Notice Inviting e-Tender

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Procurement of 02 (Two) Nos of High-end Anesthesia Work Station for emergency and Gynaecology & Obstetric OT at Murshidabad Medical College & Hospital
(Submission of Bid through *online*)

Bid Reference No.: WBMSCL/NIT-320/2025 **Dated-22.04.2025**

AMENDMENT-I

REVISED TECHNICAL SPECIFICATION

Anaesthesia Workstation

STANDARDS

Quoted model should meet IEC 60601-1, IEC 60601-1-2 (Both Anaesthesia machine and Monitor), ISO 80601-2-13 (for Anaesthesia machine) and should submit valid test report from any NABL accredited labs or from the labs in their country of origin (in case of foreign manufacturers) for the quoted model

Manufacturer should have ISO 13485 certification and Model should be registered from CDSCO as per new government of India guidelines

All the components like Anaesthesia Machine, Patient Monitor, AGM, Vaporizers should be from the same manufacturer.

Specifications of Anaesthesia Workstation

Have a sturdy body structure, durable finish, modular design antistatic heavy frame with good quality castors with front brakes, should have drawer for storage space with following feature:

a) MAIN MACHINE

1. Three gas model, Oxygen, Nitrous Oxide and Air.
2. Should be compact, ergonomic, easy to use and easy to maintain.
3. Should have separate fresh gas outlet for use in open circuit.
4. Digital for oxygen, nitrous oxide and air for wall supply as well as cylinder supply. Emergency oxygen flush should be available.
5. Machine should have dual flow sensors at inspiratory and expiratory port and it should be covered under warranty and CMC including free replacement of flow sensors if required.

6. It should have independent para magnetic oxygen sensor/Electromagnetic sensor cell for FiO2 with an expected life of at least 2 years.
7. Shall have back - up O2 control which provides an independent fresh gas sources and flow meter control in case of gas supply failure.
8. Pressure regulators shall be of modular design.
9. Digital display of pressure valve for cylinder and pipeline pressure
10. Electronic hypoxic guard to ensure minimum 25% O2 When anaesthetic gas mixture is in use with electronic gas mixture.
11. Oxygen failure audio and visual alarm.
12. Should have extra oxygen flow meter for oxygen only
13. Single soda lime canister capacity of at least 0.6 kg or higher and should be autoclavable

b) VAPORIZERS

1. Facility of mounting minimum two vaporizers, latest technology, key filler / bottle adapter, auto locking facility tool free installation, i.e. any vaporizer can be mounted at will with interlocking facility.
2. Mechanism should be available to avoid simultaneous usage of more than one vaporizer. The machine should have Isoflorane, Sevoflorane and Desflurane vaporizers of same OEM as machine.
3. Desflurane vaporizer should be temperature, pressure and flow compensated with high accuracy of delivered concentration of volatile anaesthetic agent. Three vaporizers should be supplied - Isoflurane, Sevoflurane and Desflurane one each with a work station.

c) VENTILATOR

1. The machine should have an integrated ICU quality Anaesthesia Ventilator system with integrated color, screen size should be 15 inch or more touch screens with rotary knob.
2. Facility to vary respiratory parameters and should be able to ventilate adult and paediatric patients including neonates.
3. Suitable for low and minimal flow Anaesthesia application.
4. Ventilators shall have Volume Controlled and Pressure Controlled, SIMV PS & PC, pressure support with Apnea backup and unit should be upgradable to PC-VG/ Auto flow/PRVC mode (optional price to be quoted). Electronic PEEP, Manual, and spontaneous modes should be available as standard.
5. Ventilators shall have a tidal volume compensation capability to adjust for losses due to compression, compliances and leaks, and compensation for fresh gas flow. Breathing system (circuit) shall be fully autoclavable at 134°C and natural rubber / Latex free.
6. Tidal volume (inspired and expired) respiratory rate, I:E ratio, minute volume, Airway pressure & FiO2 should be continuously displayed.
7. Audio visual alarms for high and low settings of pressure, volume and disconnection should be present.
8. Tidal volume (VT) 10 ml -1500 ml (volume control) rate at least 4-80 BPM
9. Inspiratory: Expiratory ratio 1:5 to 5:1 and peak flow >180 L/min
10. Positive End Expiratory Pressure (PEEP), Integrated, electronically controlled, of 4 to 20 cm H_2O preferably.

11. Monitor should display loops for Pressure-Flow, Pressure - Volume and flow- volume along with lung compliance.
12. Ventilator should have at least 60 min rechargeable battery backup for ventilator. The Anaesthesia machine should keep working even after power breakdown including hypoxic guard.
13. There should be no collection of water in the breathing circuit (Integrated heating mechanism in breathing system for same).
14. Integrated breathing circuit with circle absorber of good quality easy to clean autoclavable with fewer parts to reduce and allow tool free handling. Machine should have facility to change soda lime during active use.
15. Machine should have mounting capability of one O2 and one N2O pin indexed cylinders.
16. The machine should have target-controlled settings for oxygen and anesthetic agent based on continuous monitoring of patients end tidal O2 and end tidal anesthetic agent values or should support with guidance tool that automatically monitors and analyze inhaled and exhaled oxygen and anaesthetic agent data including patient uptake with actual fresh gas settings to efficiently reduce the agent consumption in low and minimal flow Anaesthesia practice.

