Notice Inviting e-Tender

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Supply and Commissioning of 01(One) Nos of C-Arm machines in Dept of Orthopedic at Murshidabad MCH

(Submission of Bid through *online*)

(2nd call of **Bid Reference No.: WBMSCL/NIT-221/2025, Dated-20.03.2025)**

Bid Reference No.: WBMSCL/NIT-370/2025	**Dated-08.05.2025**

AMENDMENT-II

Revised Technical Specifications

C-ARM with Flat Panel Detector

Microprocessor controlled C-arm machine with FPD should provide the excellent image quality at low radiation, ideally suited for general surgeries in many application fields and special application such as orthopaedics, Urology, Gastroenterology, pain management, spine fixation.

A) Flat Panel Detector:

- Receptor Type should be of Amorphous Silicon technology
- Conversion Screen should be of CsI
- FPD with 21 x 21 cm size should be provided
- Image Matrix should e 1K x 1K or more
- Pixel pitch should be 205 µm or less.
- ADC conversion should be 16 bit or more.

B) Monitors:-

- 01 No.32" or more Medical Display High Resolution Monitor mounted on mobile Trolley.

C) **C-ARM MOVEMENTS:** Fully counterbalanced all movements

1. Rotation: ±180 Degrees
2. Motorized Up/down: 400mm or more
3. Horizontal Travel: 200mm or more
4. Arc Orbital Movement: 130 Degrees or more.
5. Wig Wag: ±12.5 Degrees.
6. Source to Image distance should be 970mm or more.
7. Depth of "C" should be at least 650mm
8. Free space should be 780mm or more

D) X-Ray Generator:

1. High Frequency (50KHz or more).
2. Output power should be 6KW or more
3. Fluoro & Rad. Kv 40 to 120 KV or more
4. Max. mA (Digital Radiography) /SPOT: 25mA or more.
5. Pulse Fluoroscopic mA (peak):-

- Up to 20mA (Fluoro Mode)
- Up to 20mA (Cine mode)

E) X-Ray Tube:

- Monoblock tube head having dual focus rotating anode X-ray tube of focal spot 0.3mm (small focus) & large focus (0.6mm) should be provided.
- Anode Heat Storage capacity should be 200 kHU or more.
- Collimator:- Parallel shutter collimator with Preview Collimation

F) **CONTROL:** Control should have the following:

LCD Display:

A very compact, soft touch control panel with 20X3 (column x rows) LCD display 13.5" or more on which KV, mAs, Fluoro mA, MAG, Heat unit and Various Interlocks e.g KV interlock, Filament interlock and Thermal interlocks are displayed on LCD Screen for self-diagnosis.

Console Panel has Following Functions & Indications:

- Machine ON/OFF switch.
- Fluoro timer reset Switch (For reinitiate the exposure after 300 sec fluoro timer)
- KV and mAs increase and decrease switches.
- Anatomical programming for radiography of 4 body parts (up to 8 programmers).
- ABS (Automatic brightness Stabilization) selection for hands free operation-also known as ADR.
- X-Ray ON Switch with indicators
- Switches for up/down movement of "C" on both side of panel.
- Collimator control switches. (To open/ close Horizontal and Vertical Shutter)

- Laser centering device (both side).
- Image shift from live view to Reference view.
- Average switch to select the average in software for image as per requirement.
- Exposure lock switch.
- Dose mode selection switch (Full, Half and Quater mode)
- Fluoro save switch to save fluoro image manually.

G) **MEMORY SYSTEM** should include the following: -

Image Acquisition:

- Image processing software with real time image capturing, storage, and display in 1k X 1k format.
- Variable Frame Rate (1-15) FPS
- Boosted fluoroscopy (CINE) at 15 FPS with real time recording on hard disk drive.
- Digital Radiography (SPOT) exposure mode is available
- Continuous fluoroscopy exposure mode is available.

Image Processing:

- Real time noise with reduction with Averaging up-to 16
- Recursive filter for image smoothing, DRC, Contrast, Brightness, Sharpness.
- Interactive Zoom and Pan
- Pre-programming for image setting for different operating Modes'
- Image Inversion
- Dynamic Noise Reduction Filter (DNF) for moving anatomy.
- WW/WL level adjustments
- Image Flipping and Image Rotation Clockwise or Anti-clockwise.
- Fast Automatic Brightness control
- Software driven Fast Automatic Brightness System (ABS)
- Metal Compensation
- Torch feature to view enhanced contrast for particular circular region
- Cine Loop Play (Auto and Frame wise)
- Live to Reference View on Single Monitor
- Real time Image Flip (Horizontal/Vertical)
- Real Time Image Inversion
- Colorize Image feature
- Real time Heat Unit calculator for remaining heat content available for X-Ray Tube

Collimator:

- Ultra-fast Preview collimator

DAP Module:

- DAP dose integrated in software and total summary for Fluoro, Cine and total dose summary for any patient
- Real Time Patient dose monitoring display with overdose warning message

DICOM Features:

- Connectivity with DICOM workstation/PACS
- DICOM Send/Storage Commitment
- DICOM Print
- DICOM Work list/MPPS

Storage:

- Upto 10,000 images
- Fluoro saving as per user need
- LIH saving as per user need

Annotation:

- Line
- Text

Measurement

- Length Measurement

PACS Connectivity:

- Multiple Nodescan be configured.
- Single/Multiple Image tagging to transfer into PACS/Workstation

Multi-Language GUI Support:

- Application can be configured as Any Language GUI.

Miscellaneous:

- Paper Printing
- Different format of image saving like JPG, BMP, TIF, png, AVI Loop in USB Pen drive
- Image Data Export to DICOM CD
- Wireless remote for software features like Image Flip / Rotation etc.

H) Power requirement:

- The unit should be operable on Single Phase 230 V ±10% AC, 50 Hz
- An inbuilt/external electronic voltage stabilizer should be provided
- UPS for power backup of the software should be provided.

I) Other Requirements:

- The bidder should submit valid CDSCO Certificate / Registration /License for both the manufacturer(s) and importer(s) as applicable.

- The unit should be approved by AERB
- The generator, detector and software should be preferably from same company for better compatibility.
- The company should have a local Service center.
- Physical demonstration required of the quoted model during technical evaluation.
- Lead apron 12 pcs (0.5mm full body), Thyroid guard 12 pcs & 2 Nos. Mobile Lead hanger will be supplied along with machine.