SPECIFICATION

關稅分類番號	品目番號	品目與規格	單位	數量
H.S NO.	Item NO.	Description	Unit	Quantity
		3.0T Magnetic Resonance Imaging System.	system	1

A. Features:

1. 3.0T actively-shielded magnet with high homogeneity.
2. Full range of whole body applications capability.
3. Fully channel independent RF receive system.
4. High resolution imaging with surface coils.
5. The dedicated multi channels coils for parallel imaging technique.
6. Reconstructor ensures fast, interactive and real-time images.
7. Advanced MR applications for Diffusion and Perfusion.
8. The powerful gradient system for the ultrafast imaging.

B. Configuration:

1.	Magnet system	1 set
2	Gradient system	1 set
3	RF system	1 set
4	Patient Table	1 set
5	Coil solutions	1 set
6	Host computer	1 set
7	Reconstruction system	1 set
8	Operator console	1 set
9	Standard software package	1 set
10	Advanced applications	1 set
11	Thin client sever solution	1 set
12	Accessories	1 set
13	Site Equipment Facilities	1 set
14	Unique Items of each vendor : [Type A] or [Type B] or [Type C]	1 set

C. Specifications:

1. Magnet system — 1 set
   1) Field strength : 3.0 Tesla
   2) Type: Compact super conducting magnet or equivalent
   3) Bore diameter : 70cm or more

2. Gradient system : Vega HP or XT Engine or eXtream — 1 set
   1) Amplitude Rate : 44mT/m or more
   2) Slew Rate : 200 T/m/s or more
   3) Cooling Type : Direct liquid cooling or equivalent
   4) Max. FOV : 50cm or more
   5) Min. FOV : 10mm or less

3. RF system — 1 set
   1) The highest performance of RF system : MultiTransmit RF or Tim TX TrueShape or MultiDrive
   2) The number of independent RF amplifiers : 2 amps or more
   3) Output power : 30kW or more
   4) Number of system channel that can be used simultaneously : 128 channels or more
   5) Signal chain from coil to reconstructor : Fully digital or Direct RF or Total Dital Imaging (TDI)

4. Patient support : HA Flex Track or BioMatrix Dockable Table or Table w/ InteilliTouch — 1 set
   1) Max. weight capacity :250kg or more
   2) Horizontal table speed : max. 200 mm/s or more
   3) Table travel : 245cm or more
   4) Patient headset
   5) Physiological synchronization
   6) Peripheral pulse unit
   7) Respiration sensor unit

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H.S NO.	Item NO.	Description	Unit	Quantity
		3.0T Magnetic Resonance Imaging System.	**system**	**1**
		8) Connectors		
	5.	Coil solutions	1 set	
		1) Quadrature T/R Body Coil	1 ea	
		2) Quadratre T/R Head Coil	1 ea	
		3) Head coil : dS Head Coil (32ele) or BioMatrix Head/Neck 64 or AIR 48ch. Head coil	1 ea	
		4) Head/Neck coil set : dS Head/Neck or BioMatrix Head/Neck 20 or Head/Neck Coil w/ comfort tilt & open face adapter	1 ea	
		5) Posterior Coil : dS 44ch Total spine or BioMatrix Spine 72 or 40 Posterior Coil	1 ea	
		6) Anterior Coil : dS Torso (32 ele.) or Body 30 or AIR 30ch Anterior Coil	1 ea	
		7) Breast coil : 16ch Breast Coil or Equivalent	1 ea	
		8) Hand/Wrist coil set : Hand/Wrist 16 or Tx/Rx 16ch. Hand Wrist Coil	1 ea	
		9) Shoulder coil set : Shoulder Shape 16 or HA 16 ch. Shoulder	1 ea	
		10) Knee coil set : dS Knee (16 ele.) or TX/RX Knee 18 or 18 ch. TR Knee	1 ea	
		11) Foot Ankle coil set : dS FootAnkle (16 ele.) or Foot/Ankle 16 or TDI Foot Ankle Array (8 ch.)	1 ea	
		Type A)		
		1) dStream Extremity 16ch Coil	1 ea	
		2) dS Flex Medium	1 ea	
		3) dS WholeBody (2nd dS Torso)	1 ea	
		4) Microscopy coil 23mm & 47mm	1 ea	
		5) dS Ped Head/Spine 8ch & Ped Torso Cardiac 8ch	1 ea	
		Type B)		
		1) UltraFlex 18ch Small	1 ea	
		2) Pediatric 16	1 ea	
		3) BioMatrix Body 18	1 ea	
		Type C)		
		1) AIR 21ch MP Coil Large	1 ea	
		2) AIR 20ch MP Coil Medium	1 ea	
		3) 2nd AIR Anterior Coil	1 ea	
	6.	Host computer	1 set	
		1) Operating system : Windows or Linux		
		2) Processor : Intel Xeon Quad-Core or more		
		3) Clock rate: 3.4GHz or more		
		4) Memory : 32 GB or more		
		5) Hard disk: 480GB or more		
		6) Media drives : DVD or CD/DVD		
	7.	Reconstruction system	1 set	
		1) Processor : Provide the highest version		
		2) Memory: 96 GB or more		
		3) Reconstruction speed (256 x 256 FFT) : 63,000 recons/sec or more		
	8.	Operator console	1 set	
		1) Display size : 23 inch LCD or more		
		2) Resolution : 1920 x 1200 pixels or more		
		3) Operating console table		
		4) DICOM 3.0		
	9.	Standard software package : Scantools Pro or Tim Planning Suite or Signa Works	1 set	
		• Turbo Spin Echo / Fast Spin Echo		
		• Single-shot TSE/FSE		
		• TSE with 90 flip-back pulse		

