Notice Inviting e-Tender

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Procurement, supply and installation of Digital X-Ray Machine with 800 mA Radiography & Fluoroscopy in the Hospital and Medical College of the Government of West Bengal
(Submission of Bid through *online*)

Bid Reference No.: WBMSCL/NIT-354/2025	Dated-02.05.2025

The following amendment have been made in the tender document,

Amendment –I (Revision of Technical Specification)

The revised technical specifications for the item is given below,

High Frequency Digital Radio Fluoroscopy System

Digital Radiography/Fluoroscopy System with dynamic fixed Flat Panel Detector in table.
The Unit should be capable of doing all types of Fluoroscopic examinations like GI examination, ERCP, barium studies, along with radiography procedure.

X-RAY GENERATOR:

- A High Frequency X-Ray Generator of frequency should be provided.
- Power output of generator should be 65KW.
- KV Range should be:
    - Radiographic KV: 40 to 150KV.
    - Fluoroscopic KV: 40 to 120KV.
- mA Range (Rad.): 800mA.
- mA Range (peak): Normal pulse Flr. Mode:- up to 20mA or more
  : Boost pulse Flouro/Cine mode: - up to 40mA.
- Exposure time (Rad.): 1ms to 5 Sec.
- Cumulative flouro timer to cut off exposure.
- mAs Range (Rad.): 1 to 300mAs or more.

CONTROL:

X-Ray/Image Control Console
Fully Integrated System with Following features

- Digital Display of Radiography kV & mAs and Flouro kV & mA and cine kV & mA spot kV & mAs.
- Integrated touch panel display for various X-Ray functions displays over X-ray tube.
- Manual and Automatic Brightness Stabilization (ABS) in fluoroscopic Modes.
- Exposure indication on Acquisition Software.
- Self-diagnostic Program with Indicators for Inverter Fault, Filament error & Tube's Thermal Overload, Rotor fault and Phase failure indications.
- Anatomical Programming Radiography (i.e., APR) should be provided in which exposure parameters are automatically selected depending upon the physique of the patient and part of the body to be exposed.
- More than 200 preprogrammed APR programs are provided that can be edited or expandable as per the user's requirement.
- Foot switch is provided for initiating the exposure for performing Fluoro and Cine and Digital Spot Procedures
- Hand switch with retractable cord for initiating the exposure in radiography mode.
- 2-Point and 3-point exposure technique in Radiography mode.

X-RAY TUBE (01 No.):

- A Dual focus Rotating Anode X-Ray tube thermally protected having focal spot of 0.6 & 1.2mm.
- Anode Rotation speed 9000 RPM
- The Anode heat storage capacity of tube should be 600KHU
- One Pair of H V. Cable of suitable length should be provided.

COLLIMATOR:

High LUX (white power LED) for Higher Luminosity and lower power consumption with provision of Auto Shut Off after 45 seconds. Motorized parallel shutters for adjustment of Exposure area with preview on software.

HV TANK:

- A very compact H.V. tank filled with high dielectric transformer oil. The HV. tank contains H.V. transformer, filament transformers, H.V. rectifiers and HV. cable receptacles.

TUBE STAND:-

Motorized Ceiling Free tube stand with new generation technology provides the user servo assisted movements of the tube head covering a huge area and noiseless, swift up/down movement of the tube head.

TABLE:

Table with Horizontal & vertical mode should be provided. Servo controlled noise free motorized movement should be available.
Table should have below mechanicals:

- Length of Table Top: 1965 mm.
- Width of Table To: 705 mm.
- Height of Table Top: 835 mm.
- Maximum height of table in Horizontal Position: 927 mm
- Maximum width of table:1036 mm
- Maximum height of table in Vertical Position: 2000 mm
- Table's Movements: Angular -15^0 / $+90^0$
- Distance of table top to film: 75 mm or less
- Patient Load carrying capacity: 250 kg.

Motorized Vertical Bucky Stand:-
Floor mounted Motorized Vertical Bucky stand with inbuilt FPD (FLAT PANEL DETECTOR) for lung and skeleton x-ray examinations with user friendly design and handling.

Minimum height of detector centre from ground: 400 mm
Maximum height of detector centre from ground: 1700 mm
Up-down movement of Detector bucky: 1300 mm

Dynamic Flat Panel Detector (FPD): (Inbuilt in Table)
A complete imaging solution with cutting edge of performance integrated with our X -ray systems.

