

TENDER SPECIFICATION OF 500 MA DIGITAL X-RAY MACHINE WITH STANDARD ACCESSORIES WITH DUEL FLAT PANEL DETECTOR - BNS MONGLA

1. **Name of Equipment.** 500 Ma Digital X-Ray Machine With Standard Accessories with Duel Flat Panel Detector.
2. **Purpose.** To be used in Radiology Department.
3. **Quantity.** 01 (One) complete set.
4. **Make /Model.** To be mentioned.
5. **Brand:** To be mentioned.
6. **Name of Manufacturer.** Name and full address of manufacturer is to be mentioned.
7. **Country of Origin:** USA/Canada/UK/Austria/Belgium/Denmark/Finland/Germany/ France/ Hungary Ireland/Netherlands/Sweden/Norway/Switzerland/Spain/Japan/ Australia.
8. **Manufacturing Country:** USA/Canada/UK/Austria/Belgium/Denmark/Finland/Germany/ France/ Hungary Ireland/Netherlands/Sweden/Norway/Switzerland/Spain/Japan/ Australia.
9. **Port of shipment:** Shipment to be made from the manufacturing Country.
10. **Qualification of Bidders:** Bidders must be enlisted in NSSD Dhaka
11. **Year of Manufacture.** 2022 or later.
12. **Source of Supply:** Bidders/Suppliers are to be mentioned the name, address and contact details of original source from where goods would be imported. Any software required for installation or proper operation of the equipment is to be provided with original CD.
13. **Price without import duties:** Quoted price is to excluded all import duties as those will be consigned against BN.
14. **Ambient Condition.** The **500 mA Digital X-Ray Machine With Standard Accessories with Duel Flat Panel Detector** will be operated and maintained in the following ambient conditions:

a	Ambient air temperature	5°C - 45°C
b	Relative humidity	Up to 95%

15. **Scope of Supply:** 01 (one) complete set of **500 mA Digital X-Ray Machine With Standard Accessories with Duel Flat Panel Detector** will have to be supplied with all attachments, accessories etc and complete in all respect for immediate operation.

16. **Technical features /facilities**

a.	A High powered Digital X-ray system general radiography with High frequency Inverter technology, Two Nos. wired & fixed Digital Flat Panels one in the vertical Bucky and the other in the table Bucky, having the capability to perform all the radiographic Examination on both erect and supine position. Single Workstation should be integrated for image acquisition and operating console for creating a streamlined workflow.
b.	Features/Facilities: Following features/facilities are to be available
	1. High frequency(400KHz) inverter type X-ray generator for general radiography purpose
	2. Microprocessor controlled operating system.
	3. Digital Display of Radiographic parameters e.g. KV, mA, time etc. The values can be increased or decreased by Touch Screen Control Panel.
	4. Independent Tube Support Column Stand (Not integrated with Bucky Table)
	5. Automatic Exposure Control (AEC) / Automatic Exposure Detection both in Table Bucky & Vertical Bucky
	6. The X-ray system is suitable for Bucky & General Radiography.
	7. Continuous monitoring facilities of X-ray tube load and Anode heat storage capacity to avoid the risk of overloading.
	8. Memory for different radiographic examinations factors should be available
	9. 760 or more Anatomical Programmes should be available
	10. Membrane Radiography Console

11. Light beam Collimator

c. X-ray Generator:

1. High frequency X-ray Generator with automatic exposure control		
2. Output power	:	50 kW or more
3. Frequency	:	400 kHz or more
4. mA rating	:	500mA at 100kV or higher 630mA at 80KV or higher
5. KV Setting	:	40 ~ 150KV in 1KV steps
6. mA Range	:	10 – 630 mA or more.
7. mAs Range	:	0.1 – 630 mAs or higher

d. X-ray Tube:

1. Max. exposure voltage	:	150 kV or more
2. Focal Spot	:	0.6 / 1.2 or smaller
3. Output Power	:	25/75KW or more
4. Anode Heat Storage Capacity	:	300KHU at least
5. Anode Rotation	:	9,700 rpm at least.

