, 100% FOV)	Approx. 12,800 fps
Max. Image reconstruction matrix	1024 × 1024
Color LCD Monitor	
Display size	23.8”
Display resolution	1920×1080

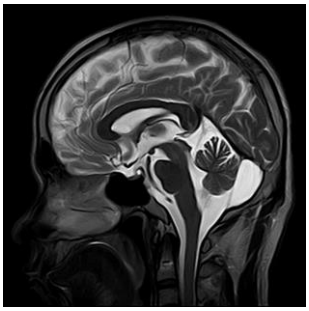
VI. Sequence and scanning technology

Sequence	
Spin Echo sequences	SE (Spin Echo)
	FSE (Fast Spin Echo) 2D/3D, combined with fast recovery technology, provide a better T2 contrast and reduce the TR time of FSE sequence.
	SSFSE (Single Shot Fast Spin Echo) 2D/3D, combined with Half-Fourier Acquisition technology, reduce the scanning time.
	IR (Inversion Recovery) STIR (Short Time Inversion Recovery) provide a good quality fat suppression imaging. FLAIR (Fluid Attenuated Inversion Recovery) for good quality T1 and T2 FLAIR imaging.
	DIXON (Water and Fat Separation) technology to provide good quality of fat, water, in-phase and out of-phase imaging.
Gradient Echo sequences	GRE (Gradient Echo) 2D/3D combined with Spoiled technology
	GRSCOUT can provide single & multi slices three-dimensional positioning imaging.
	GREDE (Gradient Echo with Dual Echo) 2D/3D, GREDESP (Gradient Echo with Dual Echo with Shared Phase) 2D/3D for in-phase/out of-phase imaging
	GREME (Gradient Echo with Multi Echo) 2D/3D, for high contrast T2 weighted imaging, can effectively suppress flow artifacts of CSF and blood
	TFE (Turbo Field Echo) 2D/3D/4D for abdominal imaging during free breathing, and fast 3D/4D dynamic contrast imaging.
	IRGRE (Inversion Recovery Gradient Echo) 2D/3D, can be used for neurology imaging to increase the contrast between white matter and gray matter.
	TOF (Time of Flight) 2D/3D
Echo Planar sequences	EPI (Echo Planar Imaging) with Single Shot and Multi Shot technology for high definition diffusion weighted imaging.
	SEEPI (Spin Echo Planar Imaging)
	GREEPI (Gradient Echo Planar Imaging)
	DWEPI (Diffusion Weighted Echo Planar Imaging)
	DWEPIMS (Diffusion Weighted Echo Planar Imaging with Multi Shot)
	LSDW (Linear Shot Diffusion Weighted) imaging

Scanning process	
Automatic pre-scan technology	Automatic RF correction
	Automatic frequency locking
	Automatic gain adjustment
	Automatic coil identification
	Automatic phase correction
	Automatic shimming linear compensation
Fast imaging technology	Rectangular FOV acquisition technology Half-Fourier acquisition technology Partial-echo acquisition technology Key-hole imaging technology K-space data share technology
Artifact suppression technology	
Pre-saturation technology	RF saturation pulses to suppress flow and motion artifact.
Flow compensation technology	Can effectively compensate for image artifacts caused by liquid flow.
Oversampling technology	Effectively avoid image artifacts.
PROP (Periodically Rotated Overlapping Parallel) data filling technology	Improves image quality by rotated data filling in K-space to correct the effects of motion during MR sequence acquisition.
Gating technology	Use the Respiratory gating to perform triggered scanning, can accurately suppress image artifacts caused by physiological motion.
Breath-hold scanning technology	K-space share technology combined with patient breath-holding to achieve fast breath-hold scanning, which can effectively improve the success rate of examination.

VII. Clinical application packages

Neurology Imaging suite

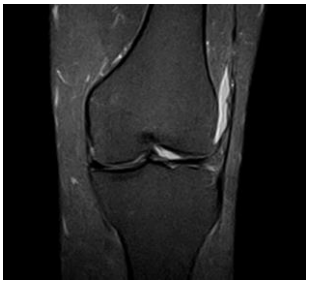


- Fast 2D&3D imaging based on SE, FSE, GRE sequence
- Diffusion imaging with multiple b-values, ADC-map, eADC-map
- LSDW (Linear Shot Diffusion Weighted) imaging
- T1-FLAIR, T2-FLAIR water suppression technology
- STIR fat suppression technology
- High-definition inner ear imaging
- T2*-GREME 2D&3D to avoid CSF and blood flow artifacts
- Water and fat separation technology
- High definition myelography

Body Imaging suite

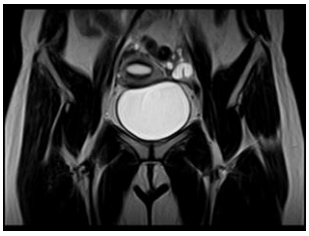
- 2D&3D imaging based on SE, FSE, GRE sequence
- Diffusion imaging with high b-value
- STIR fat suppression technology
- In-phase & out-phase imaging
- Free breath scanning
- Ultra-fast breath hold scanning
- Triggered scanning
- MRCP 2D&3D
- MRU 2D&3D

Orthopedics Imaging suite

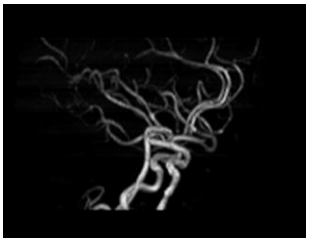
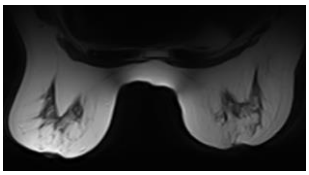


- High resolution 2D&3D imaging based on SE, FSE, GRE sequence
- Off-center positions imaging
- STIR fat suppression technology
- Water and fat separation technology
- High-definition 3D imaging for small joints

Oncology Imaging suit



- Diffusion imaging with high b-value
- STIR fat suppression technology
- Water and fat separation technology
- Contrast enhancement imaging

Angiography Imaging suite	
	• TOF 3D MR angiography • TOF 2D MR Venography • MTC (Magnetization Transfer Contrast) technology and TONE (Tilted Optimized Non-saturation Excitation) pulse to improved Contrast to Noise Ratio of images • MIP, MinIP and MPR reconstruction software
Breast Imaging suite	
	• high resolution breast structural imaging • High resolution 2D&3D imaging based on SE, FSE, GRE sequence • Diffusion imaging with high b-value
Pediatric imaging suite	
	• Optimized scanning protocol and software to fully meet the needs of pediatric applications.

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