

AMDA Nepal

Kathmandu, Nepal

TECHNICAL SPECIFICATION

Technical Specification for Whole body Multi Slice CT Scanner

Technical Specification of 32 Slice CT Scan Machine				
Sn.	Purchaser's Specifications	Bidders Offer	Page no in catalogue/datasheet	Remarks
	Computed Tomography (CT) Scan Machine			
	Manufacturer:			
	Brand:			
	Type/Model:			
	Country of Origin:			
1.	Description of Functions			
1.1	A computed tomography (CT) scan allows doctors to see inside Human body. It uses a combination of X-rays and a computer to create pictures of organs, bones, and other tissues. It shows more detail than a regular X-ray. CT Scan can be used for any part of body. Its painless and short procedure System to get Pictures of Organ.			
2	Operational Requirements:			
2.1	The Spiral CT scanner for high-resolution whole-body scanning including vascular applications. The System should be capable of acquiring 32 slices per 360 rotations.			
2.2	It shall be DICOM ready.			
2.3	Tele radiology package with PC and software should be included along with the machine for 2 radiologist.			
3	System Configurations:			
3.1	Spiral CT mainframe with gantry, x-ray tube and generator, tomogram, image reconstruction, Image evaluation tools, post processing tools, as specified.			
3.2	<ul style="list-style-type: none"> - Main console - Diagnostic Workstation - Patient table - Dry film printer - Pressure Injector - Lead Accessories – As per requirement 			
4.	Technical Specifications:			
4.1	Gantry:			
a	Aperture of 75 cm or more.			
b	It shall have control panel on either side of the gantry.			
c	It should have auto positioning of Lights.			
d	Gantry tilt: +/- 30 degrees or more via remote control and from the console.			

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e	It must have FOV of at least 440 mm or more.			
4.2	Scan Time and Scanning Capability:			
a	The Scan time for one Gantry Rotation of complete 360° rotation should be 0.75 Sec or less.			
b	Dedicated Pediatric and infant base protocols should be available based on the infant weight.			
c	Real time contrast monitoring acquisition with auto scan initiation protocol and with auto injector trigger.			
4.3	Detector:			
a	The detector shall have at least 16 rows with more than 11200 elements.			
b	The detectors shall be large area detector with a Z-Axis coverage of at least 12mm coverage per rotation for all application.			
c	Entire range of rotation times for full 360 degree shall be 0.72 seconds or less			

4.4	Slice Thickness:			
a	32 slice acquisitions with minimum thickness of 0.50 mm or less			
b.	System should be able to reconstruct 100 slice or more.			
4.5	Pitch Factor:			
a	Should be variable between 0.3 - 1.5 or better and should be user selectable or automated.			
4.6	X-ray Generator:			
a	The Generator should have adequate output to facilitate spirals of at least 100 sec or more continues scan.			
b	X-ray generator power must at least 32 KW.			
4.7	X-Ray Tube:			
a	X-Ray shall be rotating anode type with dual focal spots of approx. 0.7mmx 0.8mm (small) or less, 1.2mmx1.4mm (large) or more.			
b	Tube Voltage shall range from 60KV - 140 KV			
c	Tube current shall range from 10mA - 300mA			
d	Tube of high heat storage capacity 5 MHU or more			
e	system should have the 3D Dose modulation.			
f	x-ray cooling speed at least 800 KHU/per minute			
4.8	Resolution:			
a	High Contrast resolution: 15 lp/cm @ 0% MTF or better axial and spiral scan.			
b	The low contrast resolution should be 2mm or more at 3.0 HU. Dose to be less than 18 mGy.			

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4.9	Patient Table:			
a	load capacity: not less than 200 Kg			
b	Table horizontal movable range: not less than 1500 mm			
d	Table top should be made of carbon fiber			
e	Minimum table top height should not be more than 480mm (Approx.) from the floor level			
f	Facility of positioning aid for horizontal ISO-centric positioning of the patient.			
4.10	Image Reconstruction:			
a	Image reconstruction capability should be at least 20 images/sec with simultaneous reconstruction facility.			
b	Reconstruction matrix must be 512 x 512, 768x768 and 1024x1024			
c	Display matrix shall be 1024 x 1024 or more.			
d	Storage Capacity 1 TB or more			
e	Reconstructed slice thickness range shall be as low as 0.5mm to 10mm.			
f	System should have latest iterative reconstruction technique to eliminate the noise that accompanies ultra-low dose imaging and to provide outstanding image quality.			
g	System should be able to reconstruct 100 slice or more.			
4.11	Console:			
a	Main Computer for control of all examination functions and All functions including scanning image reconstruction, film documentation, archiving, transferring, Real Time MPR Angiography, maximum intensity projection, 3D volume rendering, SSD, CT Angio, CT Urography, vessel analysis, Metal Artifact Reduction, should be possible on console. MIP, CT Angio software with quantitative vessel analysis must be provided.			
b	Display: It should have 23" or more with high-resolution (1920x1080) LCD monitor.			
c	Raw Data storage with 1TB hard disc having more than 18,00,000 image storing capacity.			
d	Reconstruction Matrix: 512 x 512, 768x768, 1024x1024 or more.			
e	Display Matrix: 1024 x 1024 or more			
f	Shall be able to simultaneously transfer image to workstation while performing scan.			
g	With DICOM 3.0 interface for transfer, print, receive, archive, retrieve and work list.			

