

## **Expression of Interest (Second Time)**

**Subject- To invite Expression of Interest from vendors to supply C-ARM Machine Plastic Surgery Department In LTMG Hospital.**

**LTH/ 560 /MSW/Dt. 13/01/2024**

Dean Poor Box Charity Fund, LTMG Hospital is a Charity unit of Lokmanya Tilak Municipal General Hospital. LTMGH is a tertiary referral center with 1900 beds. Plastic Surgery Department requires following equipment's from donation and BPCL-CSR the Sanction C-ARM Machine, for performing basic and advanced test and treatment for poor and needy patients of L.T.M.G. Hospital.

For procurement of C-ARM Machine for performing basic and advanced test and treatment. So we propose to invite 'Expression of Interest' from vendors to supply the same for patient's treatment in Department of Plastic Surgery at L.T.M.G. hospital.

To supply required C-ARM Machine vendors should obtain **Application Form** from **Social Service Department on 22.01.2024 to 13.02.2024** and submit all required documents on or before **13.02.2024**, up to 03.00 P.M in the drop box in Social Service Department, College building, ground floor of LTMG Hospital, application box will be opened on **15.02.2024** at 11.00 am in Dean's Office. The entire document to be provided in below mentioned pocket.

Packet A – Description of Documents

Packet B – Technical Specification Documents

Packet C – Quote of Basic Price and GST (price should be quoted with the mention of GST.) = Total cost of equipment.

**C-ARM Machine EOI should be submitted as per below mentioned packets.**

|                 |   |
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| <b>Packet A</b> | <ol style="list-style-type: none"><li>1) All the above equipment shall be new and manufactured from virgin materials.</li><li>2) It is mandatory to provide free installation &amp; training for the user department and staff.</li><li>3) Training of 5 days to Doctor for hands on machine training under supervision.</li><li>4) Equipment should be provided within 30 days from the date of purchase order.</li><li>5) All the requirements of this supply shall be sourced from the original equipment manufacturer of the <b><u>model quoted</u></b>. In case the machine is imported one, no import substitution is permitted neither before the award nor after the award for any part or accessory.</li><li>6) The equipment's shall have valid CE certificate from notified body/ US FDA approval and documentary evidence to that effect shall be uploaded.</li></ol> <p><b>Manufacture or authorized distributor should quote. Third party suppliers can't be permitted.</b></p> |
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|  |                        | <p>7) The equipments shall be having warranty of three years as described document elsewhere. The warranty and CMC shall cover the list of the spare parts and the rate of which valid for total 8 years (warranty 3 years and CMC 5 years) irrespective of whether those are treated as consumables or otherwise.</p> <p>8) The equipment's should be provided with one hard copy in original of the detailed service manual and operation manual. Further, a soft copy is also required.</p> <p>9) The instrument trolley can be of Indian make</p> <p>10) Training to Medico Electronics Cell Engineers (MECE) from servicing point of view and to User department from operating point of view.</p> <p>11) The license for the software's shall be valid for the warranty period and for the CMC period without any extra charge to the purchaser.</p> <p>12) Bidder should submit company registration document , PAN Card, Aadhar Card, Last three years audit report and return files and proof of same work done in government hospital all technical details in the form of technical brochures / leaflets for all the equipment's proposed for supply and mentioned in the technical offer in the technical offer.</p> <p>13) List of Bank</p> <p>14) Partnership Deed if any of vendor.</p> <p>15) Solvency Certificate</p> <p>16) Power of Attorney to sign the tender if original vendor not available .</p>   |
|  | <p><b>Packet B</b></p> | <ol style="list-style-type: none"> <li>1. Comparing of tender specification v/s Equipment Specification in table format.</li> <li>2. Consumable if any should provide price to be fixed for next 8 years now itself. Any change is close will lead disqualification and black listing after award of EOI. All original document of CE and US FDA certification to be shown at time of award of tender in original vendor name.</li> <li>3. pricing to be given in tabular form with appropriate details.</li> <li>4. experience certificate of same working machine in bmc or state government or private hospitals if possible recommendation letter of previous users mentioning the vendor and machine.</li> </ol> <p>The vendors who fulfilled EOI criteria would be entitled to proceed for 'Packet C' Opening only .</p> <p><b><u>SPECIFICATIONS OF C-ARM 6KW WITH FLAT PANEL DETECTOR</u></b></p> <p>Microprocessor controlled C-arm machine with FPD should provides the excellent image quality at low radiation, ideally suited for general surgeries in many application fields and special application such as orthopedics, urology, Gastroenterology, pain management, Spine fixation, Neurology &amp; angiography procedures.</p> <p><b>A) FLAT PANEL DETECTOR:</b></p> <ul style="list-style-type: none"> <li>• Receptor Type should be of Amorphous Silicon technology</li> <li>• Conversion Screen should be of CsI</li> <li>• FPD with 21cm x 21cm size should be provided</li> </ul> |

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- Image Matrix should be 1K x 1K or more
- Pixel pitch should be 210µm or less.
- ADC conversion should be 16bit or more
- Limiting resolution should be 2.5lp/mm or more
- Suitable Carbon fiber grid should be provided.
- Laser centering device should be available.

