



## **Notice Inviting e-Tender**

**West Bengal Medical Services Corporation Limited**  
**Swasthya Sathi**  
**GN-29, Salt Lake, Sector-V**  
**Kolkata-700091**

Phone No (033) 40340307/320

E mail: [procurement@wbmsc.gov.in](mailto:procurement@wbmsc.gov.in)

**Supply and Commissioning of 01 (One) unit of 500 mA fixed X-ray machine for**  
**Durgapur Sub-divisional Hospital**

(Submission of Bid through *online*)

(2<sup>nd</sup> call of Bid Reference No.: WBMSCL/NIT-614/2025, Dated-16.07.2025)

<b>Bid Reference No.: WBMSCL/NIT-711/2025</b>
---

<b>Dated-20.08.2025</b>
-------------------------

### **AMENDMENT-I**

## **REVISED TECHNICAL SPECIFICATION Technical** **Specification of** **Digital Radiography System with Dual Flat Panel Detector** **(500 mA fixed X-ray Machine)**

Unit should be specifically designed for all aspects of general X-Ray imaging and operating at a High Frequency of **40KHz** for highly efficient X-ray production and preminent Image Quality. The Integrated Design of the machine allows the operator to acquire X-ray Images very conveniently.

### **A. High Frequency Generator:**

Generator should be of latest technology with high frequency **40KHz** X-Ray generator.

Oil filled based generator for high dielectric strength, better heat dissipation, and easy service stability.

Constant Power output of 40 KW.

KV range should be 40 to 125 KV in 1KV/step.

mA output: up to 500mA

mAs range should be 1 to 500mAs.

**B. X-RAY TUBE:**

- i. A Dual focus Rotating anode X-ray tube should be provided.
- ii. Focal spot size of 1 mm or less (small focus) x 2 mm or less (large focus).
- iii. Anode heat storage capacity should be 200KHU
- iv. Collimator having halogen lamp / bright light source and auto shut provision of the light.
- v. HV Cable: 1 Pair of H.V. Cable of suitable length.

**C. STAND:**

**Ceiling Free tube Stand with spring Balanced Tube Head with following features should be provided.**

- Floor mounted stand with spring balanced movements & with easy installation at site.
- Manual movements with electromagnet locks in longitudinal & vertical movements are provided with release switches on electromagnet panel mounted on Tube collimator assembly.
- Tiltometer on electromagnet panel to show tube angle position.
- Continuous tube rotation around horizontal axis with lock.
- Longitudinal movement of column on track: 2000 mm.
- Total up/down movement of the tube head: 1200mm or more.

**D. TABLE:**

A horizontal 6-way table with floating tabletop and adjustable height should be provided. Tabletop should have three-dimensional movement, which is easy for patients as it lowers down to a comfortable position.

- Transverse and longitudinal movements of the tabletop should be locked by electromagnetic locks.
- A table should have up/ down motorized movement and it should be controlled by two up & down foot switches.
- Inbuilt detector in Bucky.
- Tabletops are made up of radiolucent material.
- Table Bucky consist of removable grid along with electromagnet lock facility with foot pedal switch for release for Bucky movement.
- Movements of the table should be: Longitudinal movements: 535mm & Height adjustment from 500 – 835mm.
- The maximum weight carrying capacity for the table during up/down movement should be 200Kg or more.

**E. Motorized Vertical Bucky (VB) Stand:**

Floor mounted vertical bucky stand with counter balanced motorized movements for erect/supine examinations.

- The Bucky has motorized continuous tilt from +90 degree angle with stop at desired angle for various radiographs.
- The Bucky moves up & down and has inbuilt Bucky with detector.
- Inbuilt electromagnet locks for the movements are provided.
- Switches are provided on both side of the Bucky for easy operation
- Bucky consist of removable grid.
- Up down movement of the bucky should be 1200mm or more

#### **F. Flat Panel Detectors (02 Nos. Fixed):**

##### **Specifications:**

The detector should be flat panel type with A-Si (amorphous silicon) and CSi as scintillator.

Size of detector must be 43cm x 43cm for 1 unit (2.8K x 2.8K) and another 43cm x 35 cm (2.3K x 2.8k) for 1 unit

Image depth should be 14bit.

Pixel size should be 140µm or less (Smaller pixel size is preferred)

Detector resolution should be more than 3.5 lp/mm.

DQE (Detector Quantum Efficiency) should be more than 65%.

#### **G. Operating Station/Work Station:**

##### **a. X-RAY/IMAGE CONTROL CONSOLE features:**

##### **Fully integrated system with following**

- Digital Display of KV & mAs.
- KV & mAs increase and decrease control on G.U.I (Graphical user interface).
- Ready and X-Ray ON indication on G.U.I (Graphical user interface).
- Self diagnostic Program for error code display of faults such as Earth fault error, KV error, Filament error & Tube's Thermal Overload.
- An Inbuilt overload protection device.
- Anatomical Programming Radiography (i.e. APR):

Preprogrammed parameters of human Anatomy which helps the user to select exposure parameters based on body part, examination view and size of the patient. Since it is a computer based system (full system integration) so any number of Organ programming combinations is possible. User can define his own Organ parameters and can edit the existing parameters to his satisfaction and comfort level.

