

SPECIFICATIONS FOR MOBILE C-ARM MACHINE

The Unit should have the following features -

1. X-ray Tube -

1. High Frequency (upto 40 kHz or more) **Generator** with Power output rating of minimum 25 KW or more to permit clear images during Spinal and Pelvic Procedures. Should be microprocessor controlled with Automatic / Semiautomatic & Manual Selection modes for kV (Range 40 - 120kV or more) & mA (Range 10 - 250 mA or more) and permit Continuous, Digital Pulsed and Digital Radiography exposures.
2. X-ray tube should have a Dual Focus rotating **anode** with Heat Storage Capacity of at least 350 KHU.
3. Effective Heat Storage Capacity of single tank should be at least 5 MHU to permit prolonged procedures.

2. Flat Detector System -

1. High performance digital CMOS (Complementary Metal Oxide Semiconductor) image detection Flat Panel technology of at least 30 cm x 30 cm size to allow for larger field of view, lesser repositioning exposures and at least 3 levels of magnification.
2. Should be based on indirect conversion technology or better with DQE of 70% or more, and pixel size not more than 200 μm for clearer images esp. for pelvis and spine
3. Should have anti-scatter detachable grid permitting low dose pediatric procedures.

3. Switches & Controls -

1. **Hand switch** with spirally coiled cable (at least 2 metre in length) with switch for shooting image / image transfer / storage.
2. Wireless multi-function **foot switch** with Blood and Fluid ingress protection (IPX8)
3. **Touch based controls** at C-arm chassis and Monitor cart for operating c-arm, image processing, electromagnetic braking and motorized movements.
4. **Safety features** like Emergency Stop Button and Xray Exposure Indicator (Light / Sound/ Both)

Dee *Dee* *Dee* *Dee*

Approval
Dr. M. K. Singh, Director, IACCM, FCCP (USA)
Be (1, Dept of Health, Govt of UP, Lucknow)
K. in c-117
Page 1 of 6

4. C-arm -

1. Fully counter-balanced C-arm with integrated cables and electromagnetic brakes.
2. Orbital movement at least 145° , Angulation movement at least $\pm 220^{\circ}$, Horizontal movement at least 200 mm, Vertical travel of at least 420 mm, Swivel range at least $\pm 10^{\circ}$, Source to Detector distance of at least 105 cm, Radius of C-Arm at least 700 mm and C-arm opening /free space of at least 830 mm.
3. Should have following motorized **movements** - Angular, Orbital & Vertical preferably with non-contact Collision protection to help maintain sterility of operative field
4. Should have laser **pointer** for accurate positioning of xray beam.
5. Should have System of shutters & diaphragm for symmetric radiation free collimation.
6. Safety alarm for set radiation dose level and integrated radiation dose measuring chamber
7. Additional feature of iso-centricity will be preferable for reducing repositioning times and also radiation dose for pediatric age group.

5. Image Display System -

1. Full HD (1024 pixels) or UHD (4K) Medical grade display system of two 19 inch or one 32 inch anti-reflection anti-glare flicker-free direction-adjustable Screen
2. High brightness (1000 cd/m^2 or more) colour LED display with viewing angle 160° or more mounted on a mobile monitor cart

6. Image processing & storage -

1. Integrated image storage and processing system
2. Should be compatible with Hospital PACS / DICOM 3.0 system or higher
3. Should be able to integrate with Navigation system for Spine / Deformity Corrections
4. Should have live image marking tool or integrated intelligent navigation or trajectory marking for precise k-wire / screw placement permitting lesser shots for pediatric patients
5. Should permit live image rotation and inversion in 2 axes
6. Last Image hold capability with temporary storage of at least 50 Current Case Images for quick review.

Prof. Avinash
MDIDCC, FICCM, FICCH, 1st A. FCCP (USA)
Head, Department of Critical Care,
King George's Medical University, UP, LI
CPag

/ f / .