**B) Monitor on Trolley:-**

1 No 32” or more colored display monitor with split screen for Live & Reference Image display mounted on trolley should be provided.

**C) Monitor on C-carriage:-**

13” or more Touch screen console mounted on C-carriage to operate the machine & for live Image display.

**D) C-ARM MOVEMENTS: fully counter balanced all movements**

1. Rotation:  $\pm 180$  Degrees.
  2. Motorized Up/down: 400mm or more
  3. Horizontal Travel: 200 mm or more
  4. Arc Orbital Movement: 120 Degrees.
  5. Wig Wag:  $\pm 12.5$  Degrees.
  6. Source to Image distance should be more than 900mm.
  7. Depth of “C” should be at least 650mm
  8. Free space should be 750mm or more
- Steering handle with  $\pm 90$  degree movement for both side diagonal scan.

**E) X-RAY GENERATOR:**

1. High Frequency (50 KHz).
2. Output power should be 6KW or more.
3. Fluoro & Rad. Kv 40 to 120 KV.
4. Digital Spot: 60mA or more
5. Pulse Fluoroscopic mA(peak):-
  - up to 20mA or more (Normal Mode)
  - up to 25mA or more (boost fluoro mode)
6. Following modes are necessary-fluoro, pediatric, Boost, Snapshot and radiograph and low does fluoroscopy mode.

**F) 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 min 300kHU
- Lead collimator Shutters with preview-Radiation free should be provided.

**G) CONTROL:**

Touch screen monitor mounted on C-arm carriage for Image & Exposure parameters control is provided with following functions and indications:-

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**On GUI Screen**

- Fluoroscopy timer (Five minute cumulative timer with buzzer that activates after the completion of 300 seconds of exposure to reinitiate the exposure *reset* switch is provided).
- ABS (Automatic brightness stabilization) selection for hand free operation- also known as ADR
- KV and mAs increase and decrease switches.
- X-Ray ON indicator.
- Collimator open/close switches
- Various Interlocks are displayed on LCD Screen for self diagnosis.
  - a) KV Interlock
  - b) Filament Interlock
  - c) Thermal Interlock
  - d) Rotor Interlock
- Emergency OFF Switch.
- Should have exposure through hand switch & foot switch both.

**Others**

- Switches for up/down movement of “C” on both side of machine frame.
- Emergency OFF switches mounted on monitor.
- Machine ON/OFF Key switch.
- Flouro, Cine & spot switches on both side of panel.
- The system should have Auto Error Indication & Detection of Power Supply error, Inverter error, Filament error, Rotor error, Monoblock Temperature sensor, Thermal Error & safety cut off, Tube hot should display on LCD.
- APR Mode (Anatomical programming) that is pre selected parameters are programmed in machines as per body parts selected/to be exposed.
- The image acquisition software should be compatible with OS with wireless keyboard and mouse and should be updated time to time.
- If OS is other then LINUX then company should provide license copy and ensure updates for 10 years and anti- virus license copy for 10 years mandatory.
- If OS is than LINUX then hardware PC should have warranty of 5 years including up gradation of CPU/ mother board based on up gradation of OS.
- LAN connectivity
- Pre- Processing Features -  
Patient data entry & patient work list management should be available.
- Last image Hold facility
  - Mode Selection from software i.e APR presets like Patient Type – Normal & Large, Organ Type-Bone, Spine, Abdomen, Soft, Endo & Uro.
- Setting of exposure parameters i.e KV & MA should also be possible from
  - software
  - & console panel.

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- Pre- programming different image setting parameters like brightness. Contrast, zoom, rotation & flip function for different operating modes, as per procedure & as per user requirements should be possible.
  - System should have selection of APR based on body parts for reducing x-ray dose for software.
  - Frame averaging (Recursive) for smoothing of images real time up to 32 frames.
  - Last image Hold transfer can be done manually or automatically as per user choice.
- Post processing features**
- Image reversal – Left to Right & Top to Bottom
  - Image rotation Clock wise & antic clock wise
  - 
  - Window width (WW) & Window level (WL) adjustment for brightness & contrast.
  - Dynamic Zoom with pan
  - Image Invert / Negative Image
  - Thumbnail view for multiple image
  - It should have save study images to USB, Save Study/Images to CD/DVD, Send to Network, Export/save Image in Jpeg, Export/Save Image in Dicom (Optional).

