


TECHNICAL SPECIFICATION FOR X-RAY 500 MA

S. N.	Purchaser's Specifications(Solududhkunda mun FY:79/80)	Bidder's Compliance Sheheet		
		Yes/No	Page No. in Catalogue	Remarks
	X-ray,500ma			
	Manufacturer			
	Brand			
	Type/Model			
	Country of Origin			
1	Description of Functions			
1.1	A general purpose X-ray machine for routine X-ray examinations at healthcare facilities.			
2	Operational Requirements			
2.1	It shall be suitable to be used for adult and paediatric patients in general Radiography examination.			
3	System Configurations			
3.1	X-ray Generator, 1 unit			
3.2	X-Ray tube & tube support system, 1 unit			
3.3	Radiographic patient table, 1 unit			
3.4	Chest stand, 1 unit			
4	Technical Specifications			
I	X-ray Generator:			
	Bidder shall indicate brand and model information here and provide technical data document for X-ray generator offered			
4.1	Line frequency or high frequency generator , the generator shall have at least 40kHz.			
4.2	Generator Output: not less than 30 kW (500mA at 100kV)			
4.3	Radiographic voltage: 40 kV to 120kV, in 1kV step or better			
4.4	Radiographic current: 10 to 500mA or better			
4.5	Exposure time: 0.01sec (1msec) - 6sec or better			
4.6	Anatomical Programmable Radiographic mode adds advantage.			
4.7	Shall come with overload protection device.			
4.8	Power supply: 220V, single phase			
II	X-Ray Tube:(approx.)			
4.1	X-ray tube rotating: +/-120°.			
4.11	Large focus not more than 1.2 mm.			
4.12	Small focus not more than 0.6 mm.			
4.13	Maximum tube output shall match with the generator output of not less than 30 KW.			
4.14	Filtration: min 2.5mm Al equivalent.			
4.15	Cooling method passive or forced air and/or oil cooling.			
4.16	Anode rotating speed: More than 3000 rpm.			
4.17	Anode heat capacity shall not be less than 150 KHU.			
III	Radiography Patient Table:(approx.)			
4.18	Radiography table shall be fixed height or height adjustable, Fixed/2-way or 4-way floating top type .			
4.19	Come with grid and cassette tray, with grid ratio: not less than 10:1. Grid line number: 40 line/cm. Focus distance: 115cm.			
4.2	Cassette size: accept all sizes from cassette to 14"x17" type.			
4.21	Radiography table shall be fixed height of about 60cm.			
4.22	Table top to film distance: approx. 6cm.			
IV	Chest Stand:(approx.)			
4.28	Vertical travel: from 460-1700mm or in the range.			
4.31	Cassette size: accept all sizes from 5"x7" to 14"x17".			
V	Floor Mounted Tube Stand:(approx.)			


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4.33	Longitudinal travel: approx. 1750mm.			
4.34	Vertical travel: from 630 -1850mm or in the range.			
4.35	Movement arrested by electromagnetic brakes.			
4.36	Rotation of tube arm around vertical axis: 180 ⁰ ; lockable at 0 ⁰ to +/- 90 ⁰ .			
VI	Collimator:			
4.37	Manually adjustable.			
4.38	Manually selectable filters.			
4.39	Light localizer with timer controlled light.			
4.4	Built-in light switch should be provided.			
4.41	Turning angle should be min +/- 45 degree.			
4.42	Halogen lamp.			
VII	Control Console:			
4.43	Digital Display.			
4.44	Minimum 3 Point Exposure Technique.			
4.45	Status display, error display.			
5	Accessories, Spare Parts and Consumables			
	Accessories:			
5.1	<ul style="list-style-type: none"> Lead apron, light weight with Lead equivalence 2mm-01 nos.Lead glass 1x1 foot 			
5.2	All standard accessories, consumables and parts required to operate the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer. Bidders must specify the quantity of every item included in their offer (including items not specified above).			
6	Operating Environment			
6.1	The system offered shall be designed to be stored and to operate normally under the conditions of the purchaser's country. The conditions include Power Supply, Climate, Temperature, Humidity, etc.			
6.2	Power supply: 220V 1-phase 50Hz fitted with appropriate plug for X-ray generator fitted with appropriate plug for other units. The power cable must be at least 3 metres in length.			
7	Standards & Safety Requirements			
7.1	Must submit ISO 13485:2003/AC: 2007 AND			
7.2	CE (93/42 EEC Directives) or AERB OR USFDA approved product certificate.			
7.3	Shall meet:			
	<ul style="list-style-type: none"> IEC 60601-1-3 - Part 1: General Requirements for safety - Collateral Standard: General Requirements for Radiation Protection in Diagnostic X-Ray Equipment. IEC 60601-2-7 - Part 2-7: Particular Requirements for the Safety of High-Voltage Generators of Diagnostic X-Ray Generators. 			
8	User Training			
8.1	The Supplier shall conduct user training for this equipment to enable operators to use the equipment properly. The training shall include the use of all operational functions of the equipment, as well as routine checks and maintenance expected by users.			
9	Warranty			
9.1	Comprehensive warranty for 2 years from acceptance.			
10	Maintenance Service During Warranty Period			
10.1	During warranty period supplier must ensure preventive maintenance & corrective/breakdown maintenance whenever required.			
11	Installation and Commissioning			
11.1	The bidder must arrange for the equipment to be installed by certified or qualified personnel; any prerequisites for installation to be communicated to the purchaser in advance, in detail.			


