



## Notice Inviting e-Tender

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SUPPLY AND COMMISSIONING OF MEDICAL EQUIPMENTS (SET-II) FOR TRAUMA CARE FACILITY  
FOR THE HOSPITALS AND MEDICAL COLLEGES OF THE GOVT. OF WEST BENGAL  
(Submission of Bid through *online*)

Bid Reference No.: WBMSCL/NIT- 40/2017

Dated-21.07.2017

2<sup>nd</sup> call of Bid reference no. WBMSCL/NIT-20/2017, dated: 26.04.2017 of Schedule-I, III, IV & V  
The following amendments have been made in the tender document,

### Amendment – II

## 1. TECHNICAL SPECIFICATION

### SCHEDULE – I

#### 300 mA or more X-ray Machine

1. Description & Function
  - 1.1. X-Ray machine is required to perform radiological studies in emergency, trauma departments and also in the radiology Department for conventional radiography.
  - 1.2. Exposures with remotely controlled should be possible with hand switch
2. X-Ray Generators:
  - 2.1. Should consist of High frequency X-Ray generator of 100 KHz or more
  - 2.2. Power output: 30 KW or more.
  - 2.3. X-Ray Generator should have output of 300 mA at 100 KVP.
  - 2.4. Shortest exposure time: 5ms or lower.

- 2.5. Free selection of radiographic setting in 2-point technique.
  - 2.6. It should have electronic timer and digital display of mAs & KV.
  - 2.7. Should have voltage compensator.
  - 2.8. KV range – 40kV to 125kV.
  - 2.9. mA range - 20mA to 300mA or more
  - 2.10. mAs: atleast **600 mAS or more**
  - 2.11. Operating distance > 10 feet.
3. X-Ray tube
    - 3.1. Dual focus X-Ray tube of 30 KW or more capacity.
    - 3.2. Output should match the output of the generator.
    - 3.3. Should have rotating anode.
    - 3.4. The unit should be offered with 1 (one) manual collimator.
    - 3.5. Focal Spot: 1 mm X 1 mm and 2 mm X 2 mm.
    - 3.6. Should have Inherent filtration.
    - 3.7. The exposure release switch should be detachable with a cord of at least 5 meters.
4. Patient Table:
    - 4.1. Motorized **tilt able** patient table.
    - 4.2. Table top should be radiolucent with negligible X-Ray absorption, stain free, break resistant and water proof.
    - 4.3. Table should be compatible of cassette size 14" X 17", 12"x 15", 10"x 12" & 10"x 8" with high grid ratio 6:1 and density at least 50 lines per cm. Grid should be aluminium interspaced.
    - 4.4. Bucky Stand – Fully counter balance moving bucky wall stand for cassette size 14" X 17", 12"x 15", 10"x 12" & 10"x 8" with high grid ratio 6:1 and density at least 50 lines per cm. Grid should be aluminium interspaced.
    - 4.5. The table should be incorporated with all safety provision against collision.
    - 4.6. The offered Equipment should have sufficient stock of spares in local office.
5. Environmental Factors
    - 5.1. Operating temperature 10 – 40 °c.
    - 5.2. Storage Temperature – 20-55 °c.
    - 5.3. Operating Humidity – 30%-80%.
    - 5.4. Storage Humidity – 10% -100%.
6. Power Supply (3 phase)
    - 6.1. Resettable Over current Breaker shall be fitted for protection.
7. Accessories
    - 7.1. Removable foot rest – 01.
    - 7.2. Lead aprons – 02. (AERB approved 0.5mm lead equivalent), Gonadal Shield = 02, Thyroid Shield = 02(as per AERB guidelines), Lead Goggles = 02(as per AERB guidelines).
    - 7.3. Lead separator for operating unit – 01 (with 3 folds)
    - 7.4. The Firm should have the local offices in the state to provide the efficient after sale service with sufficient stock of spare parts and team of trained engineers on the offered system. The firm should guaranty the availability of spare parts on the offered system for a period of minimum 10 years.

8. Standard & Safety
  - 8.1. Should comply with AERB Guidelines for radiation leakage & X-Ray equipment & BIS / CE (from European union notified body having 4 digit identification number).
  - 8.2. Should have protection against electrical shock.
  - 8.3. Log Book with instruction for daily, weekly, monthly & quarterly maintenance checklist. The job description of the hospital technician and company engineer should be clearly spelt out.
9. Warranty & CMC
  - 9.1. Warranty (comprehensive) for 2 years followed by 5 years Comprehensive Maintenance Contract (CMC) of complete system.
10. Documentation
  - 10.1. User manual in English.
  - 10.2. Service manual in English.
  - 10.3. List of important Spare parts & accessories with their part number & costing should be available for at least 10 yrs.
  - 10.4. Certificate of calibration & Inspection from Factory.

