

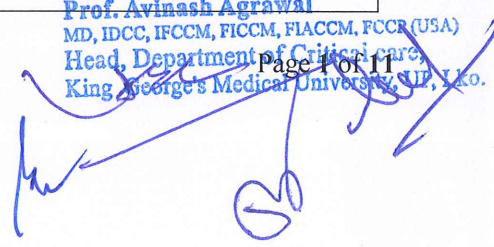


MINIMUM TECHNICAL SPECIFICATION FOR LATEST 128 SLICE CT SCAN MACHINE

Technical Specifications: Minimum technical specifications to be adhered to are mentioned below:

S.no.	Tender Specifications
	<p>Pointwise technical compliance report supported by the technical catalog/specifications must be submitted. Any product quality standard or technical specification without supporting documents shall not be considered by the technical evaluation committee. Any information not available in the brochure/ datasheet should be verified by the original equipment manufacturer on its letterhead and only then the same will be accepted by the technical committee. Refurbish product or model shall not be supplied.</p> <p>Provide the datasheet with the appropriate page number mentioned and other supporting documents.</p> <p>The quoted model should be the latest (launched in the year 2017, RSNA or later).</p> <p>The system should be the latest generation multi-slice CT scanner capable of generating/acquiring/producing 128 or more slices per 360 degree rotation for all types of scans and applications.</p>
1	X-ray Generator:
	High frequency, with a power output of 75KW or more to support continuous and sustained Operation. A minimum continuous scan of 150 cm or more should be possible to cover more anatomical areas.
2	X-ray Tube:
a	X-ray Tube A Tube Current: minimum range 20-600 mA for all applications and all modes.
b	The system should have a mechanism for real-time mA modulation for both Z-axis and angular dose modulation.
c	Tube Voltage: Minimum range 80-140 kV.
d	Should have either an anode heat storage capacity of 7.0 MHU (or more) or alternatively the tube should be with a very high heat dissipation rate (direct Anode Cooling Technology or equivalent, facts to be supported by Datasheet).
e	The X-ray tube should have a cooling rate of 1000 KHU per min or more.
f	Filter and beam limiting devices: The Al equivalent (at least 5mm) and other specific

Prof. Avinash Agrawal
 MD, IDCC, IFCCM, FICCM, FIACCM, FCCR (USA)
 Head, Department of Critical Care,
 King George's Medical University, NIP, Vko.

	features to reduce radiation dose to the patient must be specified.
g	Specify focal spot size and number according to IEC recommendations.
3	Gantry:
a	Aperture: 70 cm or more.
b	Physical Tilt: $\pm 24^\circ$
c	The entire range of rotation times for a full 360 degree should be 0.35 seconds or less.
d	Remote-controlled tilt from the operator table should be possible.
e	FOV should be at least 50 cm.
f	Integrated Display Panel - Gantry front showing current scan parameters such as kV, mA, ECG trace etc. for easy set up for ECG gated studies.
4	Patient Table:
a	Should be able to bear 200 kg or more with 1 mm positioning accuracy.
b	Table speed: Horizontal – Up to 100mm or more/sec.
c	Vertical table travel: range should be specified.
d	Scan range: should have at least 160 cm metal-free scan-able range.
e	The facility of positioning aid for horizontal iso-centric positioning of the patient.
5	CT capabilities:
a	The minimum slice thickness should be 0.63mm or less and a maximum of 10 mm or more.
b	Pitch factor (volume pitch): Variable between 0.5 to 1.5 or more and should be user selectable. Specify all possible pitch selections.
c	Gapless spiral length: 150cm or more.
d	Single continuous 'spiral-on time' should be a minimum of 60 seconds or more.
e	Bolus triggered spiral acquisition should be possible.
f	True isotropic volume acquisition and sub-millimeter resolution of at least 0.625 mm or less for all body applications.
6	Tomogram:
a	Length and width: specify a range.
b	Scan times: specify a range
c	Should be possible to interrupt acquisition manually once the desired anatomy is obtained.
7	Data acquisition system:
	The system should have a minimum of 64 rows of detectors capable of generating/acquiring 128 slices or more with the latest detector technology. A number of elements in each row should

Prof. Avinash Singh
 MD, IDCC, IFCCM, FIACCM, FCCP (US),
 Head, Department of Critical care,
 King George's Medical University, UP.

