Technical Specification of Anesthesia Workstation

S.N	Purchaser's Specification	Bidder's Response		
	Anesthesia Workstation	**Yes/No**	**Pg. No**	**Remarks**
	Manufacturer:			
	Brand:			
	Type:			
	Model:			
	Country of Origin:			
1	**General Requirement**			
1.1	Compact and modular, Anesthesia machine with an integrated ventilator for adult to infants and integrated airway monitor for airway pressures and volume.			
1.2	Anesthesia workstation with circle absorber, two vaporizer, Ventilator and Monitoring with complete accessories.			
1.3	The machine should be suitable for low and minimal flow anesthesia application with compliance compensation of breathing circuit. Should have fresh gas decoupling system.			
1.4	The machine should have minimum 3 drawers			
1.5	The anesthesia machine, inbuilt ventilator, vaporizer should be manufactured by the same company.			
1.6	The system should have up to 1 Hrs. battery backup			
1.7	It shall accommodate two set vaporizers.			
2	**Gas delivery system**			
2.1	Should have pin index yokes for Oxygen & air besides separate connection for Central gas supply for Oxygen and Air.			
2.2	Machine should provide fresh gas settings and delivery with flow meters for O2 & Air			
2.3	Should have back-up O2 control which provides an independent fresh gas source and flow meter Control in case of electronic failure.			
2.4	The system should be suitable to use at minimal flow up to 700ml fresh gas setting.			
2.5	Emergency Oxygen flush at 30 – 70 L/min bypassing the vaporizer.			
2.6	In case of electricity and battery failure, manual ventilation, gas and agent delivery should be possible.			
2.7	Machine shouldn't depend upon driving gas for ventilating			
3	**Vaporizer**			
3.1	Machine should have possibility to mount two quick mount type vaporizer for easy interchangeability, and safety with interlock facility.			
3.2	Should be provided with a Temperature / pressure compensated and flow independent vaporizer			
3.3	Should be capable of connecting Vaporiser.for Isofluorene / Sevoflourane / Halothene / Desflorane Vaporizer			
3.4	Should have extended delivery range from 0 to 6 Vol. %			
3.5	The vaporizer should require no calibration in its life time.			
4	**Breathing System**			
4.1	Should have fresh gas de-coupled semi closed circle absorber system.			

4.2	Should have adjustable pressure relief valve from 5 to 75 mbar.			
4.3	Should have change over from Spontaneous to Bag ventilation with single step.			
4.4	The system should have leak and compliance test (including patient hoses up to the Y piece).			
4.5	Should have compact breathing system with approx. 1.7 Ltr. Volume capacity.			
4.6	Should have an external fresh gas outlet for connecting Magill or Bain's circuit			
4.7	Auxiliary oxygen port system.			
5	**Anesthesia Ventilator**			
5.1	The system should have inbuilt ventilator with electronically controlled and electrically driven technology, for zero consumption of driving gas.			
5.2	Should not require changing of bellows for adult & infants.			
5.3	Modes: Manual/Spont, Volume controlled.			
5.4	Tidal Volume: 20ml -1400 ml			
5.5	PEEP : 0 ~ 20 mbar			
5.6	Breathing Frequency : 4 to 60 BPM			
5.7	Should be able to ventilate with atmospheric (room) air, in case of total gas supply failure.			
6	**Airway monitoring**			
6.1	Screen should be of atleast 6 inches.			
6.2	Integrated monitor for electronic monitoring and display of following parameters.			
6.3	Expiratory Tidal Volume			
6.4	Expiratory Minute volume			
6.5	PEEP, Peak & Mean and Plateau airway pressure			
6.6	Frequency			
6.7	Waveform display for Airway pressure.			
7	**Alarm limits & alarms**			
7.1	Adjustable high / low limits with audio and visual alarms for the following :			
7.2	Minute volume,			
7.3	Airway pressure (incl stenosis and disconnect),			
7.4	Insp oxygen concentration,			
7.5	Audio power supply fail alarm,			
7.6	Fail to cycle warning.			
8	**Patient Monitor (7 Parameter) from the same manufacturer.**			
8.1	The monitor should be suitable for adult, pediatric or neonatal patients			
8.2	The monitor shall support stand-by, demo and night mode.			
8.3	Shall be equipped with a minimum of 8 channels of display			
8.4	The monitor shall be of fanless design to reduce hygienic risks of cross infection.			
8.5	The monitor can be used as a transport monitor with a bed hook.			
8.6	Should have battery backup up to minimum of 350 minutes.			
8.7	Shall be provided with a standard built-in thermal recorder.			

