

Anaesthesia workstation and patient monitor
The anaesthesia workstation with integrated ventilator, circle absorber, vaporizers. All should be from same manufacturer
It should be suitable for low and minimal flow anaesthesia for adults, paediatrics and neonatal patients.
Display
It should have minimum display screen of from “12.1 up to 15” with facility for touch screen and customization of screen.
It should have a battery backup from 90 mins up to 120 mins or more.
It should have facility to enter patient's demographic data such as age, weight and height for ideal body weight calculation.
It should have an option to integrate AGM module, as standard feature with real -time guidance tools to help the anesthetist by providing the recommend total fresh gas flow considering the patient demand and circuit leak.
It should be possible to view P/V and F/V loops.
It should have mechanical mixer for Oxygen, Nitrous oxide and Air and onscreen virtual flow meter for each gas as per usage should be seen.
It should have integrated safety feature like anti-hypoxic guard, N2O will be cut off in case of O2 low pressure or failure condition with appropriate alarm on screen.
In case of electricity and battery failure, manual ventilation using 100 % oxygen and simultaneous delivery of volatile anaesthetic agent should be possible.
Should have Circle bypass facility as standard feature - Automatically bypass function gets activated when Soda lime canister is removed from the circle system.
Machine should able to check the vaporizer leak test individually.
<u>Gases and delivery system:</u>
It should have a facility to connect to the central supply and Gas specific pin index for oxygen and nitrous oxide, one for each gas
It should have analog or digital display of pressure gauges on screen for central and cylinder gas supply.
It should have independent fresh gas outlet for connection to Bain's or Magill circuit.
It should have auxiliary oxygen flow meter integrated in the system.

Oxygen flush with flow of 25 - 70 LPM should be allowed to use on patient in any ventilation mode without affecting the tidal volume/ pressure delivery
It should have an option to integrate anaesthesia gas monitor module
Anaesthesia Gas Monitor (AGM) should return sample gases into the breathing system .
Once AGM connected, it Should display of inspiratory and expiratory concentration of O2, CO2 & anaesthetic agent. Age specific MAC values should be given.
<u>Vaporizers:</u>
The equipment should be supplied with two vaporizer of sevoflurane and Isoflurane with option for adding Desflurane vaporizer. Control is Mechanical.
The Vaporizer shall be temperature , pressure and flow compensated
It should have transport lock to provide hermetic sealing of agent chamber during transport and storage.
Should not require any calibration for lifetime.
<u>Circle system:</u>
It should have transparent, autoclavable soda lime canister, vertical during operation from 1.4 L to 1.5 L of total capacity.
It should have passive AGSS (Anaesthesia Gas Scavenging System).
<u>Anesthesia ventilator:</u>
It should be integrated, electronically controlled and electrically operated pneumatically operated ventilation technology.
It should be working on Turbine Technology/ Volume reflector/ Piston/ Bellows/Proportional Valve technology.
Tidal Volume: 15 ml to 1500 ml
Rate: 4 -100 bpm
I:E Ratio - 1:2 - 1:8
It should have electronic PEEP facility
should display inspiratory tidal volume, expiratory tidal volume, minute volume, peak pressure, PEEP, plateau pressure, resistance, compliance , alarm limits, alarms and alarm messages.
It should provide the following modes of ventilation:

a. Manual /Spontaneous (Man/Spon)
b. Volume-controlled ventilation (VC-CMV)
c. Pressure-controlled ventilation (PC-CMV)
d. SIMV-VC, SIMV-PC, Pressure support with Apnea back up(The backup mode shall be user selectable ease of use and patient safety)
e. PRVC /PVC +VG/Autoflow or equivalent
Should have peak flow from 120 L/min to 150 L/min.
Should have alarm logs with date & time.
The drive gas should be selectable on the screen between O2 or Air. In case of failure of one driving the system should automatically switch to other available gas to reduce the Oxygen consumption as driving gas and save cost.
Safety standard
It should Comply with basic safety and essential performance of an Anaesthesia workstation as per ISO 80601-2-13
Quality Certificate: US FDA/ EU CE/ Notified CE/ BIS approved (certificate to be attached to technical Bid)
Should have at least 3 Auxiliary power outlets behind the unit for powering other units.
Technical Specifications- of patient monitor
High-end latest design Modular Multi-parameter patient monitoring system
Monitor should be capable for monitoring ECG, SPO2, RESP, 2XTEMP, 2XIBP simultaneously as a standard
Monitor should be ready to upgrade EtCO2, AGM, Entropy/BIS, NMT and Cardiac output in future by just adding the Module. The simultaneous monitoring of ECG, SPO2, RESP, 2XTEMP, 2XIBP, EtCO2, AGM, Entropy/BIS, NMT and Cardiac output should be possible
Screen Size 15 inches or more colour Capacitive Touchscreen display and highly visible alarm light
Monitor should display up to 12 waveforms at a time individually

