Technical Specification of High End Anesthesia Workstation With All Required Modules for CTVS				
S.N.	**Purchaser's Specifications**	**Bidder's Compliance**		
		Yes/No	**Page no. in Datasheet**	**Remarks**
	Manufacturer:			
	Brand:			
	Model:			
	Country of Origin:			
1	**Description of Function**			
1.1	Should be three gas integrated anaesthesia workstation for ultra- modern and super specialty surgical workplaces. The machine should be of exceptional design with body-integrated with advanced ventilation and electronic gas mixing.			
2	**Operational Requirements**			
2.2	It shall be suitable to be used for Neonate to adult patients.			
3	**System Configuration**			
3.1	Anaesthesia workstation with circle absorber, two vaporizers, Ventilator and Patient Monitoring with complete accessories.			
4	**Technical Specifications**			
4.1	It must be pneumatically or electrically powered and electronically controlled.			
4.2	Should offer ICU quality ventilator, single user interface of Should have large color touch screen size of 15” inch or more color Touch Display with SAW Technology for exclusive use of ventilator control and monitoring and the display should be movable to all the side for better viewing from all side .			
4.3	Intitutive user interface should control and display all parameter including control of modes, display of cylinder pressures etc.			
4.5	The machine should be suitable for low and minimal flow anesthesia application, flow valve control technology Vent engine.			
4.6	The machine should have fully automatic menu drive self-test and user check list. In case of emergency, it should be possible to bypass the self-test completely.			
4.7	The anesthesia machine, vaporizer , monitor and all required modules must be manufactured by same manufacturer /company.			
4.8	It should have configurable screen layouts for individual screen set ups.			
4.9	System must have Integrated Vaporizer Leak Check Facility.			
4.1	Unit should have primary connection for Central gas supply for Air, O2 & N20 and as a backup, Machine should also have provision for connecting Oxygen and Nitrous oxide pin index cylinders.			
4.11	System must have integrated Airway Module which facilitate to show EtCO2, FiO2, EtO2 and respiratory rate.			
4.12	Audio – Visual alarm for failure of Oxygen.			
4.11	The machine should be fitted with hypoxic guard to ensure a minimum of 25% Oxygen delivery at all times to avoid delivery of hypoxic mixture.			
4.12	Integrated Oxygen flush with self-returning valve.			
4.13	Machine should also have an independent fresh gas outlet for connection to bain’s or Magill circuit.			
4.14	System be able to change the sodalime canister (CO2 Absorber) even during the procedure.			

4.15	Self diagnosing facility to check the overall system including ventilator for leakage with facility to override the test in emergency.			
4.16	Must be able to monitor Anesthesia gas monitoring with ETco2, Auto identification of Anesthetic agent and MAC Value			
4.17	Compact breathing system suitable for minimal flow anesthesia, with least patient circuit volume including absorber etc. for fast response to change in fresh gas composition.			
4.18	Fresh gas compensated breathing system for Neonate to Adult.			
4.19	Integrated Adjustable Pressure Limiting (APL) valve with direct setting of release pressure must be present, Range : upto 70 cmH2O			
4.2	System should have Bag-to-Ventilator switch Type : Bi-stable			
4.21	Should have Anesthetic Gas Scavenging System			
4.22	**Ventilator :**			
4.23	Microprocessor based Electronically controlled pneumatically driven ventilator .			
4.24	Ventilator suitable for neonate to adult without changing of bellow.			
4.25	Automatic breathing circuit compliance correction must be present.Light weight bellow should not offer any constant PEEP.			
4.26	Spontaneous Breathing should be possible.			
4.27	Manual Ventilation should be possible.			
4.28	Tidal volume adjustment range at least 20 - 1500ml.			
4.29	Pressure control ventilation with de-accelerating flow to deliver 5ml tidal volume in PCV			
4.3	Positive End Expiratory Pressure (PEEP)Type: Integrated,Electronically Controlled Range: OFF, 4 to 20 cm H2O (increments of 1 cm H2O)			
4.31	Inspiratory/ Expiratory ratio: 2:1 to 1:8			
4.32	Must be able to set TV, RR and IE ratio			
4.33	Must have Ventilator Modes : VCV (Volume Control) Mode with tidal volume compensation PCV (Pressure Control Ventilation) Cardiac Bypass Modes PCV-VG (Pressure Controlled Ventilation-Volume Guarantee) SIMV (Synchronized Intermittent Mandatory Ventilation) CPAP+PSV (Pressure Support mode) PSVPro™ Mode (Pressure Support with Apnea backup) SIMV PCV-VG			
4.34	Monitoring of Volume, Pressure & Oxygen must be present			
4.35	Should monitor patient compliance.			
4.36	Should have simultaneous display of real time curves & loops with fast analysis of change in lung mechanics.			
4.37	Should display Anesthesia gas monitoring as well as an aesthetic agent and automatic identification of agent on ventilator screen.			