    OR should have end tidal software tool or low flow wizard software tool for driving the efficiency in low and minimal flow Anaesthesia practice.

    OR should have target-based software tool to control fresh gas flow, anesthetic agent or tool to calculate and show the exact flow required to set as per need of the patient.
17. The machine should have the indicator or decision support tool to show the efficiency of fresh gas setting while used in Low flow and minimal flow.
18. The machine must prioritize patient safety by ensuring uninterrupted automatic continue ventilation in the event of complete gas failure
19. Multi gas analysis with auto detection of all anesthetic agents on anesthesia machine.
20. Automatic display of MAC of all anesthetic gases and FIO2 on anesthesia machine.
21. The machine should be able to connect and function with the central AGSS (Anesthetic Gas Scavenging system) system in case Hospital has inbuilt AGSS plant.

d) PATIENT MONITOR

1. The monitor should be modular/pre configured, have adult and neonatal applications and should be user friendly.
2. It should be capable of monitoring ECG, at least two pressures (IBP, NIBP), oxygen saturation (Nellcore or equivalent) SpO2, two temperatures PPV.
   Measurements of Anaesthetic Gases and End Tidal Carbon Dioxide EtCO2 via agent module (AGM) either on patient monitor or Anesthesia Ventilator.
3. Monitor must have advanced 33 arrhythmia detection including life- threatening arrhythmias as standard feature & must have ST segment analysis with ST trend, ST histogram & QTC analysis with display on main screen.
4. Monitor should have to measure and display driving pressure (Delta-P) & Oxygen Saturation Index (OSI) when connected to Anesthesia Workstation

5. Should have a Flat, color LED screen minimum size of 12 inches or more. It should have touch screen capability and should be operational from both touch screen as well as OPTICAL KNOB
6. Display should be of medical grade and the colored waveforms as well as the numerical display should be bright and clearly visible from a distance of up to 6-10 feet.
7. The monitor should display at least 10 waveforms along with related numerical parameters at any given time.
8. The monitors should have an inbuilt & standard capability to monitor ECG, NIBP, SpO2 (Nellcore or equivalent), dual Temperature and dual IBP
9. Should have ST segment analysis as standard.
10. The Display should be configurable by doctor. Screen Auto formatting to make maximum use of screen based on parameters used is desirable.
11. The operator should be able to display curves, graphics and measure value fields and adjust their size as desired on the screen.
12. The operator should be able to freeze the waveforms. The color of each individual curve should be freely selectable
13. Monitor should have minimum 160 Hrs. of graphical and tabular trends and minimum 2hrs of online trend. The graphical & tabular trend should be seen simultaneously.
14. Monitor should have OxyCrg trend.
15. Machine should be usable for measuring advanced measurements like Wedge pressure, Hemodynamic calculations, Drug dose calculations.
16. Upgradable to cardiac output monitoring, Modular/Standalone NMT.
17. It should have internal battery backup of 90 mins OR more.
18. It should be operational over a wide temperature range 10°C-40°C and humidity 20%- 90%
19. Should have a facility to deactivate all the alarms, if necessary
20. Should have facility to interchange all the modules/cable between all the monitors, so that one or more optional module can be operable on all monitors at different point of time.
21. Bed to bed monitoring is required
22. Monitor should be capable of connection to a central station or the other hospital information systems.
23. It should be possible to get remote access of the monitor via network.

e) CMC/AMC

- 2-year warranty

f) ACCESSORIES

• Anesthesia Work Station	1 no.
• Isoflurane Vaporizer	1 no.
• Sevoflurane Vaporizer	1 no.
• Desflurane Vaporizer	1 no.
• Re-usable Adult Breathing Circuit	3 each
• Re-usable RE-breathing bag 1 Ltr	2
• Re-usable RE-breathing bag 0.5 Ltr, 2 Ltr	5 each

• Re-usable Pediatric breathing circuit		5 each
• Anesthesia Patient Monitor with Standard Hemodynamic Parameter Module		1
• ECG Cables and lead Wire set		2
• NIBP Hose		2
• NIBP Cuff	Extra Large	5
	Adult	10
	Pediatric Small	10
• IBP Cable		2
• IBP Transducers		5
• SpO_2 Cable		2
• SpO_2 Finger Probe Adult		3
• Pediatric Finger Probe		3
• Temperature Probe General (Adult)		2
• Temperature Probe Skin		2
• Temperature Probe General Pediatric		2
• Sample Line (EtCO2)		20
• Water Trap		20
• Disposable Adult circuit		5
• Disposable Pediatric Circuit		5
• HME Filters		20