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h	Come with printer and CD/DVD recording device.			
4.12	Consoles Common feature:			
a	Patient online registration, pre-registration facility and transfer of information from HIS/RIS via DICOM should be possible.			
b	Window width and center must be freely selectable.			
c	Image zoom, Layout, ROI Drawing should be available.			
d	Post Processing Software: MIP, AIP, MinIP, SSD, 3D, Virtual Endoscopy should be provided on the console.			
e	Protocols for Perfusion CT for study of brain & body.			
4.13	Image evaluation tools:			
a	Parallel evaluation of multiple ROI in circle, irregular, Rectangle and polygonal forms.			
b	Statistical evaluation for area/ volume, S.D, Mean/Max and Histograms.			
c	Profile cuts: horizontal, vertical and oblique views.			
d	Distance & angle measurement, freely selectable positioning of coordinate system and image annotation.			
4.14	Helical application:			
a	Scan length: at least 150 cm in a single continuous spiral/ helical scan.			
b	The system shall have the facility to monitor contrast enhancement & automatically initiate scanning.			
c	Single continuous spiral on time shall be at least 100 sec.			
4.15	Diagnostic workstation:			
a	Diagnostic Workstation from same principal company with CPU, LCD monitor not less than 19" with image evaluation software and following post processing functions.			
b	Post processing Applications: <ul style="list-style-type: none"> - VRT, MIP, SSD, - Perfusion CT (Brain & Body) - Vessel Analysis - Virtual Endoscopy & Virtual Colonoscopy - Nerve system DSA - Fat analysis - Tumor Assessment - Dental Analysis - Prism Imaging - Lung Nodule Analysis and Lung Density Analysis should be provided on workstations. 			

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5	Accessories Should be include:			
a	Patient communication system: An integrated intercom and Automated Patient Instruction System (API) should be provided.			
b	UPS with 30 minutes back up of suitable capacity to backup entire system.			
c	Dry Film Printer: 2 Online tray with 500 dpi or more resolution			
d	Pressure Injector: Single head with 50 Syringes.			
e	Lead Accessories: <ul style="list-style-type: none">- Lead Glass 100x120 cm with 10mm- Lead Sheet for Main entry & technical entry door with 2 mm- Lead Aprons: 2 unit with 0.5mm			
6	Operating Environment			
6.1	Power supply: 220 – 240 VAC, 50Hz fitted with appropriate plug. The power cable must be of sufficient length, and 380 - 415VAC 3-phase.			
7	Standards and Safety Requirements			
7.1	The system bidder must submit <ul style="list-style-type: none">- ISO: 9001/ISO: 13485 valid certificates of the system.- CE and US FDA.- IEC 60601-1- Electrical safety			
7.2	Certification of manufacturer guaranteeing the availability of all spare parts for next 10 years after installation.			
7.3	Certification that the supplier has the capability for preventive and corrective maintenance of the unit. Should perform 3 Preventive maintenance annually during the warranty period.			
7.4	Certificates of training of engineers in the CT model bided.			
7.5	All the ancillary equipment and computers should be delivered along with the CT scanner.			
7.6	95% uptime guarantee must be assured for 5 years. If down time exceed more than 5% the company will be penalized with extra warranty of triple the down time.			
7.7	The CT scanner supplied should be brand new with the date of manufacture mentioned and the country of origin should be clearly mentioned and certificate of calibration and inspection from factory to be provided along with the equipment.			

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7.8	The supplier must accomplish proper installation and commissioning of the proposed equipment on the site including;			
8	User Training			
8.1	On site clinical training of 4 weeks by reputed specialist to be provided over a period of one year.			
8.2	Onsite service training to bio maintenance department staff for Routine checkup, basic troubleshooting, Preventive maintenance for at least 2 weeks.			
8.3	Bidder should quote CMC rate for next 7 years after warranty period			
9	Warranty			
9.1	3-year comprehensive warranty for complete CT Scanner System including X ray tube and all accessories.			
10	Installation and Commissioning			
10.1	The bidder must arrange for the equipment to be installed and commissioned by certified or qualified personnel; any prerequisites for installation to be communicated to the purchaser in advance, in detail			
10.2	Inspections to verify the compliance of the offered equipment as per specifications will be conducted by the technical team (Consultant) appointed by the AMDA Nepal. Failure to demonstrate listed specification shall result in rejection of the equipment.			
10.3	Installation must be carried out by company trained certified engineer. A copy of certification should be provided.			
11	Documentation & References			
11.1	Bidder should provide user (Operating) manual in English			
11.2	Minimum 2 units of same manufacturer CT scan machine should be installed in Nepal Market.			