SPECIFICATION

H.S NO.	Item NO.	Description	Unit	Quantity
		3.0T Magnetic Resonance Imaging System.	system	1

- 3D TSE/FSE with variable flip angle
- Number of echos in TSE/FSE
- Gradient Echo
- Spoiled gradient echo
- Coherent gradient echo
- Steady state free precession
- Balanced FFE
- Multi-echo data image combination
- Ultrafast gradient echo 2D with preparation pulse
- Ultrafast gradient echo 3D with preparation pulse
- Volume-interpolated 3D GRE
- Aterial Spin Labeling
- Inversion Recovery
- Short-Tau IR
- Long-Tau IR
- Dual Inversion Recovery
- Echo Planar Imaging, Diffusion
- Numer of Echoes in EPI
- Diffusion-Weighted Imaging
- Apparent Diffusion Coefficient Map (ADC)
- Computed b-values
- Diffusion Tensor Imaging
- High-resolution diffusion imaging
- Reduced-FoV Imaging for diffusion and BOLD EPI
- Motion correction algorithm
- Non-contrast MR Angio
- Provide All commercial version of User-interfaces (All Smart Exam or Tim application Suite or All Express Exam)

10. Advanced applications

1) Noise reduction during MRI scan : ComforTone or Quite Suite or Silent Scan	1 set
2) High resolution and high contrast SWI imaging technique : SWI Specialist or SWI or SWAN	1 set
3) Examination of intrinsic susceptibility changes in different areas of the brain, induced by external stimulation : BOLD Specialist or Inline Bold Imaging & 3D PACE or BrainWave	1 set
4) Visualization of white matter fiber tracts of Diffusion Tensor Imaging (DTI) data and 300 or more directions : FiberTrak Specialist or syngo DTI Tractography or FiberTrak	1 set
5) Simultaneous excitation with multiple slices at multiple locations : : MultiBand SENSE or SMS or Hyper BAND	1 set
6) Complete set of single voxel, multi-voxel and multi-slice proton spectroscopy : Spectroscopy specialist or Spectroscopy or Advanced Spectro package	1 set
7) 2-point mDIXON technology for TSE sequences : mDIXON XD TSE Specialist or DIXON TSE or FLEX	1 set
8) Improves soft tissue visualization in the vicinity of MR conditional orthopedic implants : O-MAR XD or Advanced WARP or MAVRIC SL	1 set
9) Advanced Cardiac study : Cardiac Expert or Advance Cardiac or CV Works	1 set
10) Relaxation time mapping for Cartilage : Cartilage assessment or Mapit or Cartigram	1 set
11) Time-Resolved Angiography (using by Keyhole) provides high spatial and temporalresolution CE-MRA scans : 4D-TRAK or TWIST or TRICKS	1 set
12) Performs a pixel-wise analysis of myocardial tissue based on T1, T2/R2 and T2*/R2* maps : Cardiac Quant or MyoMaps or CardioMaps	1 set
13) Diffusion images with small FOV : Zoom DWI Imaging or ZOOMit DWI or FOCUS	1 set
14) Produces quantitative fat fraction maps in a single breath-hold, covering the whole liver : mDixon Body Fat Quant Specialist or LiverLab or IDEAL IQ	1 set
15) New MRI-based biomarker for characterizing tissue non-invasively : Elastography or MR Elastography or MR Touch	1 set