8.8	Shall be able to monitor vital parameters: ECG, NIBP, SPO2, 2-ch. TEMP, 2-ch Invasive Blood Pressure, Side-Stream EtCO2			
9	**User interface and device connectivity**			
9.1	Touch screen display with resolution of at least 800 x 600.			
9.2	Shall be able to display up to 11 waveforms and provide 120 hours of trend and patient information at the patient's bedside.			
9.3	Color TFT screen not less than 12 inches			
9.4	Shall be able to support a nurse call system.			
9.5	Shall be able to provide OxyCRG view for neonatal patients.			
9.6	The monitoring solution can be capable of sending HL7 messages to 3rd party interface e.g. HIS.			
9.7	The color and position of waveforms or parameters should be adjustable based on user's preferences			
9.8	Shall be able to support barcode reader.			
9.9	The monitoring solution will provide a security lock to prevent the power cord from detaching.			
9.10	Shall be able to monitor anesthetic gas by connecting with external gas module.			
10	**ECG, arrhythmia and heart rate**			
10.1	Shall be capable of withstanding electrosurgical and other electrical interference without creating undue ECG artifact, according to AAMI standards.			
10.2	Shall be able to support up to at least 16 arrhythmia classifications for paced or non-paced patients, which includes ASYSTOLE,VFIB/VTAC, VT>2, COUPLET, BIGEMINY, TRIGEMINY, R ON T, PVC, TACHY, BRADY, MISSED BEATS, IRR, PNC, PNP, VBRADY, VENT.			
10.3	Shall be able to provide arrhythmia processing that allows for the review and storage of events at the patient monitor.			
10.4	The ECG waveforms sweep speed should be adjustable from minimum 6 mm/s.			
11	**ST Segment Processing**			
11.1	Shall be capable of simultaneously performing ST segment analysis on all monitored leads.			
11.2	Shall be capable of displaying ST measurement values on the screen together with ECG waveforms.			
12	**SpO2 support**			
12.1	Shall provide pulse oximetry monitoring for all patient populations – adult, pediatric and neonatal.			
13	**Noninvasive blood pressure**			
13.1	Shall provide oscillometric noninvasive blood pressure monitoring for adult, pediatric and neonatal patients.			
13.2	Display of systolic, diastolic and mean pressures.			
14	**Temperature**			
14.1	Shall be capable of monitoring up to two different temperature measurements.			

