Commodity Description

▶ **입찰서는 최소한의 기준사양을 알려드리오니 기준사양에 적합하거나, 그 이상의 규격을 가진 제품을 제시하여 주시기 바랍니다.**

분류번호	등급	명칭	수량	단위
A13010.02	2	**양전자방출/전산화단층 엑스선 조합촬영장치 (PET/CT)**	**1**	**sys**

A. APPLICATIONS

1. This system is a whole body & cardiac PET/CT scanner system with automatic image fusion
2. This system provides both functional and anatomical information with high image quality with CT based attenuation correction.
3. High resolution, high-count rate, positron emission tomograph (PET) imaging of metabolic and physiologic processes
4. High performance spiral computed tomography (CT) applications.
5. High quality metabolic and anatomic image registration and fusion for optimal lesion detection and identification within the body.
6. Highest quality attenuation correction for quantitative PET imaging.
7. Highest quality scatter correction for PET imaging.

B. FEATURES

1. Whole body positron emission tomography and CT components combined system provide 3D volume measurements of metabolic, physiologic processes and an accurate anatomical location of the lesion for the staging and treatment of cancer.
2. The PET imaging system consists of the multi-detector ring with 3D acquisition and reconstruction.
3. The CT imaging system consists of multi-slice spiral CT clinical applications with highest possible performance.
4. Small footprint minimizes the need for room modifications and simplifies installation.

C. SPECIFICATIONS

1. PET Subsystem

1) PET Detector Assembly
- Detector type : SiPM
- Crystal type : dBGO or LSO
- Crystal dimensions : 4.1 x 4.1mm or less
- Crystal thickness : 20mm or more
- Transaxial FOV : 70cm or more
- Axial FOV : 21cm or more
- Overlap ratio : 46% or less
- Effective Axial FOV : 14cm or more

2) PET Data Acquisition / Processing
- Acquisition mode : Static, Multi-Static, Dynamic and Gated
- Attenuation correction by transmission measurement using CT
- Extended FOV

3) Image reconstruction Algorithm
- PSF : SharpIR or TrueX or equivalent
- Full 3D iterative PET reconstruction or equivalent
- Image Contrast Enhancement : Time-of-Flight (ToF) technology or equivalent/superior signal-to-noise ratio (SNR) and contrast enhancement technology

4) PET Performance Specifications
- Transaxial spatial resolution
  >FWHM @1cm : 3.2mm or less
  >FWHM @10cm : 3.8mm or less
- Axial spatial resolution
  >FWHM @1cm : 3.4mm or less
  >FWHM @10cm : 3.7mm or less
- NEMA Sensitivity : 16(cps/kBq) or more

2. CT Subsystem

1) CT Scan Parameters
- Max Scan Field of View : 50cm or more
- Maximum number of reconstruced slices : 192 slices or more
- Min slice thickness : 0.625mm or less
- Min scan speed : 0.35 sec or less

2) CT Physical Assembly
- Detector elements : 23,552 or more
- Max kVp range : 140 kVp or more
- Max mA range : 600 mA or more
- X-ray tube : Performix 40 plus or Straton or equivalent (model name and type shall be stated)
- Anode heat storage capacity : 7.0 MHU or more
- Tube focal Spot : 0.9 x 0.7mm / 1.2 x 1.1mm or equivalent

3. Patient table

1) Single patient table horizontal / vertical bed movement
2) Table load capacity : Max 226kg or more
3) Horizontal scan range : 197.3cm or more

4. PET/CT Operator Console (Acquisition Console)

The PET/CT operator console consists of a high-performance CPU based computer or equivalent for acquiring patient data. Includes the AC Plus-Extended Field of View option or equivalent which allows visualization of objects with a FOV up to 70cm or more for improved PET AC.

The PET/CT operator console support or equivalent :
- Patient registration or equivalent
- Patient scheduling and data entry or equivalent
- Protocol selection, review and edit for patient scan or equivalent
- Full 3D iterative PET reconstruction for improved image quality of low statistics acquisitions or equivalent
- Image viewing and Filming or equivalent
- Advanced Image Processing for 3D analysis or equivalent
- Auto transfer and Auto store or equivalent

1) Hardware for PET/CT operator console
- Operating system : Linux or Windows 10 or equivalent / more recent manufacturer optimized OS
- Data archiving : CD, DVD, External HDD or equivalent
- Display monitor : One 19 inch TFT LCD or more
- CPU : 2.1GHz or more
- RAM : 4GB or more
- Hard Drive : 3TB or more

2) Software for PET/CT operator console
- PET attenuation correction and iterative reconstruction or equivalent
- Simultaneous acquisition, reconstruction, display and archiving or equivalent
- Realtime reformat for volume navigation or equivalent
- Modality worklist shall be supplied or equivalent
- DICOM Print and DICOM worklist available or equivalent
- Patient scheduling and data entry or equivalent
- View, analyze and QC integrated PET/CT data or equivalent
- Archive, network and manual filming control or equivalent

5. CT Image reconstruction Method to raw data based Iterative Reconstruction (or equivalent)
- Dose reduction from normal mode
- Changing the reconstruction method from FBP to 3D IR

6. Metal Artifact Reduction Solution (or equivalent)
- It is designed to enhance clarity across a range of cases with hip implants dental filings, screws or other metals in the body.