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

- Image processing software with real time image capturing, storage, and display up to 1k X 1k format.
- Boosted fluoroscopy (CINE) at 30 FPS with real time recording on hard disk drive.
- Digital Radiography (SPOT) exposure mode is available
- Variable Frame Rate (1-30) FPS
- Fully integrated system with X-ray generator calibration from the imaging software

**User selectable view on Single monitor.**

- User selectable image display for Live & Reference view
- Image Processing:**
- Real time noise reduction with Averaging up-to 16
  - Recursive filter for image smoothing, DRC, Contrast, Brightness, Sharpness.
  - Interactive Zoom and Pan
  - Dynamic Zoom up to 400%
  - Pre-programming for image setting for different operating Modes
  - Image Inversion
  - Dynamic Noise Reduction Filter(DNF) for moving anatomy.
  - WW/WL level adjustments

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- Image Flipping and Image Rotation Clockwise or Anti-clockwise.
- Live to Reference View on Single Monitor
- Cine Loop Play(Auto and Frame wise)
- Real time Image Flip(Horizontal/Vertical)

**Collimator:**

- Ultra fast Preview collimator

**DAP Module:**

- DAP dose integrated in software and total summary for Fluoro/Cine Saved.
- Real Time Patient dose monitoring display with overdose warning message

**Heat Unit Display:**

It displays Remaining Heat Content of X-Ray Tube in percentage (%).

**Full Dose , Half Dose and Quarter Dose:**

- Three level Dose Control to facilitate the user to work with selective Dose mode in fluoroscopy
- Provision for continuous fluoroscopy

**MAG:-**

Real Time Three step Digital MAG.

**Touch monitor :**

Touch based console for frequently used parameters along with image display.

**DICOM Features**

Connectivity with DICOM workstation/PACS  
 DICOM Send/Storage Commitment  
 DICOM Print  
 DICOM Worklist/MPPS

**Storage:**

Upto 780 GB Hard disk for storing images  
 Fluoro saving as per user need  
 LIH saving as per user need  
 Should have USB pen drive provision for external image storage.

**Annotation:**

Rectangle, Ellipse, Line, Text

**Measurement:**

Stenosis measurement, Length Measurement

**PACS Connectivity**

Multiple Nodes can be configured.  
 Single/Multiple Image Tagging to transfer into PACS/Workstation

**Miscellaneous**

Exposure Lock/Un-Lock facility  
 Electronic Collimator  
 Paper Printing  
 Different format of image saving like JPG, BMP, TIF, PNG , AVI Loop  
 Cine loop play  
 Image Data Export to DICOM CD , pen drive DVD

Mosaic view/Image layout 2x2, 3x3, 4x4.

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|  |                        | <p>Wireless remote for software features like Image Flip/ Rotation etc.<br/> Fluoro Navigation Compatibility</p> <p><b>D)Power requirement:</b></p> <ul style="list-style-type: none"> <li>• The unit should be operable on Single Phase 230 V ± 10% AC, 50 Hz</li> <li>• UPS for power backup of the software mounted in trolley should be provided.</li> </ul> <p><b>J) Aecessories:-</b></p> <p>Lead Aprons of 0.25 mm lead equivalence- 10 Nos.<br/> Lead cap-05 Nos<br/> Lead Goggles- 02 Nos.<br/> Thyroid Guards- 05 Nos.<br/> Gonad Shields- 05 Nos.<br/> 02 Nos. Lead Aprons Stand for 05 Lead Arpons.<br/> Sterilize Covers- 02 Nos.</p> <p><b>k) OTHER REQUIREMENTS:</b></p> <p>The company should be ISO &amp; ICMED certified.<br/> The unit should be approved by AERB &amp; must have valid AERB approval certificate.<br/> The unit should be European CE Certified from Notified body.<br/> The company should have a local Service center.<br/> The company should have proven track record in Govt. sector.<br/> The X-Ray generator, detector and console software should be preferably from same manufacturer for seamless connectivity and consistent image quality.<br/> Training must be provided to the staff.</p> |
|  | <b>Packet C</b>        | <p>Quote of Basic Price and GST (price should be quoted the mention of GST.) = Total cost.</p> <p>Three Year AMC + Five Years CMC at rate of 5% on Machine price Total Eight Years.</p> <p>The Tender Documents should be signed by vendor, company stamp and lowest quotation would be awarded the contract.<br/> No False Information and Documents will be Entertained.</p>  |
|  | <b>Warranty period</b> | <b>warranty period 3 years &amp; 5 years CMC after completion of AMC (warranty)</b>   |
|  | <b>CMC</b>             | <p><b><u>Comprehensive Maintenance Contract (CMC)</u></b></p> <p>1) After the warranty period is over, five years Comprehensive Maintenance Contract (CMC) will have to be entered into with the terms and conditions as per MCGM norms.</p> <p>2) The successful bidder has to ensure that all the required spares and services are available during the contract period and 3 years after that duly backed by the principal.</p> <p>3) Cost of the CMC should not be more than 5% of total equipment cost.</p>  |

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**If any doubt or any query about above mentioned work you can contact with Mr. Shantaram Mane (Sr. Community Development Officer LTMG Hospital Sion) Mob 9819733707**

Sd/- 19.01.2024

**Mr. Shantaram Mane,**  
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Sd/- 19.01.2024

**Dr. Prakash Gaikwad,**  
**Head of Department,**  
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Sd/- 19.01.2024

**Dr. Mukund Jagannathan,**  
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