e. Floor Travelling Type X-ray Tube Support

1. Column height	:	2300mm or less
2. Focal to Tube Focal spot vertical movement	:	Lowest up to 300mm or lower Highest up to 1900mm or higher
3. Longitudinal travel	:	2300mm at least
4. X-ray Tube transverse(back & forth) travel	:	280 mm or more
5. Column rotation	:	180° where installation permits.
6. X-ray tube rotation	:	±180° detents for lateral decubitus projections

f. Heavy-Duty Table with Four-way Floating

1. Four-Way moveable tabletop with electromagnetic locking feature		
2. Automatic Exposure Control (AEC) / Automatic Exposure Detection		
3. Table Top Longitudinal movement	:	± 500mm or more
4. Table Top Transverse movement	:	±125mm or more
5. Bucky travel range	:	280mm or more
6. Table top length	:	2200mm or more
7. Table top width	:	800mm or more
8. Patient Load Capacity	:	300Kg or more
9. Number of pairs of lines	:	40 lines /cm at least
10. Grid Ratio	:	10:1
11. Usable Receptor size	:	8" x 10" ~ 17" x 17"

g. Vertical Bucky Stand

1. Total counterbalance for easy movement with electromagnetic locking feature		
2. Automatic Exposure Control (AEC) / Automatic Exposure Detection		
3. Receptor-Center's vertical movement range from floor	:	Maximum up to 1830 mm or higher Minimum 360mm or less
4. Useable size FPD Receptor	:	430 mm x 430mm

h. Reciprocating Grid

1. Number of pairs of lines	:	40 lines /cm at least
2. Grid Ratio	:	10:1
3. Focalized at	:	40" ~ 72"

j. Two Sets of Flat Panel Detector (One for Table Bucky & One for Vertical Bucky)		
1. Retrofit & Fixed type FPD with high DQE		
2. DQE	:	48 @ 1 IP/mm or higher
3. Conversion Technology	:	Amorphous Selenium/Silicon TFT
4. Scintillator	:	Csl
5. Pixel Size	:	140µm or smaller
6. Spatial Resolution	:	3.6lp
7. FPD Size	:	17" x 17"
8. Resolution	:	3,072 x 3,072 (8.4million pixels) or higher.
9. Dynamic Range	:	14bit
10. Full Field Preview	:	3 ~ 6 seconds
11. Must be US-FDA & CE approved, certificate must be submitted with the offer.		
k. Operating Console & Digital Imaging Workstation:		
1. The operating console/workstation must be integrated system to manage the patient information such as adding, editing and deleting the patient information, Capturing and acquiring image, setting of the X-ray exposure parameters, managing and post processing of the image using the software tools and archiving of the images. Printing facility should be quoted with storage capability of 10,000 or more images. The system should be fully DICOM 3.0 complaint having the below specifications:		
2. Latest PC Based workstation of reputed brands like DELL or HP with latest intel based processor.		
3. Clock speed should be 3.4 GHz or more		
4. It has the Hard Disk capacity of 2 x 100GB		
5. RAM of 12 GB to be provided		
6. 22 inches latest High Quality LED monitor to be provided along with the console.		
7. The console software must be able to manage the patient information and capable of connecting to the RIS/HIS and PACS network.		
8. X-ray parameter such as KVP, mA, mAs, x-ray generator and protocol, focal spot etc. selection should be possible from the single console.		
9. The system should be able to acquire the image on the screen in 3 sec for the preview of the image.		
10. The console software must provide full range of post processing features like Geometric Corrections, Window/Level, Algorithms, Annotations such as markers, predefined texts, drawing lines and geometrical shapes, measuring distances and angles, Shuttering, histograms, Zoom, Grey Scale reversal, Indicate Grey Scale Saturation Level Etc.		
11. The System should have DICOM 3.0		
12. It should have DICOM worklist from HIS/RIS, store image through PACS network system and will support DICOM image print and DICOM MPPS functions.		
l. Dry Laser/Digital Imager (Film printer)		
1. Resolution	:	320 dpi or more
2. Spot Size	:	100µm or smaller
3. Film Size	:	8" x 10", 10" x 12", 11"x14", 14" x 14" & 14" x 17"
4. Throughput	:	70 sheets(14" x 17")/hour or more
5. Supply Magazine/Tray	:	At least 2 size film On-line in two supply Magazine.
6. Tray/Magazine feature	:	All 5 Size (8" x 10", 10" x 12", 11" x 14", 14" x 14" & 14" x 17") film printing facility from each Magazine.