J

7. LAN, WLAN, Wifi and USB 3.0 (or higher) connectivity for image transfer
8. Alphanumeric English language touch keyboard for entering patients data and image annotation and subsequent storage for retrieval
9. Should permit display or downloading of Radiation Dose Reports
10. Integrated Windows / Linux based System - Intel processor at least dual-core configuration, at least 8 GB RAM, Hard Disk with capacity of at least 2TB
11. Image storage of at least 1,50,000 in IK x IK format

7. Essential Accessories

1. Inline UPS cum stabilizer with at least 30 minutes full working back up and over current / voltage protection
2. Light Weight Radio-protective Leadless (Five) marked for Doctors
3. Light Weight Radio-protective Low lead (Five) aprons marked for Technicians & Nursing Staff
4. Wall/ Floor mounted stands to hang Ten Aprons separately
5. Thyroid shield (Leadless) - Five
6. Head Shield (Leadless) - Five
7. Gonadal Shield - Five
8. Radiation Protection Goggles - Five
9. Power Cords and Cords connecting C-Arm with monitor cart should be at least 5 metres in length.
10. Image Review Workstation - Intel based processor at least 9 octa-core configuration, with at least Windows 10 - 64 bit, Full version softwares (Office 10 Professional, Adobe Acrobat), 32 GB DDR4 RAM, Hard Disk with capacity of at least 2TB, UPS with at least 40 minutes backup, having Dicom interface & connectivity-through LAN (Ethernet), Wifi (WLAN), USB 3.0, USB 2.0; Preinstalled Full version Pediatric Deformity correction planning software - PeekMed and Surgimap / Click2Correct.
11. One time Processing for application of Five TLD Badges.
12. Disposable Sterile Covers of proper size - three hundred.

Conditions for tenderer:

1. All accessories should be from the same Original Equipment Manufacturer for the main unit.

Prof. Avinash Agrawal
 MD, IDCC, IFCCM, FICCM, FIACCM, FCCP (USA)
 Head, Department of Critical care,
 King George's Medical University, UP, Lko.

2. Instruments must be ISO certified and a copy should be enclosed. (The ISO Certificate must be issued by any organization accredited by the Bureau of Indian Standard or accredited by the international accrediting forum "IAF" (Certificate to be attached).
3. Should be USA FDA and/ or European CE be approved by 4 digits notified body.
4. Other necessary certifications if any required will be provided by the bidder for the smooth functioning of the machine.
5. Installation process should be performed by O.E.M trained service engineers/ service representatives on OEM letterhead or Service Report within 15 days of supply, with the mandatory provision of providing preventive services visit of OEM trained Service Engineer/ Service Representative quarterly per year till the completion of warranty period (i.e., 20 visits for the first 05 years) & further quarterly visits (04 visits/year) year till the completion of CMC period.
6. The equipment should have a Brand name/ Model Number embossed/etched on the equipment.
7. All the technical specifications in the compliance statement must be supported by Original Literature from the firm/ O.E.M with highlighting Numbering & flagging of all technical certificates.
8. Offered Equipment should have a strong Government Installation base.
9. Offered Equipment should have a Regional Sales Service Centre of the Original Equipment Manufacturer in the region for a 95 % uptime guarantee.
10. For the offered main unit, the essential, optional required consumables'/accessories' shelf life should be declared on the Original Equipment Manufacturer's letterhead.
11. In case of technical snag/failure/breakdown the response time for the inspection should be within 24 hours and repair within 05 days otherwise provide a service machine/ alternate arrangement to be made till the period of recovery of the breakdown of the unit, failing which attracts penal action as per the decision of institute/ hospital.
12. For offered equipment the Training of technical staff and users should be performed by Original Equipment Manufacturer trained Service Engineers at the proper designated place- at bidders' cost.
13. Company should quote their latest model and need to provide an affidavit for the same.

Prof. Avihsh Amvnl
 MD, IDCC, IFCCM, FICOP, FIP (USA)
 Head, Department of Cfidca! care
 King George's Medical University, UP Lko.