4.38	Bar graph display of volume, tidal volume, and the exhaled volume			
4.39	Trends for twenty-four hours			
4.4	System should have Decision supportive Oxygen Control Function.			
4.41	Should have facility for lung recruitment in single and Multiple step.			

4.42	The machine should have adjustable alarm limits for all the parameters with auto set alarm function.			
4.43	**Vaporizer:** Isoflurane and Sevoflurane Vaporizer each should be provided with the machine			
4.44	Vaporizer should have extended delivery range from 0 to 6 vol. for Isoflurane and 0 to 8 for Sevoflurane %. Vaporizer should have transport lock to provide hermetic sealing of agent chamber during transport & storage.			
4.45	Vapaorizer should prevent the simultaneous activation of more than one vaporizer. Should mount to a selectable compatible manifold of two vaporizer. Temperature, Pressure, Flow Compestated Vaporizers and maintenance free - for isoflurane & sevoflurane.			
4.46	Should have dual flow sensing at inspiratory and expiratory port			
4.47	Complete expiratory block including bellow assembly and flow sensor should be autoclavable & re-usable.			
4.48	Oxygen sensor must be paramagnetic type.			
4.49	Auxiliary O2 + Air function must be available. Flow range for O2 and Air : 0 and 150 mL/min to 15 L/min			
4.5	Must have Integrated Anesthetic Gas monitoring module.			
4.51	Should be able to display Patient Spirometry: Pressure -Volume loop, Pressure - Flow loop, Flow - Volume loop, Airway Pressure and Flow Waveforms .			
4.52	Anesthesia workstation should show real time Anesthetic Vapor consumption data corresponding to set FGF and Agent dial setting and Anesthetic gas consumption data per case. Anesthesia System should help to guide clinician from time to time to titrate oxygen flow in the FGF to maintain a pre-specified breathing system oxygen concentration.			
4.53	Should have Vital Capacity and Cycling.			
4.54	System Should have VCV Cardiac Bypass and CO2 Bypass mode.			
4.55	Should have Lung Maneuver for the treatment of Patient with Atelectasis.			
4.56	Must have Pause Gas function for Avoid wastage of anesthetic gas mixture and foul smell.			
4.57	System must have Dynamic Lung Compliances and ECO Flow tool function.			
4.58	System Should have central brake system for front wheel.			
4.59	System should have a battery back up time of atleast 1.5 hrs. or more.			
5	**Patient Monitoring Specifications**			
5.1	Advance high end modular vital signs monitor, monitoring of all patient categories at bedside, OT or during transportation applicable for Adult, Paediatric and Neonatal application			
6	**Operational Requirements**			
6.1	It shall operate on AC power supply as well as built-in battery.			
7	**System Configuration**			
7.1	Should have a 15" or more bright, highly visible colour TFT medical grade integrated capacitive touchscreen display with wide viewing angle.			
7.2	Should be able to display 12 waveforms along with related numerical parameters at a time individually.Should have colour coding for different waveforms.			
7.3	Should be able to monitor ECG, SPO2 with PI, NIBP, 2x IBP, ETCO2, 2xTemp as a standard.			
7.4	Monitor should have 7 optimized user modes, Standard Adult, Paed & Neonate mode with OxyCRG and configurable for different care areas			

7.5	Must have function as standard to monitor Cardiac Output, AGM, Entropy/BIS and NMT just by adding modules and simultaneous monitoring should be possible. NMT monitoring should be possible via KMG and EMG Technology.			
7.6	SPO2 Monitoring should be Masimo/Nellcor.			
7.7	SPO2 should have ability to reject motion artifacts and detection even at low perfusion, Display plethysmography, Perfusion Index value and SPO2 value.			
7.8	Monitor should have Simultaneous four-lead analysis which helps optimize the detection and analysis of arrhythmias, helping ensure no cardiac event goes unnoticed. The algorithm helps distinguish noise and artifacts from true beats, reduces false alarms, and enables uninterrupted ECG monitoring even in the event of a single electrode failure.			