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	be specified.
b	Mention minimum acquired slice thickness in Axial & Helical mode after reconstruction.
c	Acquisition of cardiac images with ECG gating (prospective & retrospective) should be possible
d	Step and shoot technique during cardiac scanning for dose reduction, or a similar alternative technology should be available.
8	Image Reconstruction:
a	The latest iterative reconstruction technique should be offered. Real-time reconstruction speed: 40 images per second or more at 512 x 512 matrix.
b	Display matrix: 1024 x 1024 or more.
c	The reconstructed slice thickness range should be less than one mm (<1) to 10mm.
d	Specify scan field and reconstruction field.
e	Metal artifact reduction software
9	<p>Workstation:</p> <p>A multimodality client-server architecture-based solution with minimum concurrent 40000 slices rendering capacity (Intellispace Portal 9/ Dexux- AW server 2/ Syngo Via 30A etc), Should be provided with two independent workstations.</p> <p>Server workstation: Intel Xeon Gold 6226R 2.9GHz, with 32GB RAM with storage of 2TB or more, having 2 concurrent licenses of all offered software and feature.</p> <p>Client hardware specification- Workstation: Z820 or equivalent CPU, dual quad-core processor, 16GB RAM, 1TB hard drive, DVD Writing with the clinical-grade monitor of minimum 2MP& 5 button mouse. Should come with 21 inches or bigger medical grade LCD dual monitor. Both the workstations with medical-grade monitors of at least 24 inch or bigger having all post-processing applications need to be installed.</p> <p>A reputed Anti-Virus Solution for the Server should be in place.</p> <p>All two workstations should have the following processing tools/software Available as standard:</p> <p>Also, an additional 1 in number viewing portal nodes to be provided with medical-grade monitors.</p>
	Multiplanar reconstruction (MPR)
	Minimum and Maximum intensity projection (Min IP & MIP).
	3D Volume rendering.
	3D SSD (Shaded Surface Display).

Prof. Avinash Agrawal
MD, IDCC, IFCCM, FICCM, FIACCM, FCCP (USA)
Head, Department of Critical care,
King George's Hospital, University, UK.

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	Auto Bone Removal.
	Volume measurement.
	Bone mineral analysis to measure bone density in one or multiple time points.
	Following Applications on all 2 concurrent users: Total 3 client/nodes with 2 user concurrent licenses to be provided.
	Advanced Vessel Analysis with plaque visualization.
	Perfusion CT.
	Image Fusion of CT, MR & PET Data
	Neuro DSA.
	Coronary tree analysis: automated 3D processing of coronary arteries, calcium scoring, stent analysis, LV analysis, TAVI application,
	Software required for Quantification of Lung disease.
	The System should be able to offer Dual-energy applications: Gout, Renal Calculi characterization, or more if available with the system.
	A monitor and foot paddle is to be provided inside the gantry for Fluoroscopy/Continuous CT guided biopsy.
	Virtual endoscopy/fly-through.
	Lung Nodule Evaluation
	Liver Analysis software, Auto segmentation
	Multimodality tumor tracking
	It should be possible to carry out hard copy film archiving and soft copy archiving on a CD/DVD in form of each workstation. Multisession archiving on CD/DVD should be available.
10	Image Evaluation Tools:
A	Parallel evaluation of multiple ROI in circle, irregular and polygonal forms.
B	Statistical evaluation for area/volume, S.D., Mean, Min/Max, and histogram.
C	Distance and angle measurement, freely selectable positioning of the coordinate system, grid, and image annotation.
11	Automatic patient orientation through camera base AI solution for patient orientation, vertical centering, automatic surview start, and end positioning,
12	Latest Iterative Reconstruction Technique:
A	ASIR-V/ iDose4 Premium / SAFIRE to be quoted as standard.
B	Low-dose protocols must be offered for pediatric scanning.

Prof. Avinash Agrawal
 MD, IDCC, IFCCM, FICCM, FIACCM, FCCP (USA)
 Head, Department of Critical care,
 King George's Medical University, UP, L.