- Automatically calculated from the wave image
- Providing quantitative data about tissue stiffness (kPa)
- Provide 0~8KPa or 0~20KPa range spectrum

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H.S NO.	Item NO.	Description	Unit	Quantity
		3.0T Magnetic Resonance Imaging System.	**system**	**1**
		- GRE based or EPI based		
		16) Enables automated multi-station head-to-toe coverage : WholeBody Specialist or Whole-Body Suite or WBI	1 set	
		17) Time-resolved 3D technique to drastically accelerate dynamic body and breast imaging : 4D-THRIVE and 4D-BLISS or TWIST VIBE or VIBRANT	1 set	
		18) Motion Insensitive 3D T1 for liver : 3D VANE XD or StarVIBE or LAVA Star	1 set	
		19) A disruptive leap in non-contrast MR Angiography : mDIXON XD MultiStation or QISS or 3D Deltaflow	1 set	
		20) 4D FLOW acquistion	1 set	
		21) Differentiate the vessel lumen from the intra lumen blood signal : BlackBlood Imaging or MSDE	1 set	
		22) Reduced-FoV Imaging for 3D FSE/TSE :dS Zoom VISTA or ZOOMit SPACE or HyperCube	1 set	
		23) MultiShot EPI DWI Imaging : IRIS Zoom or RESOLVE or MUSE	1 set	
	11.	Thin client sever solution	1 set	
		1) Clinical Applications		
		• Neuro Perfusion Analysis : MR T2* Neuro Perfusion or MR Neuro Perfusion Engine or BrainView	- 3copies-	
		• Spectroscopy Analysis : Spectroscopy Analysis or MR Spectro Engine or ReadyView	- 3copies-	
		• DCE Analysis : MR Permeability or Tissue 4D or GEN-IQ	- 3copies-	
		• Advanced Vessel Analysis tools : Qflow or MR Vessel View or VesselIQ	- 3copies-	
		• MR Oncology Analysis : MMTT or MR Onco Engine or MR OncoQuant	- 3copies-	
		• 3D Printing file converting : 3D Suite or Provided	- 2copies-	
		2) Concurrent Users : 12 users or more		
	12.	Accessories		
		1. 항온항습 시스템	1 set	
		2. QC Phantom, ACR Phantom	1 set	
		3. Non Magnetic Music System& Head set- 호환되는 모델 중 최고급	1 set	
		4. Non Magnetic auto inject (메드라드)	1 set	
		5. Patient Monitor-Non magnetic Patient Monitor-in vivo MR200	1 set	
		6. 환자 Air positioning system (S, M, L)-장비 제조사 정품 또는 CIVCO사 MTVLF15, MTVL20, MTVL30	1 set	
		7. Virify 전용 컴퓨터 일체(1 SET-모니터 24인치, 프린트기, 본체받침대 등) -CPU 17 10세대 -RAM 32G -SSD 500G -Hard 1T -모니터 바코 임상모니터 24인치(MDRC 2324)	1 set	
		8. Non Magnetic Patient Stretcher Mover-고급형	1 set	
		9. 접수실 데스크 컴퓨터 일체-1SET-(24인치 와이드 모니터, 본체 받침대, 프린트기 포함) -CPU i5 -RAM 8G -SSD 125G	1 set	
		10. 환자대기실 LED TV-현장 대기실 규모에 맞게-현장 확인 후 사이즈 결정	1 set	
		11. 정수기-(조정실, 환자대기실)-5년간 유지보수 지원- 그 후 자산은 본원에 귀속 후 본원이 관리	2 set	
		12. 조정실 및 기타 공사 부분 내 배선 정리 일체	1 set	
		13. 대기실, 탈의실 -환자대기 및 탈의용 의자 일체	1 set	
		14. patient Roll Board 1SET	1 set	
		15. 공기청정기 (BESPOKE 큐브-AX 106A9971ND 이상 모델)-필터 5년 무상제공	1 set	
		16. 이동형 IV 받침대	1 set	
		17. 접수실과 조정실간 소통 시스템: MRI 실 협의 , -인터콤 및 CCTV 포함. -기존 1번 2번 조정실과 접수실 포함.	1 set	
		18. 전동 브라인더 for patient privacy	1 set	
		19. 룸 LED(SKY View)- 협의	1 set	
		20. 유무선 전화기(삼성, LG)	2 set	
		21. Image backup용 4TB 외장하드-2ea		
		22. Room Air-conditioner : Ceiling type-MRI공사 구간 전체 에어컨 –대수는 현장확인 후 결정 -대기실 및 조정실 내 Ceiling Type(냉난방)-포함	1 set 1 set	
		23. Non magnetic IV Stand-2ea(bumyang)		