7.9	Should have Systolic Pressure Variation (SPV) and Pulse Pressure Variation (PPV) monitoring capability which helps clinician in guiding fluid management.			
7.1	Anaesthesia gas monitoring should display O2, CO2, Anaesthetic agent, N20 gases, MAC value in both inspired and expired value breath to breath.			
7.11	NIBP technology utilizing "smart cuff" pressure control to improve measurement time, patient comfort, and artifact rejection			
7.12	Patient monitor should have battery backup of minimum 2 hrs. or more.			
7.13	Should have display pictorial analysis by plotting the effects of the analgesic and anesthetic drugs.			
7.14	Adequate anaesthesia results from a balance of many components and needs to be assessed with more than one parameter such as Hemodynamic, NMT and Entropy/BIS.			
7.15	Monitor should display pictoral analysis by plotting the effects of the analgesic and anesthetic drugs.			
7.16	Monitor should be able to withstand an accidental drop, document to suppoort be attached.			
7.17	Monitor should have facility for Remote Web Viewing and Remote Troubleshoot.			
7.18	**System Configuration :** • Anaesthesia Gas Delivery System: 01 No. • Circle Absorber: 01 No. • Ventilator: 01 No. • Monitor: 01 No. • Vaporizer Sevoflurane: 01 No. • Vaporizer Isoflurane: 01 No. • Adult and Paediatric Autoclavable Silicone Breathing Circuit: 01 each • Disposable Pressure Transducers for IBP: 10 Nos. • ECG cables 3 & 5 leads : 03 each • SpO2 probe neonate (ear lobe probe), paediatric and adult : 03 each • NIBP Cuff for adult,paediatric & neonate : 03 each • Reusable Skin Temperature probe: 02 Nos. • Reusable Rectal Temperature probe: 02 Nos. • IBP Connection Cable: 03 Nos. • EtCO2 Cable with Accessories: 03 Sets. All the required modules as specified above and needed for CTVS must be supplied as standard configuration with all the accessories & consumables.			
8	**Accessories, spares and consumables**			

	All standard modules, accessories, consumables and parts required to operate the equipment, including all the standard tools, s/w, h/w and cleaning & lubrication materials, to be included in the offer as standard, no extra charge.			
9	**Operating Environment**			
9.1	The system offered shall be designed to be stored and to operate normally under the conditions of the purchaser's country. The conditions include Power Supply, Climate, Temperature, Humidity, etc.			
9.2	The unit must operate in the purity range of WHO recommended purity of oxygen and medical air			
10	**Standards and Safety Requirements**			
10.1	Must have & submit valid ISO 9000/9001 AND			
10.2	Must have & submit Valid European CE AND US-FDA Certificate.			
11	**User Training**			
11.1	The training shall include the use of all operational functions of the equipment as well routine checks & maintenance expected by the user.			
11.2	Minimum one specialized doctor and one service personnel must be trained on the system for at least two weeks @ centre of repute.			
12	**Warranty/Guarnatee**			
12.1	Should have minimum 2 years complete parts, s/w,h/w, accessories, modules & service warranty from the date of complete installation and handover of the machine as per tender.			
12.2	Minimum 10 years of guarantee for the service/maintenance and after sales support for the availability of parts,accessories, consumables, modules etc. Letter from the bidder as well as from the principal must be attached.			
13	**Maintenance Service During Warranty Period**			
13.1	During warranty/guarantee period supplier must ensure preventive maintenance & corrective/breakdown maintenance as & whenever required			
13.2	The principle company should be responsible of fulfilling warranty/ guarantee & service in case local authorized agent is not able to achieve the same. Letter of commitment from the principal must be attached.			
14	**Installation and Commissioning**			
14.1	The bidder must arrange for the equipment to be installed by certified or qualified personnel; any prerequisites for installation to be communicated to the purchaser in advance, in detail.			
15	**Documentation**			
15.1	User (Operating) manual in English			
15.2	Service (Technical / Maintenance) manual in English.			
15.3	Certificate of calibration and inspection from factory.			
15.4	The bidder must submit a valid authorization from the manufacturer and the entire machine including monitor must be of same manufacturer/brand and fitted as standard. Assembled or Different Manufacturer/Brand will not be accepted and such bid is disqualified.			
	Bidder must completely fill the Technical Specification Form (TSF). Only Yes/no/all complies should not be written. Page number in the catalogue of all the required parameters must be clearly mentioned and highlighted. Failure in doing so may lead to rejection of bid from technical committee.			