## SCHEDULE - II

### Portable USG Machine

1. The unit should be compact, lightweight and portable. Specify weight and dimensions. Weight should not exceed 10 Kg including battery and excluding cart and accessories.
2. It should be suitable for echocardiography (Adult, Paediatric), abdominal, Ob / Gyn, FAST exam, vascular, musculoskeletal, small parts applications
3. The unit must have real time compound imaging for improved contrast resolution and eliminating ultrasound artefact to achieve optimum image quality on convex and linear transducers
4. The unit must have automatic gain adjustment for B mode
5. Scanning depth must be available up to 30 cm or more
6. System must have frequency range from 2 – 12 MHz ( $\pm 1$  MHz)
7. Imaging modes of Real time 2D, Colour Doppler, Pulsed wave Doppler, Continuous wave Doppler, PW-TDI, Power(energy) Doppler should be available.
8. Controls for 2D mode: Total gain, depth, dynamic range, auto gain
9. System must have fast start up to scanning in less than 30 seconds from standby and 120 sec from 1<sup>st</sup> start up as essential in critical and emergency situation in ICU, emergency, OT
10. Cine memory on all modes
11. System should be DICOM ready system with print, save, modality work list. Ready to connect to PACS
12. Inbuilt Flat LCD / TFT monitor of 15" or more
13. Alphanumeric soft keys keyboard with easy access, scans controles, system must have sealed keyboard for sanitization. This must be possible to avoid cross contamination
14. Onboard storage of at least 10000 images

15. USB port for connectivity to computer
16. System should have extensive calculation package for cardiac, Ob / Gyn, Vascular measurement and calculation provision for distance, area, volume and circumference
17. Must be able to operate both on AC and inbuilt battery. Inbuilt battery pack should be self-recharging and should last at least for 50 minutes( minimum scan time covered should be atleast 45 minutes) when fully charged, need to be demonstrated (minimum 45 minutes scanning time)
18. Transducers:
  - 18.1. 2 – 5 MHz Curvilinear transducer for abdominal, Obst & Gynae examination
  - 18.2. 5 – 12 MHz Linear probe for superficial structure
  - 18.3. 2-4 MHz Sector probe for cardiac application
19. B/W Thermal printer, carry bag, mobile cart with transducer holder and space for printer should be quoted separately as optional
20. Essential Requirement: The firm must have installation of 05 units of the quoted model and 15 for similar model in same series in India, attach list of installations, and also provide performance certificates
21. Warranty: The unit, transducers and all accessories should be covered with warranty for 2 (two) years and CMC for 5 years commencing from the date of issue of installation certificate
22. Standard and Safety: European CE (from European union notified body having 4 digit identification number) & US FDA

### SCHEDULE - III

#### Portable X-ray Machine (100 m A)

**a) Operational Requirements**

- i) Compact, lightweight ( 150 Kg), easily transportable mobile radiographic unit suitable for bedside X-Rays.
- ii) The unit must have an effective braking system for parking and transport. The tube stand must be spring balanced.
- iii) The tube head should rotate in all directions.
- iv) General purpose, high frequency (should not be biphasic), digital display of KV & mAs.
- v) Exposures with remote control (wired or wireless) should be available (hand switch)
- vi) The unit must have cassette storage facility for all size of cassettes.

**b) The Generator**

- i) Microprocessor controlled high frequency (100 KHz or more), output of 4 KW or more.
- ii) kV range: 40kV to 100 kV.
- iii) mA range: 100 mA or more.
- iv) mAs: 200 or more.

**c) X-Ray Tube**

- i) Stationary Anode type with 1.8mm x 1.8mm or less focal spot size.
- ii) Manual collimator.
- iii) The collimator should have wide power LED for clear visualization of radiation field

- in open areas like wards / ICUs.
- iv) Collimator should have auto shut off facility to ensure longer life of the Collimator lamp.
- v) Unit should operate on single phase voltage range from 190 – 240V, 15 Amp plug without any external Transformer.
- d) Standards, safety, and training**
  - i) Should have the ISO certification and the copy of the same should be enclosed along with the technical bid.
  - ii) Training should be provided for users.
  - iii) Unit should have type approval certificate from AERB.
  - iv) Should comply with European CE (from European union notified body having 4 digit identification numbers)/ BIS standards.
- e) Lead jacket (medium size, 100 cm in length, 0.35 mm of lead equivalence) with hanger – 04, Thyroid shield – 04, Gonadal shield – 04, Lead goggles – 04**
- f) Documentation**  
User/Technical/Maintenance manual to be supplied in English. Certificate of calibration and inspection from factory.
- g) Warranty & CMC**  
The machine and all other accessories should be under warranty for 2 years and followed by 5 years CMC.