17 **Standard Accessories.** Must include all items and accessories including following which are required for installation and operation the **500 mA Digital X-Ray Machine with Standard Accessories with Dual Flat Panel Detector** whether those are mentioned in the specification or not. A list of such items/accessories is to be provided with the quotation indicating item wise price separately:

- Lead glass : 400 x 600mm, 1.5mm pb equivalent
- 1x Lead apron
- 1x Lead gonad shield
- 1x Lead neck guard
- 2 Ton Air Cooler : 2 Nos.
- Dehumidifier : 2 nos
- 1x 3KVA On-Line UPS for 30 mins operation of complete system.
- Test films : 2 boxes (14"x 17")
- Necessary room renovation to be done by supplier including false ceiling, floor tiles, etc.
- Revolving Chair & Table -02 nos.


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18. **Local Training.** The supplier will arrange following training at BNS MONGLA free of cost:
- Operational Training: 02 x Operator for 01 week.
 - Repair/Maintenance Training: 02 x EM Tech (01x Navy & 01x Civ) for 01 week.
19. **Publication:** Following brochure/catalogue in English language showing detailed particulars of the quoted items should be supplied along with the offer.
- Operation manual – 03 copies (1 x Original & 2 x Photocopies).
 - Repair/maintenance/service manual including detail circuit/schematic diagram-03 copies (1x Original & 2 Photocopies).
 - Parts Catalogue/Master Parts list – 03 copies (1x Original & 2 Photocopies).
20. **Spare Parts.** Adequate number of fast moving spare parts and other recommended spare parts required for 5 years operation are to be quoted indicating item wise price from which buyer will select as per requirement. The supplier should provide guarantee for supplying spare parts for a minimum period of 10 years.
21. **After Sales Service:** The supplier should have requisite after sales service facilities at home to render necessary services as and when required by BN. Necessary agreement will be signed if required. Details of workshop facilities of the supplier should be mentioned.
24. **Test, Trial and Acceptance:** The supplier will carry out installation, test and trial of the supplied machine at his own cost. The acceptance of the supplied items will be carried out by BNS MONGLA, KHULNA where the supplier's representative will be present. After the satisfactory test/trial, with certificate the acceptance certificate will be given by the Local Acceptance Committee.
25. **Warranty/Guarantee:**
- The supplier must ensure that all items are new and unused. The supplier must provide warranty at least for 05 (Five) years from the date of acceptance of the item(s) after satisfactory inspection, test, trial etc as applicable. If any defect/discrepancy of any item arises within the period of warranty, the specific period from the date of notification of the defect/ discrepancy to the supplier up to the date of rectification of defect/resolve of discrepancy will have to be deducted from the warranty period for that particular item(s).
 - If any defect/discrepancy arises, within warranty period, then the respective item(s) is/are to be replaced free of cost including freight within 03 (three) months from the date of notification of the same to the supplier. In this regard, the supplier must furnish an undertaking with the offer by stating, "I do hereby assure that we take the liability to replace all spare parts/item(s) free of cost including freight within three months from the date of notification about the defect/discrepancy of the spare parts/item(s) by the buyer, if it occurs within the period of warranty".
26. **Delivery:** The supplied items are to be delivered within 03 (Three) months from the date of signing contract to the OIC NSD, Khulna.
27. **Validity of Offer:** Up to 30 June 2023.
28. **Certificate/Document of Authentication:** The local supplier must provide following original certificate(s)/document(s) with the offer/quotation to ascertain the genuinity of source and item(s) in order to establish chain of links from the original source of supply items.
- One certificate/document by the manufacture in favour of the supplier (in case of manufacture as direct source (Original)).
 - FDA/EC Certificate /JIS must be submitted.
 - Manufacturer Authorization Certification for the specific tender (original).
 - Trained Bio Medical Engineer list with update CV.
29. **Users List:** User List in Bangladesh with contract details along with user's certificate of the quoted machine is to be provided along with the offer.
28. **Terms of Payment:** 100% payment will be made after satisfactory test, trial and acceptance by BN in local currency.

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29. **Condition for Acceptance of Quotation:** Quotation has to have supporting documents (booklets, leaflet, catalogue, brochure etc) having detailed particulars of the offered **500 mA Digital X-Ray Machine with Standard Accessories with Dual Flat Panel Detector**. The quotation will not be accepted If detailed information regarding specifications, maker's books and catalogue about the same model of the machine quoted, list of spare parts and accessories, etc are not provided.

30. **Compliance statement.** A compliance statement fulfilling all requirements of the tender is to be submitted for evaluation of the quotations, Stating mere 'Yes' or 'No' will not suffice and detailed description/ information's as required are to be given. An in compliance statement may attribute to cancellation of the offer. If any clause of this specification does not commensurate with the offered item, the deviation has to be spelt out clearly.


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