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13	Patient Communication System: An integrated intercom and automated patient instruction system (API) should be provided.
14	Image Quality:
A	Low contrast resolution: Low Contrast Detectability: The low contrast resolution for CATPHAN should be at least 5mm at 3 HU with a 10 mm slice on 20 cm CATPHAN Phantom.
B	High contrast spatial resolution should be not less than 16 lines pair per cm or highest maximum at 0% MTF X-Y axis for FOV not less than 50cm. Specify the same at 10% MTF.
15	Image Documentation & Archival: -
A	The CT should be DICOM 3.0 ready
B	Filming parallel to other activities, including independent scanning, documentation and post-processing, and configurable image text.
C	The system should be capable of integrating with any PACS/HIS system. The system should be DICOM-ready with true isotropic volume acquisition and sub-millimeter resolution.
D	CT fluoroscopy system with 1 monitor and another required accessory to be required.
16	Accessories to be provided:
A	One dry chemistry camera with a resolution of 500 dpi or more. It should be digital DICOM 3.0 compliant. iv. The system must have at least three online film sizes and should be capable to print on any of the 8x10, 10x12, 11x14, 14x14, 14x17 sizes. The system should be freely configurable by the user, to use any of the above-mentioned sizes. The camera should be networked to other equipment installed in the department, as specified at the time of installation.
B	Suitable Dual Head pressure injector with complete accessories & 100 sets (Each set having 2 syringes), tubing, and connector.
C	Ultrathin X-Ray Film illuminator using LED Lamps. Suitable for viewing three 14" x 17": three nos.
D	UPS for the complete system. It should be possible to run the system and all accessories for at least 30 minutes.
E	One set of standard patients positioning accessories and restraining devices.
F	One collapsible wheelchair
G	One Patient Trolley

Prof. Avinash Agrawal
 MD, IDCC, IFCCM, FIACCM, FCCP (USA)
 Head, Department of Critical care,
 King George's Medical University, UP, LI

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H	Lead glass (2 mm thickness/as per the AERB guidelines for the equipment): minimum size 150 x 100 cm.
I	Premium ultra-light lead aprons: 4.
J	Thyroid collars: 4.
K	Gonadal shields: 4 each for male and female pediatric patients (total 4).
L	Lead apron hanger (for hanging two premium lead aprons): 2.
	The system should have a wide installation base in Government/Private institutes of repute. Kindly mention the names of the same. Also, company and model name of the unit offered should be clearly mentioned.
	4D Dynamic Scanning like Jog Mode/Volume Helical Shuttle/4D Flex scan techniques with Minimum 8cm coverage or more
17	Standard and certification
	AERB/NOC approved copy of offered equipment to be attached. The company should follow all necessary safety guidelines and provide necessary aid for the commissioning and decommissioning of the machine as per the standard AERB-eLROA guidelines.
18	Warranty and CMC:
A	The system including all components, all accessories, and entire turnkey work should be under a complete replacement warranty for five years from the date of issue if the installation certificate.
B	A comprehensive Maintenance Contract (CMC) for the whole system, including all components, all accessories, and entire turnkey work for 5 years should be quoted after the warranty.
C	Principal and India counterpart. The principals should be responsible for any lacuna or deficit in service or supply. Supplier / principal company should attach a minimum of 5 installations of CT scan system and after-sales service experience minimum 5 years to ensure service support.
D	All items in the supply order should be supplied during the time of installation. No exceptions will be allowed.
E	Software upgrades (where hardware upgrades are not required) within one month after release during warranty and CMC.
F	The equipment should have 60 months warranty from the date of handing over the fully functional unit and the accessories supplied (such as UPS, AC, Generator, etc) to the

	hospital against manufacturing defects of material and workmanship.
G	Even during the warranty period, the desired uptime of 95% of 365 days will be ensured. In case the downtime exceeds the 5% limit, the extension of the warranty period will be twice the excess downtime period
H	The post-warranty (after 5 years) CMC should be comprehensive (repair and/ or replacement) + labor + spares for the complete system which includes all the accessories supplied such as UPS, Generator, AC, etc. (Including batteries for UPS). This CMC should be quoted in Indian Rupees.
19	Turnkey Specifications
	The CT scan unit is to be installed on a turnkey basis
	The layout plan and other site requirements are to be finalized in consultation with concerned hospital authorities.
	The supplier shall be required to undertake all the pre-installation, and site preparation work in the area as per the layout plan.
	The CT complex will comprise various rooms like the CT Examination room, console room, reporting room, changing room, electrical equipment, and UPS room for the CT facility.
	The site work will be as per the approved plan.
	During construction, modifications can be permitted by the user department of the hospital for more efficient utilization of space and resources.
	All AERB requirements must comply with Site Preparation Work.
	All items to be used should be of very good quality and are to be used only after the approval is granted by the department or other relevant hospital authorities. In case the same is not done, the vendor shall have to dismantle the existing material and carry out fresh work at his own cost.
	Rates of the following components of the turnkey project should be quoted with the system. Civil Electrical Public health (water supply) and fittings), if any Furniture and other items Miscellaneous
	a) Civil WORK:
	All dismantling and reconstruction are to be done as per the approved plan by the Institute. Vitrified non-slippery tile wall to wall including dado up to ceiling height including the