Monitor should have 7 optimized user modes, Standard Adult, Pead & Neonate mode with OxyCRG and configurable for different care areas
Monitor should have different screen layout to view big font size in numeric and waveforms
Monitor should have trending facility for up to 168 hours of both Graphical & Numerical
Should have Snapshots facility up to 200 - Manual or alarm triggered
Monitor should have facility for National Early Warning score which helps the clinicians to know the patient's condition better
Should be capable to connect to a slave display
Minimum Battery back – up to 4 hours
Monitor should be capable to monitoring 12 lead ECG by connecting 10 lead wire.
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.
Monitor should have smart lead fail detection to monitor ECG uninterrupted
Should have ST segment Analysis with ST Trend for Adult, Pead and Neonates patient
Monitor should have Full Arrythmia detection for Adult, Pead and Neonates including Atrial Fibrillation detection
NIBP technology utilizing “smart cuff” pressure control to improve measurement time, patient comfort, and artifact rejection
SpO2 should have ability to reject motion artifacts and detection even at low perfusion, Display plethysmography and perfusion index number and SPO2 value.
Monitor should be able to measure PPV and SPV parameters simultaneously to guiding fluid therapy for patient on Mechanical ventilation
Monitor should be able export trend data thru USB with password protected .
Demo Mode should be available as standard.
Monitor should have 3-Channel recorder which can be interchanged between the monitors for print.
Basic Patient side module for Measuring Parameters like ECG, NIBP, SPO2, RESP, 2XTEMP, 2XIBP.
Monitor should have full disclosure feature for up to 72 hours for all parameters waveforms.

ETCO2 Module should be side-stream measurement method
EtCO2 monitoring should display - waveforms and numeric value as EtCO2, FiCO2 and RR (Extra Module future upgradeable)
Upgradable modules should be interchangeable freely within all Monitors
Quality Certificate: US FDA/ EU CE/ Notified CE/ BIS approved (certificate to be attached to technical Bid)
Monitor should be able to withstand an accidental drop and document needs to be submitted accordingly
Should also be upgradable to display pictorial analysis by plotting the effects of the analgesic and anaesthetic drugs
Monitor should have facility to connect with laser printer/ network printer to take the printout from monitor.
The manufacturers / suppliers quoting for a monitor being manufactured in a country sharing common boundary with India will not be considered
<u>Scope of supply.</u>
Anesthesia workstation with AGM and with Isoflurane vaporizer and sevoflurane vaporizer
Patient circuit Adult reusable -01 no
Patient monitor should have ECG, NIBP, SPO2, RESP, 2x TEMP port enabled , 2x IBP port enabled
a. ECG Cable & ECG 5 Leads wire for adult - 1 set
b. SpO2 Sensor Adult – 1 No
c. SpO2 Sensor Paediatric – 1 No
d. NIBP Hose- 1 No
e. NIBP cuff Adult – 1 box
f. NIBP cuff Paediatric – 1 box
g. Wall Mount-(local supply)- 1 Set
h. ETCO2 module with accessories. (Separate ETCO2 Module needed)
39. Quality Certificate: US FDA/ EU CE/ Notified CE/ BIS approved (certificate to be attached to technical Bid)
40. Equipment demo should be arranged at DME Office and finalization will be as per Technical Evaluation Committee observations.

OT Lights double doom
Led surgical lights illuminate the surgical site for optical visualizing of small low contrast objects at verifying depths incisions and body cavities.
General requirements
The light shall adopt led technologies to create a homogenous light patch without emitting any infrared rays.
The light systems shall be double light heads, one major and one satellite.
The OT Light should have electronic focusing via touch screen or handle sensors, with no mechanical moving parts to prevent wear and tear. The intensity should reach up to 1,60,000lux at both minimum and maximum settings.
Outer handles around the light domes may be present in order to maintain hygiene inside the OTs.
Lights should have 2- 4 colour LED lamps of white, yellow, green & red to achieve high CRI.
Pulse width modulation-controlled driving to ensure less heating of led which increases
The control panel should be a membrane keypad or a touch screen.
Green Light for endoscopy mode.
Light intensity shall be adjustable in steps between 30% - 100% and with low endoscopy mode.
Light intensity and color temperature should be controlled from light dome control panel, wall mount control panel, and sterile disposable handle should be possible. The sterile handle should have adjustment control for light intensity and light field diameter for ease of control.
The light head shall be of a shape to avoid obstruction to laminar flow on surgical field.

The light shall be mountable to ceiling from single center with 360-degree rotation of all arms. spring arms shall be rotatable at least 360 degree around its own axis. each light head should be rotatable with 360 degree at connecting joint with spring arm to facilitate un obstructed operating field coverage.

Body of light dome should be of aluminum & all LED should be directly mounted on aluminum body which is exposed to room temperature for proper cooling of led for prolong working.

The surgical light should be complete with all components for ceiling mount and electrical feed-in including finalized installation

The dome size should be available from 500 mm to 700 mm with 40-120 LEDs or more in each dome.

Central illuminance should be 160000 lux & 160000 lux for both domes

LED life should be 50,000 hours or more with LED usage counter

Light field diameter should be adjustable form 12 cm to 35cm. (+ or – 10 % tolerance)

Color temperature (k) adjustable from 3000-5000k

Color rendering index RA should be 93 - 95+

Power supply should be 100-240v ac, 50-60hz c standard

Quoted model should be USFDA/Notified CE/ European CE/ BIS and ISO 13485 for manufacturer

Should compliance with IEC 60601-1, IEC 60601-2, IEC 60601-2-41. All test reports should be issued by NABL Labs

Equipment demo should be arranged at any Teaching Hospitals of AP nearer to vendor

Warranty period should be 3 years from the date of Installation.

Technical status

Technical Remarks