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		3.0T Magnetic Resonance Imaging System.	**system**	**1**
		24. user guide 한글 매뉴얼 : chapter별	1 set	
		25. Operating chair(4ea)-퍼시스 ch4700AH 이상 모델	1 set	
		*기타 협의사항 병원 및 해당부서와 협의후 결정, 인테리어쪽(차음제, 흡음제, 석고보드등)-낙찰업체 보		
		13. Site Equipment Facilities		
		1)RF interior(Equipment/Control/Exam Room 일체 –대한실드	1 Lot	
		-악세사리 보관장 및 테이블, 전기 및 조명	1 set	
		-기존 1, 2번방 소음보강작업 (최소비용)-현장 확인후 결정.		
		2)HVAC	1 set	
		3)Water chillar	1 set	
		4)Quench tube and Vent pipe	1 set	
		5)촬영실 및 조정실내외 소음 및 진동 차폐 장치 시설일체, 촬영실 출입문-대한실드	1 set	
		6)RF Trans parent window (no metal mesh)	1 set	
		7)최고급 화소 CCTV 장치 일체: 24인치 모니터 포함- 촬영실내부-Non Magnetic; 대한실드	1 set	
		8)환자대기실과 조정실간의 CCTV(최고급 화소)	1 set	
		-공사구간 CCTV 전체(녹화기능 포함)	1 set	
		9)MRI실 입구출입문 터치식 및 잠금장치	1 set	
		10)MR Room 내 인테리어 및 코일장(현장 실측 후 제작)	1 set	
		11)촬영실 내부 Wall 산소공급 장치 및 suction 기 설치 (기구 SET 포함)	1 set	
		-(촬영실 내부 non-magnetic 용으로 사용, 기구SET 일체 포함)		
		-(환자 보호자 대기실 Wall 산소공급 장치 및 suction 기 설치 (기구 SET 포함)		
		12)현재 사용하고 있는 탈의실 –변경공사 일체	1 set	
		13)직원 탈의실 옷장 및 부대 시설 일체	1 set	
		14)기타 영상의학과 공사 반대측벽(타일공사), 복도 조명 공사, CT 12번 대기실 리모델링.		
		*기타 협의사항 병원 및 해당부서와 협의후 결정		
		14. Unique Items of each vendor : [Type A] or [Type B] or [Type C]		
		[Type A]		
		1) UI with guidance that simplifies scanning patient with MR Implants : ScanWise Implant	1 set	
		2) Additional analysis on spectroscopy by VAPOR, sLaser... : Spectroscopy Specialist XD	1 set	
		3) Providing functionalities for neuroscience research and neurofunctional imaging : NeuroScience Specialist	1 set	
		4) Advanced DTI analysis up to 2048 independent diffusion encodings : NeuroScience Specialist Extension	1 set	
		5) Small FOV diffusion imaging with higher resolution, lower distortion and improved fat suppression : IRIS Zoom	1 set	
		6) Detection and relative quantification of J-coupled metabolites such as gamma-aminobutyric acid (GABA) by automatically removing the spectral overlap from other metabolites : MEGA	1 set	
		7) Dynamic and real-time cardiac studies as well as single breath hold, multi-slice cine studies : K-T Blast	1 set	
		8) Uses the presence of endogenous cellular proteins, to produce an MR signal that directly correlates with cell proliferation, a marker of tumoral activity and generates APT-weighted (APTw) images : 3D APT	1 set	
		9) Cardiac T1, T2, T2* Mapping Analysis with ECV Calculcation : ISP - MR Cardiac Quantitative Mapping	1 set	
		10) IVIM and Kurtosis analysis from DWI images : ISP - MR Advanced Diffusion Analysis	1 set	
		11) Liver Qantitative T2*, Fat fraction analysis & Liver volume segmentation : ISP - MR Liver Health	1 set	
D.		12) Compressed SENSE with 2D TSE/FFE/TFE	1 set	
		13) Compressed SENSE with 3D TSE/FFE/TFE	1 set	
		14) Compressed SENSE with 3D coronary artery imaging	1 set	
		15) Compressed SENSE with 3D MRCP	1 set	
		16) Compressed SENSE with 3D TOF & PCA MRA	1 set	
		17) Compressed SENSE Neuro/Spine	1 set	
		18) Compressed SENSE MSK	1 set	
		19) Compressed SENSE Cardiac	1 set	
		20) Compressed SENSE Abdomen	1 set	
		21) VitalScreen	1 set	
		22) Fully digital platform on MRI system : dStream	1 set	