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[Signature]

Prof. Avinash Agrawal
MD, IDCC, IFCCM, FICCM, FIACCM, FCCP (USA)
Head, Department of Critical Care,
King George's Medical University, UP, Lko.
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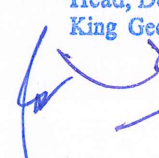
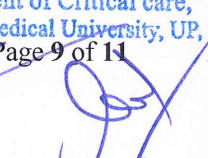
	<p>imaging station except toilets which should have granite.</p> <p>Doors leading to CT examination room should be lead-lined laminated doors with hardboard wooden frames, Doors and windows (including chokhat and shutters) should be aluminum glazed of thickness 10 G with 20 microns anodizing and with 6 mm thick wired glass 12 mm thick pre-laminated, board for the doors and windows</p> <p>All fluorescent lights and smoke detectors are to be accommodated! integrated in the false ceiling.</p>
	AIR CONDITIONING:
	<p>The vendor must install adequate air-conditioning capacity in all the related rooms to always ensure a constant temperature. The tender bid document must clearly specify the capacity being installed to ensure the above. In case any additional capacity is required during the warranty and CMC period of the equipment. The same shall be arranged by the vendor only. Multi-split air conditioning system to be provided for CT area including equipment room/examination room/reporting room/control room and server room etc. A/C to be designed with standby provision to function 24 hours a day. The outdoor units of AC should have grill coverings to prevent theft and damage. Provided ACs are to be maintained by the vendor during the warranty and CMC period. The relative humidity is 60% and 80% in all areas except the equipment room which shall be as per the requirement of the equipment.</p>
	Dehumidifiers: 02 Nos. to eliminate moisture condensation on the equipment surface
B	Electrical Works
	<p>Electrical works: Electrical power inlet cable shall be provided by the institution/consignee up to the electrical panel installed by the vendor in CT Complex. All general lighting in the area will be carried out by LED light by using copper wiring and PVC conduits. The lights will be of Philips, Syska, or equivalent. The switches will be of Crabtree, Havells or equivalent.</p> <p>A trench/raceway/cable tray if required for the area will be provided by the vendor.</p> <p>4 Nos. of Copper/chemical Earthlings and proper LED lighting for the functioning of CT equipment and accessories should be provided by the vendor</p>
D	FURNITURE AND OTHER ITEMS:
	<p>All furniture items to be of reputed make</p> <p>Storage Almirah :1 no</p> <p>Workstation table 2 nos. (Site fabricated) of size 1200*800*750mm</p> <p>Digital weighing scale 1Nos.</p>

Prof. Avinash Agrawal
 MD, IDCC, IFCCM, FICCM, FIACCM, FCCP (USA)
 Head, Department of Critical care,
 King George's Medical University, UP, Lko.
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	executive office Chairs: 4Nos. of make Godrej, Geeken, Fetherlite or eq.
E	<p>FIRE FIGHTING SYSTEM: A state-of-the-art firefighting system with alarm and smoke detectors to be installed and connected to the main control of the hospital.</p> <p>Fire Detection system: A state of art provided with a fire detection system comprising a Smoke/heat detector integrated into a false ceiling with a hooter and fire panel to be installed and connected to the main control of the hospital.</p> <p>3 Nos. Fire extinguishers of Dry-type should be provided by the supplier.</p>
	The equipment should be US FDA and European CE (from a four-digit notified body)
	Instruments must be ISO certified and a copy should be enclosed. (The ISO certificate must be issued by any organization accredited by the Bureau of Indian Standard or accredited by The international accrediting forum "IAF" (Certificate to be attached).