## SCHEDULE - IV

### Image intensifier (C-Arm)

Specification of High Frequency Mobile C-ARM IITV System

The system should have the below mentioned specifications:

1. I.I.T.V. SYSTEM:
  - 1.1. The image intensifier should be of latest series
  - 1.2. It should be of 9 inches or more with triple field
  - 1.3. The center resolution should be minimum 48lp/cm at 9.0 field.
  - 1.4. The circular grid should be fixed on the Image Intensifier (I.I. ratio) to improve image quality.
2. C-ARM STAND:
  - 2.1. It should be ruggedly built and should be of good design
  - 2.2. It should have steering for controlling back and / or front wheel movements
  - 2.3. It should also have the below mentioned movements.
    - Horizontal travel should be minimum 200 mm
    - Orbital movement should be minimum 115°
    - Panning movement should be minimum  $\pm 12.5^\circ$
    - Focus to I.I distance should be minimum 900 mm
    - Vertical movement should motorized/oil-free of minimum 400 mm
    - Focus to I.I Clearance should be minimum 730 mm
    - C-Arm rotation should be minimum  $\pm 180^\circ$  (Preferably  $\pm 360^\circ$ )

3. CCD CAMERA:
  - 3.1. The CCD camera should be ½ inch and of 0.3 lux; should be of internationally reputed make.
    - It should have resolution minimum of 1K X 1K
4. MONITORS:
  - 4.1. Medical grade monitor minimum 17 inches more on trolley – 2 Nos. (Certificate to be provided); Resolution: 1K X 1K
  - 4.2. The monitor trolley should be provided for mounting 2 monitors and should have 2 selves for keeping memory and stabilizer.
5. GENERATOR:
  - 5.1. It should be microprocessor controlled digital system with display.
  - 5.2. It should be of high frequency with output of minimum 3.5 KW or more and frequency of 40 KHz. (Preferably 100 KHz)
  - 5.3. The KV should be from 40 to 110 KV.
  - 5.4. The fluoroscopic mA should be from 0.3 to 3.0 mA or wider.
  - 5.5. The system should have fluoroscopy mode like
    - Manual Fluoro mode & Continuous Fluoro Mode
    - Pulsed fluoro mode with facility to select time interval between the pulses from 1 sec to 8 secs or more
    - Auto Dose Rate Control in fluoroscopy mode by which mA & KV should be set automatically as per the thickness of the organ.
    - Manual KV selection during fluoroscopy also should be available.
    - Boost fluoroscopy mode / High Definition Fluoroscopy
  - 5.6. The digital fluoroscopic timer should be incorporated with arrangement of auto cut off of exposure after 300 secs.
  - 5.7. The radiographic mAs range should be from 20 to 100 mAs or more
  - 5.8. The X-ray tube should be dual focus stationary anode. The focal spot of the tube should be
    - 5.8.1. Small: 0.6mm x 0.6 mm
    - 5.8.2. Large: 1.5mm x 1.5mm. or moreIt should have mono block / tube housing heat storage capacity of **500 KHU** or more. It should also have inherent filtration of 0.5 mm or more Al eq.
  - 5.9. The system should have backlit LCD display of fluoro mA, KV, timer & radiography mAs should be provided.
  - 5.10. The reversal, image rotation, functions should be operatable either from control panel or with a remote control/ **wireless key board.**
  - 5.11. Memory functions like store recall/image transfer should be operatable from control panel as well as from memory unit.
  - 5.12. There should be independent selection of mA and KV & mAs.
  - 5.13. The control should have indicator for power, Overload, X-Ray & Tube heating
  - 5.14. The system should be upgradable to latest functions
6. IMAGE MEMORY:
  - 6.1. Digital Image Processing & Memory system with PC or USB Drive.

- 6.2. The System should have DVD recording facility as externally or internally.
- 6.3. It should have 100000 images (size:1K X 1K)
- 6.4. It should have at least 100 permanent images storage capacity
- 6.5. It should have image integration function to reduce the image noise
- 6.6. Should be capable of copying images to Pen Drive
7. ESSENTIAL ACCESSORIES:
  - 7.1. Detachable cassette holder for taking X-rays on 8 inches x 10 inches or 10 inches x 12 inches film
  - 7.2. Lead aprons (0.35 mm lead equivalent), Thyroid Shield, Lead Goggles, Gonadal Shield (12 nos each). The items should be as per AERB guidelines.
  - 7.3. Lead apron stand- (2 Nos.) & Hanger (6)
  - 7.4. Servo stabilizer from reputed make -1 unit
8. Warranty for 2 years and 5 years for CMC after warranty. The prices for CMC shall be quoted at the time of tendering process. The prices of CMC shall be considered for the evaluation process.
9. The Generator, Tube, Image Intensifier of the equipment should have FDA / CE (from European Union notified body having 4 digit identification number) or entire equipment should have CE (from European union notified body having 4 digit identification number) / FDA certification.
10. Should be AERB approved
11. The System should be DICOM compatible  
**[The rates of Consumables and spares should be mentioned in Form 10a & 10b respectively.]**