7. Motion correction function (or equivalent)
- Automatic motion correction software for the specific phase
- Respiratory gating solution

8. ECG Gate

9. Advanced Feature (A or B)

[A]

1) Automatic ACQC
2) Q. Freeze / Q. Static
3) Rad Rx
4) Organ Dose modulation
5) Q. Core Power Pkg
6) Snapshot freeze
7) Q. Clear
8) Q. AC
9) Upgrade ASIR to ASIR-V
10) Precision DL
11) Auto Positioning
12) Bore Pattern & Bore Light
13) Ultra Low Dose Research Tool

[B]

1) CarekV : Automatic CT kVp adjustment function
2) CareDose4D : Automatic CT mAs adjustment function
3) Care PKG (Care Child, Filter, Topo, Bolus CT, Dashboard, Profile)
4) 880 x 880 matrix imaging: Enhenced neuro evaluation solution or software
5) EQ PET
6) Quality Guard
7) Workstream 4D (3D Recon)
8) Fast adjust and Scan assistant
9) Adaptive Dose Shield
10) Alpha Technoligy

10. General Accessories

1) Patient arm support
2) Patient leg rest
3) Patient positioning straps
4) Head holder
5) Operation and Service manual (CD)

11. Local Accessories

1) Ge-68 Annulus Phantom Source	1 ea
2) Ge-68 VQC Phantom Source	1 ea
3) MIM (Encore 4 set / Sureplan MRT 1 set / Sureplan Liver Y-90 1 set/ Lesion ID Pro 1set)	
4) BTx (FDG module 1 lot + Premium maintenance contract for Amyloid, DAT, Tau modules)	
5) PET Dispensing system(자동분주기)	1 ea
6) PET Hood W1500 x D800 x H2450	1 ea
7) PET 바이알보관용 컨테이너	2 ea
8) RI저장함 Pb 10, W800 x D800 x H1000 2단 , 상하 도어	1 ea
9) RI폐기함, 3단 ,Pb 10, W900 x D400 x H500	2 ea
10) 촬영실 머리고정 패드	2 ea
11) PET주사대(차폐주사대)	1 ea
12) LU-177 치료 주사대(차폐치료주사대)	1 ea
13) 안정실 리클라이너(환자용)	2 ea
14) 환자교육실 TV 100인지(LG사)	1 ea
15) 방사선/능측정기	4 ea
16) 개인전자선량계	4 ea
17) PC (본체+듀얼모니터)	2 ea
18) Data 저장서버 (mini PACS)	300TB
19) 실린지펌프	2 ea
20) EKG 모니터	1 ea
21) 검사실 CCTV	4 ea
22) 도즈칼리브레이터(방사능측정기)점검용 선원(Cs-137)	1 ea
23) 접이식 사각형 일반물품 이동용 카트	1 ea
24) 항온항습기	10RT
25) 촬영실 내 가구	

12. Full Site Solutions

인테리어 공사 등 (세부내역은 변동될 수 있음)

D. CONFIGURATIONS

1.	**PET Subsystem**	**1 Set**
2.	**CT Subsystem**	**1 Set**
3.	**Patient Table**	**1 Set**
4.	**PET/CT Operator Console (Acquisition Console)**	**1 Set**
5.	**CT Image reconstruction Method to raw data based Iterative Reconstruction**	**1 Set**
6.	**Metal Artifact Reduction Solution**	**1 Set**
7.	**Motion correction function**	**1 Set**
8.	**ECG Gate**	**1 Set**
9.	**Advanced Feature**	**1 Lot**
10.	**General Accessories**	**1 Lot**
11.	**Local Accessories**	**1 Lot**
12	**Full Site Solutions**	**1 Lot**

E. REMARKS

1. Supplier or contractor should be responsible for installation of this equipment.
2. The warranty for the equipment is three years after inspection (including all components except those specified as consumables).
3. An annual inspection of all components must be conducted at least once a year until the equipment is decommissioned, and the results must be submitted in writing to the medical engineering team.
4. The warranty period for parts supplied for a fee after the warranty period ends will be one year.
5. Before the end of the warranty period, a full inspection of the equipment must be carried out, and any defective parts and components must be restored to normal condition. The battery must be replaced regardless of its condition.
6. Service passwords, hardware keys, and other encryption systems necessary for using and maintaining the equipment must be provided. If encryption systems cannot be provided, technical support must be offered free of charge at any time.
7. All service activities, including preventive maintenance, must be reported to the medical engineering team before work, and confirmation from the medical engineering team must be obtained after work. Any service that is not confirmed by the proper procedures will be considered invalid.
8. The service manual must include circuit diagrams and information necessary for post-maintenance. If not submitted, the warranty period will be extended by one year. (If the circuit diagram is not included, alternative A/S information recognized by the medical engineering team must be provided.)
9. This configuration includes all options available from the supplier. Any additional or confirmed options before delivery must be included in the final delivery.
10. Maintenance training must be provided to the medical engineering team personnel at the supplier's expense, covering the following: Theory + Practical Training (The training location and schedule will be mutually agreed upon.)
11. The supplier shall provide training necessary for the operation of the supplied equipment.
12. Supplier should provide upgrade service for free through GE FMI or Siemens Evolve Package.
13. Seller's liability to Purchaser shall not be limited to the contract price where damages result from Seller's breach, negligence, willful misconduct, violation of law, or infringement of third-party rights.
14. If the safe execution of the contract at site is genuinely and imminently endangered, Seller may suspend only the affected work after prompt notice to Purchaser, provided that Seller minimizes any delay and resumes performance without undue delay.