Conditions for tender:

1. All accessories should be from the same Original Equipment Manufacturer for the main unit.
2. Any equipment supplied along with the main unit; is the responsibility of the company to install the MRI scanner. The third-party maintenance should be properly taken care of and should not hamper with smooth functioning or maintenance of the equipment. However, the overall responsibility for the functioning of these third-party accessories will be the responsibility of the company, which is awarded the tender.
3. Cost of each hardware and software (Machine, coils, pulse sequences, computer, accessories, etc.) should be separately mentioned in the bid.
4. Instruments must be ISO certified and a copy should be enclosed. (The ISO Certificate must be issued by any organization accredited by the Bureau of Indian Standard or accredited by the international accrediting forum "IAF" (Certificate to be attached).
5. Should be USA FDA and European CE be approved by 4 digits notified body.
6. Other necessary certifications will be provided by the bidder for smooth functioning of the machine.
7. Installation process should be performed by O.E.M trained service engineers/ service representatives on OEM letterhead or Service Report within 15 days of supply, with the mandatory provision of providing preventive services visit of OEM trained Service Engineer/ Service Representative quarterly per year till the completion of warranty period (i.e., 20 visits for the first 05 years) & further quarterly visits (04 visits/year) year till the completion of CMC period.

 Prof. Anil Kumar Agrawal
 MD, IDCC, IFCCM, FICCM, FIACCM, FCCP (USA)
 Head, Department of Critical care,
 King George's Medical University, UP, Lko.
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8. The equipment should have a Brand name / Model Number embossed/etched on the equipment.
9. All the technical specifications in the compliance statement must be supported by Original Literature from the firm / O.E.M with highlighting Numbering & flagging of all technical certificates.
10. Offered Equipment should have a strong Government Installation base.
11. Offered Equipment should have a Regional Sales Service Centre of the Original Equipment Manufacturer in the region for a 95 % uptime guarantee.
12. For the offered main unit, the essential, optional required consumables'/accessories' shelf life should be declared on the Original Equipment Manufacturer's letterhead.
13. In case of technical snag/failure/breakdown the response time for the inspection should be within 24 hours and repair within 05 days otherwise provide a service machine/ alternate arrangement to be made till the period of recovery of the breakdown of the unit, failing which attracts penal action as per the decision of institute/ hospital.
14. For offered equipment the Training of technical staff and users should be performed by Original Equipment Manufacturer trained Service Engineers at the proper designated place- at bidders' cost.
15. Company should quote their latest model and need to provide an affidavit for the same.
16. As a tendering process the Demonstration of the offered Equipment is Mandatory at hospital/institute premises or other designated places at the bidder's cost.
17. The bidder must comply with the General Financial Rules and their modifications if any issued by the Government of India- 2017.
18. Any bidder from a country that shares a land border with India will be eligible to bid in the tender only if the bidder is registered with the Competent Authority (i.e., Registration certificate issued by the Ministry of Commerce and Industry (Department for Promotion of Industry and Internal Trade- DPIIT after October 2020). If any such bidder is not registered with DPIIT they will be liable for technical disqualification.
19. Principal (OEM) must authorize only one agent to be quoted in the bid otherwise multiple quotes through different agents in the same bid will be canceled.
20. The Bidder and its OEM both have to submit a notarized affidavit on the Indian Non-Judicial Stamp Paper of Rs.100/- that the bidder has not quoted the price higher than the current financial year and last financial year supplied to any government Institute/ Organization/ reputed Private Organization. OEM also has to submit that the price quoted by the bidder in the bid is on its behalf and the lowest in the current and last financial year in the country.

Therefore, if at any stage it has been found that the supplier and its OEM have quoted lower rates than those quoted in this bid; the Institute (the purchaser) would be given the benefit of lower rates by the Supplier and any excess payment if any, will become immediately payable to the Institute (the purchaser). If such an affidavit is not submitted, the bid will be outrightly rejected. (Part of technical bid).

21. Guarantee / Warranty Period: Separate offers of Comprehensive Maintenance Contract (CMC on main equipment) and Annual Maintenance Contract (AMC on main equipment) for further 5 years after expiry of 5 years of warranty (i.e., 6th, 7th, 8th, 9th and 10th years) in rupees only (and on basis of percentage of price) should be included in a financial bid in the absence of which the offer is liable to be rejected. Payment for CMC/AMC shall be made only after the expiry of the warranty of 5 years, in case the Institute (the purchaser) decides for availing of CMC/AMC services. Contract for CMC/AMC shall be decided on expiry of warranty but rates (not more than 5% inclusive of all taxes for 6th to 10th year) will be frozen at the price of an issued purchase order before the release of payment by the Institute (the purchaser). However, the Institute (the purchaser) may decide not to enter into any CMC/AMC contract without assigning any reason for the same, which shall be binding upon the bid.

Deed

Prof. Avinash Agrawal
MD, IDCC, IFCCM, FICCM, FIACCM, FCCP (USA)
Head, Department of Critical care,
King George's Medical University, UP, Lko.

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