14.2	Shall be capable of monitoring temperature ranges from 0 to +50 in Celsius or 32 to 122 in Fahrenheit			
14.3	If more than one temperature probe is used, the monitor will be capable of calculating and displaying a delta reading.			
15	**Respiration and apnea**			
15.1	Shall provide impedance respiration monitoring for adult, pediatric and neonatal patients.			
15.2	The respiration and apnea alarms will accommodate all patient populations and acuity with a range of 6 – 150 breaths per minute.			
15.3	The gain selection for the respiratory waveform should be ×0.25, ×0.5, ×1, ×2, ×3, ×4, ×5.			
16	**Non-Invasive Blood Pressure Support**			
16.1	The monitoring solution shall provide oscillometric noninvasive blood pressure monitoring for adult, pediatric and neonatal patients.			
16.2	The monitoring solution will provide a fixed key to start and stop noninvasive blood pressure readings.			
16.3	The monitoring solution will display systolic, diastolic and mean pressures.			
16.4	Noninvasive pressure alarms will be available and adjustable to accommodate all patient populations.			
16.5	The monitoring solution will provide oscillometric noninvasive blood pressure measurement in Manual, Automatic and Continuous mode.			
17	**Invasive blood pressure support**			
17.2	Pressure zeroing will be available at the monitor with one single touch.			
17.2	Pressure scales will be available in both mmHg and kPa scales.			
17.3	Shall be able to assign labels or appropriately name each pressure and support waveforms overlap			
17.4	Shall assign different colors to different channels of invasive blood pressure waveforms.			
18	**etCO2**			
18.1	Shall be capable of continuous end-tidal carbon dioxide monitoring on adult, pediatric and neonatal patients.			
18.2	The system should be capable of doing mainstream or side stream measurements.			
18.3	The system will be capable of doing side stream measurements.			
18.4	The etCO2 parameter will be a selectable method to measure respiration.			
18.5	The monitoring solution will be capable of showing the value of etCO2, FiCO2 and AWRR on screen.			
19	**Alarms**			
19.1	Shall have three different alarm tones and a visible light on the top of the monitor that displays high level alarm (red/flashing), medium level alarm (yellow/flashing) and low level (yellow/no flash) so clinicians can easily differentiate between alarms that are critical (serious/life threatening) and alarms that are advisory only.			
19.2	Alarms should be easy to set or change so clinicians can adapt alarms to each patient's unique/individual condition			

20	**Operating Environment**			
20.1	The system offered shall be designed to store and to operate normally under the conditions of the purchaser's country. The conditions include Power Supply, Climate, Temperature, Humidity, etc			
20.2	Power supply: 220 - 240 VAC, 50Hz fitted with appropriate plug. The power cable must be at least 3m in length			
21	**Accessories and Spare Parts:**			
21.1	2 gas (Air & O2) Anesthesia workstation			
21.2	Trolley with drawer			
21.3	Pipeline connections for 2 gases			
21.4	Adult & Pediatric autoclavable patient tubing's (1 each)			
21.5	Anesthetic Face mask size – Adult & child			
21.6	Vaporizer for Isoflurane & Sevoflurane			
21.7	Medical Grade Adult Test Lung			
21.8	Central gas supply hoses (Color coded)			
21.9	Vital Parameter Accessories for monitor (ECG, SPO2, Temperature, BP Cuff for adult 1 set and pediatric 1set)-1 Set			
21.10	Side-Stream EtCO2 kit- 1 set with set of water trap bottle			
21.11	All standard accessories, consumables and parts required to operate the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer. Bidders must specify the quantity of every item included in their offer (including items not specified above).			
22	**Standard and Safety Requirements**			
22.1	Must submit 15013485:2003/ AC:2007 for Medical Devices AND			
22.2	CE (93/42 EEC Directives) or USFDA approved product certificate			
22.3	Electrical safety conforms to standards for electrical safety IEC 60601-1 General requirement for Electrical safety of Medical Equipment			
23	**User & Technical Training**			
23.2	Must be provided to user as per user requirement by trained professional			
24	**Warranty**			
24.1	Comprehensive warranty for 2 year and 3 year of free service warranty.			
24.2	The principal company should be responsible of fulfilling warranty/guarantee, in case of local authorized agent is not able to achieve the same. The commitment letter of the same should be attached.			
25	**Maintenance service during warranty period**			
25.1	During the warranty period the supplier must ensure corrective/breakdown maintenance whenever required and also provide preventive maintenance visit in every 3 months during the warranty period.			
26	**Documentation**			
26.1	User (operating) manual in English			
26.2	Certificate of calibration and inspection from factory.			
26.3	Bidder must submit a valid Manufacturer Authorization.			
26.4	Bidder should guarantee the available of spare parts for at least 10 years from the date of installation. Manufacturer Commitment letter should be attached. Bid will be disqualified, if not submitted.			

26.5	All the spare parts and consumable with price should be submitted separately. The price should not vary during the warranty period of the machine. Bid will be disqualified, if above list is not submitted.			
26.6	Must submit original catalogue and product data Sheet confirming the specification along with the tender. If any specification is not mentioned in the catalogue, bidder should submit the commitment letter mentioning the specification from manufacturer side			