14. As a tendering process the Demonstration of the offered Equipment is Mandatory at hospital/institute premises or other designated places at the bidder's cost.
15. The bidder must comply with the General Financial Rules and their modifications if any issued by the Government of India- 2017.
16. Any bidder from a country that shares a land border with India will be eligible to bid in the tender only if the bidder is registered with the Competent Authority (i.e., Registration certificate issued by the Ministry of Commerce and Industry (Department for Promotion of Industry and Internal Trade- DPIIT after October 2020). If any such bidder is not registered with DPIIT they will be liable for technical disqualification.
17. Principal (OEM) must authorize only one agent to be quoted in the bid otherwise multiple quotes through different agents in the same bid will be canceled.
18. The Bidder and its OEM both have to submit a notarized affidavit on the Indian Non-Judicial Stamp Paper of Rs. 100/- that the bidder has not quoted the price higher than the current financial year and last financial year supplied to any government Institute/ Organization/ reputed Private Organization. OEM also has to submit that the price quoted by the bidder in the bid is on its behalf and the lowest in the current and last financial year in the country. Therefore, if at any stage it has been found that the supplier and its OEM have quoted lower rates than those quoted in this bid; the Institute (the purchaser) would be given the benefit of lower rates by the Supplier and any excess payment if any, will become immediately payable to the Institute (the purchaser). If such an affidavit is not submitted, the bid will be outrightly rejected. (Part of technical bid).
19. Guarantee / Warranty Period: Separate offers of Comprehensive Maintenance Contract (CMC on main equipment) and Annual Maintenance Contract (AMC on main equipment) for further 5 years after expiry of 5 years of warranty (i.e., 6th, 7th, 8th, 9th and 10th years) in rupees only (and on basis of percentage of price) should be included in a financial bid in the absence of which the offer is liable to be rejected. Payment for CMC/AMC shall be made only after the expiry of the warranty of 5 years, in case the Institute (the purchaser) decides for availing of CMC/AMC services. Contract for CMC/AMC shall be decided on expiry of warranty but rates (not more than 5% inclusive of all taxes for 6th to 10th year) will be frozen at the price of an issued purchase order before the release of payment by the Institute (the purchaser). However, the Institute (the purchaser) may decide not to enter into any CMC/AMC

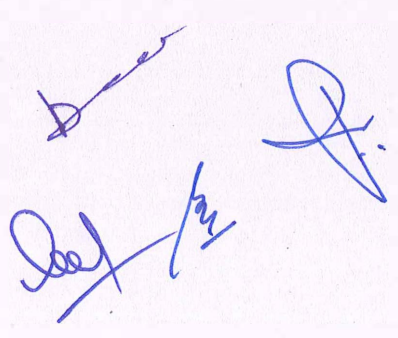
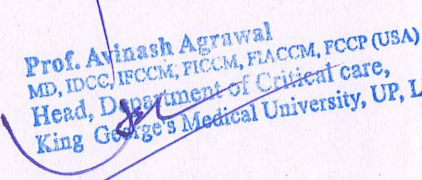

Y



Prof. Avinash Agrawal
MD, IDCC, IFCCM, FICCM, FIACCM, FCCP (USA)
Head, Department of Critical Care,
King George's Medical University, Lucknow, UP, Lko.

contract without assigning any reason for the same, which shall be binding upon the bid.

20. Should provide 5-year CMC. CMC cannot be more than 5% of the contract value.
21. System configured application-specific educational video tutorials shall be provided as standard with the system.
22. Details of service outlet in India to render services during 5 years warranty period.
23. The principals must give a certificate if the supplier/vendor is changed during the course of the guarantee/warranty period, the principals would be responsible for the upkeep/maintenance of the quote/supplied equipment, besides honouring all the terms and conditions of CMC/AMC in letter and spirit.

Handwritten signatures in blue ink, including a signature that appears to be 'D. S.' and another that appears to be 'S. J.'.A handwritten signature in blue ink, which is a stylized 'A'.

Prof. Avinash Agrawal
MD, IDCC, IFCCM, FICCM, FIACCM, FCCP (USA)
Head, Department of Critical care,
King George's Medical University, UP, I

A handwritten signature in blue ink, which appears to be 'A. A.'.