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12	Documentation			
12.1	User (Operating) manual in English.			
12.2	Service (Technical / Maintenance) manual in English.			
12.3	List of important spare parts and accessories with their part numbers and costing.			
12.4	Certificate of calibration and inspection from factory.			

Bidder must completely fill the Technical Specification Form (TSF). Only Yes/no/all complies should not be written. Page number in the catalogue of all the required parameters must be clearly mentioned and highlighted. Failure in doing so may lead to rejection of bid from technical committee.


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Technical Specification for Flat Panel Detector System

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	Flat Panel Detector System		
	Manufacturer		
	Brand		
	Type / Model		
	Country of Origin		
1	Description of Function		
	A digital detector with automatic exposure detection (AED) provides a fast and easy way for radiography facilities to benefit from high-quality digital imaging using any X-ray equipment. This technique uses x-ray sensitive plates to capture data during object examination, which is immediately transferred to a computer without the use of an intermediate cassette.		
2	Operational Requirements		
	An DR imaging plate to capture X-Ray exposure, transfer of image to PC in real-time, image processing workstation and an image film printer.		
3	System Configuration		
	Flat Panel Detector System- Wireless, Workstation with image processing software & Dry Imager.		
4	Technical Specification:		
A	Flat Panel Detector System		
a	The Flat Panel should be a Retrofit Solution and capable to work with any of the X-Ray available in Department.		
b	Shall be Amorphous Silicon (ASi) flat panel detector		
c	Shall have Cesium Iodide (CSI) Scintillator and/or Gadolinium Oxysulfide (GOS) Scintillator		
d	Shall have Lossless AED (automatic exposure detection)		
e	Portable wireless detector size: Approx. 14 X 17 inches. (Please indicate the effective area of the unit)		
f	The detector should be light weight (less than 3.0Kgs)		
g	Detector should have protected against spraying of water.		
h	Should have spatial resolution of 3.3 lines/mm or better.		
i	The Pixel pitch should be 140µm or lesser.		
j	The resolution should not be lesser than 2336 x 2836 pixels.		
k	Should have a minimum image depth of 14 bit.		
l	The Detector should have replaceable Lithium Polymer or Ion battery.		
m	The Detector should have detector wired charge directly or via replaceable system (dock).		
n	The Detector should be able to withstand surface load of 150kg or more		
o	Easy switch from sleep mode to acquisition mode for better battery performance.		
p	The Battery Charger should have facility to charge two additional batteries at a time.		
q	Software should have DICOM & PACS connectivity as a standard feature.		
r	DR System should be CE and USFDA approved		
B	Workstation:		
a	A Branded System with CPU – Latest Intel i5 or i7, RAM – 8GB, HDD – 1000GB, OS Genuine Window 7/10 and 21" (1080P) monitor. OR, Company Supplied Branded System.		
b	A fully licensed DR image processing software.		
C	Dry laser/Imager:		
a	The system must be a Dry laser/Imager 2 online tray system.		
b	Printer must be able to print not less than 60P/h 14"X17" film.		
c	The system must be DICOM 3.0 Print Service Class Provider, allowing minimum of 10 associations at a time.		
d	The system must have a spatial resolution of 320 PPI / DPI (minimum) or more for all sizes printed.		


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e	The system must have contrast resolution of 14 bits / pixel or more		
f	The system must have at least two online film sizes, and should be capable to print on any of the 8" x 10", 10" x 12", 14" x 14", 14" x17" sizes. All two film input trays should be freely configurable at user level for all the mentioned film sizes.		
g	System should be CE and USFDA approved.		
h	Dry film should be not damage while processing in open day light.		
	5 Accessories and spare parts and consumables		
a	must supply Online UPS with minimum backup of 30 minute for Flat Pannel, Workstation & Imager Units.		
b	Must supply AC:branded,min.1Ton		
c	Must supply X-ray film 1pckt(min 125pcs)		
d	All standard accessories, consumables and parts required to operate the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer. Bidders must specify the quantity of every item included in their offer (including items not specified above).		
	6 Operating Environment:		
	The system offered shall be designed to be stored and to operate normally under the conditions of the purchaser's country. The conditions include Power Supply, Climate, Temperature, Humidity, etc.		
	7 User/Technician Training:		
	Must provide user training (including how to use and maintain the equipment).		
	8 Warranty:		
a	Comprehensive warranty for 2 years after acceptance.		
b	During the warranty period supplier must ensure planned preventive maintenance (PPM) in at least every six month along with Corrective/breakdown maintenance whenever required.		
	9 Installation and Commissioning:		
	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 Documentation:		
a	User (Operating) manual in English.		
b	Service (Technical/ Maintenance) manual in English.		
c	List of important spare parts and accessories with their parts.		

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