

**Tentative Specifications for Transportable Mobile C-ARM**  
**Specifications subject to be revised after pre-Bid meeting**

Transportable mobile C-ARM unit must include the following:

**1. X-ray Generator**

- a. Frequency : minimum 40 KHZ
- b. Output power : minimum 5 KW or more
- c. KV range : 40-120KV or more in steps of 1KV
- d. Radiographic mA Range : 70 mA or more
- e. Fluoroscopy mA (Normal) : 0.1 – 8 mA or more
- f. Pulse Fluoroscopy mA : 0.1 – 4 mA or more
- g. mAs range in radiography mode : 200 mAs or more

**2. X-Ray Tube**

- a. Dual focus Rotating Anode with focal spot size of 0.3mm or less and 0.6mm or less
- b. Anode heat content 200KHU or more
- c. With thermal safety cutoff

**3. Movements of C-ARM**

Fully Counterbalanced C ARM with following movements:

- a. Motorized movements
- b. Vertical Travel of : 400mm or more
- c. Horizontal Travel of 200mm or more
- d. Wig / Wag Movement - +/- 12.5 Degrees or more
- e. Rotation - +/- 180 Degrees
- f. Arc orbital movement – at least 115 degrees
- g. Depth of the C – at least 590mm
- h. Source to image Distance – 900 mm or more

**4. Image Intensifier**

- a. Triple field 9" Image intensifier
- b. CCD camera of minimum 1 K x 1 K should be provided
- c. Contrast ratio 25:1
- d. Min 64 lines per centimeter

**5. Image Processing and Storage**

- a. Patient management- Electronic record with name, date, anatomy
- b. Search based on criteria
- c. Gamma correction
- d. Contrast / Brightness setting
- e. Digital Image Rotation
- f. Zoom & Pan
- g. Edge Enhancement
- h. Cine Loop or its equivalent
- i. Virtual Magnification Glass
- j. Virtual Collimation software
- k. Annotation & basic measurements (Text / Angle / Arrow)
- l. Serial port /USB transfer for image acquisition and image management
- m. It should be possible for end user to program the presentation of the fluoroscopic image as per the requirements of the procedure for the end user.
- n. Special presets of various areas of application - for Orthopedic, Neurology, Urology, Gastroenterology, cardiology, DSA and others to be provided
- o. The unit should have capability to store of over 10,000 images on a 1024\*1024 matrix
- p. Full integration and communication for image acquisition, image rotation from control, image review from control and LIH store from control should be provided
- q. Provision for patient data storage, search on different criteria and recalling of images should be offered as standard

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- r. The system should be DICOM 3.0 ready
  - s. System should be ready for remote access through LAN within the hospital with relevant viewing software to be provided
  - t. DVD for burning of images / patient records to be provided
  - u. Feather touch control panel with LCD Display should be provided
  - v. The electronic controls should be of latest technology
  - w. Wireless key board and mouse to be provided
  - x. Data backup and restore feature
  - y. System should allow configuration and bi-directional interfacing with HIS with necessary information to be provided at the time of delivery and commitment to provided required support to hospital team for bidirectional interfacing
  - z. System
6. **Trolley**
- a. 2 Monitors of minimum 22" should be provided (minimum resolution 1024\*/1024)
  - b. Should have a suitable Built in Voltage Stabilizer including for generator
  - c. Built in UPS with back up for 10 minutes or more
7. **Connectivity**
- a. The machine should be capable of connectivity to LAN.
  - b. Remote access to the C-ARM unit should be provided for remote diagnosis, remote calibration and service.
8. **Others**
- a. The quoted model should be CE and or US FDA certified
  - b. The quoted model should be AERB type approved
  - c. List of important spare parts and accessories with year wise costing as applicable to be provided
  - d. Job description of the hospital team and company service engineer should be clearly spelt out
9. **Training sessions**
- a. Training to be provided to staff at installation

**L1 shall be decided on the ownership cost of the equipment for a period of 10 years from the date of installation**

**Bidding format**

Price with 1 year warranty	CMC yr 2	CMC yr 3	CMC yr 4	CMC yr 5	CMC yr 6	CMC yr 7	CMC yr 8	CMC yr 9	CMC yr 10
	AMC yr 2	AMC yr 3	AMC yr 4	AMC yr 5	AMC yr 6	AMC yr 7	AMC yr 8	AMC yr 9	AMC yr 10
Price with 5 year warranty					CMC yr 6	CMC yr 7	CMC yr 8	CMC yr 9	CMC yr 10

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**CMC/AMC Terms:**

1. During the term of warranty/CMC/AMC on demand training sessions to be conducted on atleast 2 occasional in a year at date and time suitable to the hospital.
2. Copies of service record shall be submitted both to user and purchase department
3. QC checks are required by AERB (revised and updated from time to time) shall have to be made available by the vendor themselves or through the third party at their cost
4. Yearly certificate of compliance to AERB norms shall have to be submitted to the user and purchase department.
5. All types of batteries and third party components supplied as a part of this tender shall be have to be covered under warranty / during cmc period
6. CMC/AMC prices shall be applicable and vendor shall be bound for AMC/CMC agreement even if there a break in AMC/CMC. It is understood that in case of CMC contract shall be applicable only if machine is in full working condition. AMC agreement shall have to be signed even the equipment is not in working condition.