- APR programs: More than 15 programs or more.  
(Expandable as per user's requirement).

A dual action hand Switch with Retractable cord for Radiation Protection of Operator.

## **b. Image Acquisition Software**

### **Software Characteristics:**

Software provides complete control of all image capture functions within the examination room. It enhances the entire workflow by delivering diagnostic images instantly. It also allows user to transfer X-Ray images electronically to remote workstations, image archives, and printers, also has an excellent performance on image quality control such as:

### **Pre-Processing Features**

- New patient entry manual, Synch with MWL & emergency
- Sort of patient data based on day, date, week & Patient ID.
- Refresh facility
- Exam protocols – preset & customizable
- Total exams count as per selected period for accepted & rejected images

<b>Post processing features</b>	<ul style="list-style-type: none"> <li>• Image preview time in less than 5sec</li> <li>• DICOM MWL &amp; DICOM Send with auto sending facility</li> <li>• Advance Harmonica for Image processing as per body part</li> <li>• True image 1:1 display</li> <li>• Image reversal-Left to Right &amp; Top to Bottom</li> <li>• Image rotation Clock wise &amp; antic clock wise in 90 degree steps &amp; with custom rotation steps</li> <li>• Window width (WW) &amp; Window level (WL) adjustment for brightness &amp; contrast.</li> <li>• Dynamic Zoom with pan</li> <li>• Image Crop facility in rectangular &amp; Circular shape</li> <li>• Magnifying Glass</li> <li>• Image Invert / Negative Image</li> <li>• EXI value indication to indicate over/ under exposure</li> <li>• Pre-set multiple image layouts</li> <li>• Reset tab to restore to the default parameters of image</li> </ul>
<b>Text &amp; Annotation</b>	<ul style="list-style-type: none"> <li>• Addition of pre-defined editable text, Addition of user defined text</li> <li>• Addition of arrow pointer</li> <li>• Save or Removal option of all text from the image.</li> <li>• Line, rectangle, Circle, polygon/ free style.</li> <li>• Cobb's angle</li> <li>• Histogram</li> </ul>
<b>Measurements Features</b>	<ul style="list-style-type: none"> <li>• Length / Distance measurement</li> <li>• Angle measurement</li> </ul>
<b>Connectivity &amp; storage Features</b>	<ul style="list-style-type: none"> <li>• Storage of Images on CD/DVD with inbuilt DICOM viewer software enables to view images on any PC.</li> <li>• Image transfer through USB in JPEG,</li> <li>• DICOM 3.0 ready to connect with any DICOM 3.0 modality (like PACS, RIS/HIS/ Dry laser printer)</li> <li>• LAN connectivity to transfer the image to another system.</li> </ul>
<b>Print Facility</b>	<ul style="list-style-type: none"> <li>• On line review of the Software.</li> <li>• Software is compatible to connect with normal printer &amp; with dry laser DICOM printer.</li> <li>• Customizable user selectable multiple print layout.</li> <li>• Print status facility.</li> <li>• Post processing feature in print screen.</li> </ul>

H. **Workstation along with monitor:** 1No. 21" or more high-resolution LCD monitor should be provided with the specifications below.

**Hardware Detail of Acquisition /Memory software:**

- Compatible computer processor of branded make
- 1TB Hard disk
- Window OS
- 64 Bit operating system
- CD/DVD writer.
- Wired keyboard & mouse.

**I. Power Supply Requirement:**

Offered unit is operable on 3 Phase, 400Volts AC 50Hz with line resist 0.2Ohms. Line Regulation  $\pm 10\%$ .

j.

- a. Additional work station along with 1 no. 21 inch or more high -resolution LCD monitor required.
- b. 2 tray laser printer (500DPI or more) required with suitable UPS.

**k. Other Requirements:**

- The unit should be approved by AERB.
- The equipment should have import/manufacturing license from Central licensing Authority or State licensing authority of CDSCO for Medical Devices and copy of valid license should be submitted.
- The company should have a local Service center.
- The company should have proven track record in Govt. sector.
- The company should be ISO-9001:2015 certified with model of detector should be mentioned on it.
- Generator, Software & Flat panel detectors should be from reputed manufacturer for consistent image quality & seamless connectivity.
- Suitable KVA of servo controlled voltage stabilizer to be supplied with the machine.
- 2 Lead doors to be supplied with the machine.
- 2mm thickness 4ft x 2ft Lead glass to be supplied with the machine.