FPD should have following specifications or better
Receptor type: Amorphous Silicon
Scintillator: Cesium iodide (CsI)
Size of detector: 43 x 43cm or more
Image matrix size: 3K x 3K or more
A/D conversion: 16bits
Pixel size: 140μm or less.
Detector resolution should be more than 3.3 lp/mm.
DQE: 65% or more at 01p/mm.
STATIC FLAT PANEL DETECTOR (FPD): (Inbuilt in vertical bucky stand)
FPD should have following specifications or better
Receptor type: Amorphous Silicon
Scintillator: Cesium iodide (CsI)
Size of detector: 43 x 43cm or more
Image matrix size: 3K x 3K or more
A/D conversion: 16bits
Pixel size: less than 150 μm.
Detector resolution should be more than 3.3 lp/mm.
DQE: 65% or more at 0 lp/mm.
Automatic Exposure Control Automatic Exposure Control (ABC) System with 3- state ion chamber.
Intercom System Two ways intercom system is provided for Voice Communication.

Image Acquisition Software should have following features available

Exposure Modes	RF (Flouro, Cine and Spot) DX (Radiography)
Image Size/ Frame Rate	• RF: 1536 x11536 (1.5Kx1.5K Image resolution). Up-to 18 FPS Pulsed X-Ray • DX: 3072 x 3072 (3Kx3K Image resolution)
Major Module	▪ Patient Entry Module • Examination Module: - RF Module - DX Module • Viewing Module • Print Module
Generator Controls	▪ kVp • mAs • ABS ON/OFF • ABC ON/OFF

- ABC Chamber
- Filament Selection

Examination Layout

- 1x1 (Live)
- 1x2 (1st: Live, 2nd: Reference)

Live Parameters

- WW/WL
- Zoom
- Flip
- Frame Rate
- Software Shuttering

DICOM Compatibility

DICOM 3.0 compatible:
DICOM MWL
DICOM Send

WL/WW Adjustment

Automatic WW/WL adjustment for Radiography

- Automatic WW/WL adjustment for Fluoro, Cine, Spot according to the selected procedures
- Manual WL/WW adjustment

Post processing Parameters

- WW/WL
- Zoom
- Magnify
- Invert
- Flip Horizontal
- Flip Vertical
- Annotations
- Image Layouts
- Play DICOM Loops
- Frame by Frame Image View
- Software Shutter
- Crop
- Tagging of Images
- Angle and Length measurement
- ABS for Fluoro and Cine

Advance Features

- AEC for Radiography
- Configurable RF Procedures and Radiography Protocols
- Live image WL/WW adjustment
- Stenosis
- Patient Workbook

Image Acquisition System Configuration

- Image Acquisition system with Intel core i7 processor (3.1 GHz), 24GB RAM, 1TB SSD & 500GB SSD and Window 10 OS or Higher Specifications
- Keyboard

- Mouse
- 3KV A online UPS
- A High-Resolution Graphic Card
- Gigabit LAN Ports (3No.)

Monitor and Examination Layouts **Monitor Size:** 27 Inch Monitor with 2K Resolution (2 Nos.) for Live Image or Live & Reference Image, one for Console Room & other for Examination Room.

Trolley: Specially designed integrated keyboard having feather touch keys and touch pad is provided instead of double unit keyboard and mouse. Large size wheels for better mobility with kick stop provision in two wheels for parking stability.

ADDITIONAL WORKSTATION (RF WORKSTATION) Addition workstation for image viewing, processing and printing should be provided with high resolution monitor.

PRINTER: 2 Tray printer (500 DPI) with suitable UPS should be supplied with the machine.

POWER REQUIREMENT: The unit should be operable on 400VAC, 50 HZ 3 Phase - Max. Allowable line Regulation ± 10%.

- Suitable servo voltage stabilizer should be the supplied with the machine.

OTHER REQUIREMENTS:

- Detector, software and generator should be the from principal manufacture of digital radio fluoroacopy machine.
- The unit should be approved by AERB.
- The company should have a dedicated local service centre in the state.
- The company should have proven track record in Govt. sector.
- The unit equipment should have Central Drugs standard Control Organization (CDSCO) (Medical device & Diagnostic Division) License to manufacture for Sale or for Distribution of Class C or Class D medical devices in from MD-9 under Medical Device Rules, 2017.