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		23) AI based parallel distributor system : dSync	1 set	
		24) All SmartExam solution(Brain,Spine, Shoulder, Knee, Breast)	1 set	
		25) Used AI to detect even the tiniest microscopic signs of breathing : Vital EYE	1 set	
		26) Philips Ultrasonography system(EPIQ ELITE)	1 set	
		[Type B]		
		1) All DOT Engine package (Brain, Spine, Large joint, Abdomen, Cardiac, etc..)	1 set	
		2) Enables scan time reductions as a factor of slice acceleration on TSE : SMS TSE	1 set	
		3) MultiBand for MultiShot EPI : SMS RESOVLE	1 set	
		4) Scanning with continuous table move (Fast 2D GRE localizer, Contrast-enhanced angio, 3D coronal, Multiple contrasts 2D Axial) : TimCT (FastVIEW)	1 set	
		5) OncoCare	1 set	
		6) BEAT Sensor	1 set	
		7) Compressed Sense (& GRASP VIBE)	1 set	
		8) Fingerprinting	1 set	
		9) Cinematic Rendering	1 set	
		10) Morphometry	1 set	
		11) PETRA	1 set	
		12) CS SEMAC	1 set	
		13) Deep Learning reconstruction(Deep resolve sharp)	1 set	
		14) Wave CAIPI SWI	1 set	
		[Type C]		
		1) oZTEo : MR Bone Imaging	1 set	
		2) Cervical Open Face	1 set	
		3) Fast Cardiac CINE Imaging : Hyperkat 3D CINE	1 set	
		4) 3D motion correction with CUBE T2, CUBE DIR and T2 FLAIR : 3D PROMO	1 set	
		5) Silenz MRA	1 set	
		6) 3D acquisition provide water, fat, in-phase and out-of-phase images : 3D CUBE FLEX	1 set	
		7) Noise level reduce with motion correction images : Silent PROPELLER	1 set	
		8) Dual shim and Rectangular shim : Advanced Shim	1 set	
		9) IntelliTouch	1 set	
		10) Automatic placement of PB Navigator	1 set	
		11) MAGiC DWI with FOCUS	1 set	
		12) Quickstep	1 set	
		13) AIR Touch	1 set	
		14) Breast Dedicated Spectroscopy : BREASE	1 set	
		15) PROPELLER DUO	1 set	
		16) Deep Learning algorithms that automatically identify anatomical sturctures : AIRx Brain	1 set	
		17) Deep Learning reconstruction : AIR Recon DL	1 set	
		18) Deep Learning reconstruction for DWI : AIR Recon DL DWI	1 set	
		19) Hypersense	1 set	
		20) MAGiC	1 set	
		21) Volume Illumination	1 set	
		22) Quantib	1 set	
		23) ZTE	1 set	
		24) HyperMAVRIC SL	1 set	
		25) 750W upgrade	1 unit	

Remarks :

1. Installation

Contractor is responsible for installation of this equipment at customer's premise.

2. Warranty

Supplier shall be responsible for maintenance for 3 years with free of charge related to all parts.

3. Training

Contractor or supplier should provide local training for operation for 1 week to an operator.

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H.S NO.	Item NO.	Description	Unit	Quantity
		3.0T Magnetic Resonance Imaging System.	system	1

In addition, provide remote application support & training whenever the hosptial needed

4. Contractor or supplier shall provide the one set of unique items among [A type], [B type] or [C type]
5. 로컬 악세서리는 사용 부서와 협의 후 납품한다. (제조회사, 모델, 옵션)
6. 인테리어 공사는 사용부서의 협의하여 진행하도록 한다. (차폐, 방음공사)

위와 같이 일반 경쟁 입찰을 의뢰합니다.
PS : 입찰 후 최저가 응찰 업체를 낙찰자로 결정함.

2021. 6. 15

사용부서명 : 영상의학과 신청인 성명 : 인

부서장(확인자) 성명 : 인

기술부서명 : 관리부 의용공학과 담당자 : 서 보 경