

Specification for Anaesthesia Workstation

1. Gas delivery system:-

- a) Should have pin index yokes for O₂ and N₂O.
- b) It should have connection for central gas supply for O₂, air and N₂O.
- c) Pressure gas for cylinder and central supply lines which are readily visible.
- d) The gas connections should be un-interchangeable.
- e) System should have a minimum two of fresh gas (O₂ + N₂O / Air combined) of 500 ml/min.
- f) At low gas flow, to insure patient safety, a minimum O₂ flow of 200 ml/ min. should be provided even with total gas flow less than 500 ml.
- g) Audio- visual oxygen failure alarm should be provided.
- h) In the event of power loss & battery failure, it should be possible to manually ventilated deliver anaesthetic agent.
- i) Electronic hypoxic guard to ensure minimum 25% O₂ concentration and there should be automatic cut off N₂O by O₂ pressure failure.
- j) System should have ACGO (Auxillary Common Gas outlet) with O₂ flow greater than 35 L/min.
- k) Flowmeter should be cascaded dual flow meter for Air, O₂ & N₂O.
- l) Paramagnetic sensor for O₂ measurement.

2. General Requirements:-

- a) System should be CE and US FDA approved. /BIS approved
- b) Battery back up of 50-120 min(50-120).
- c) System should have minimum of 2 (two) drawers.
- d) Demonstration of the equipment is mandatory.
- e) Should enclose compliance statement.
- f) Any misinformation would lead outright rejection.
- g) Must submit user list and satisfactory performance report within the last 5 years from major hospital.

3. Vaporisers :-

- a) Machine should have possibility to mount two quick mount type vaporizers with the latest technology for sevoflurane and isoflurane for easy interchangeable, and safety with interlock facility.
- b) Should be provided with a Temperature / pressure compensated and flow independent Vaporiser.
- c) Vaporizer should have extended delivery range from 0 to 6 Vol. %.
- d) The vaporizer should require no calibration in its time.
- e) Agent capacity should be minimum of 225 ml of fill volatile anaesthetic agent.
- f) All sensor connection shall be internal to help prevent disconnection.

[Handwritten signature]
02/01/18

[Handwritten signature]
06.07.2018

[Handwritten signature]
6/07/18

[Handwritten signature]
A.B. Sanyal

4. Breathing System:-

- a) Should be auto clamp able and natural latex free
- b) Total circuit volume including the absorber should not exceed 3 liter
- c) Dual flow sensing capability at inhalation and exhalation ports.
- d) Ventilator bellows shall be integrally mounted to the breathing system.
- e) Should have Ascending Bellows design to alert user in case of leaks and no entrainment of air.
- f) Bag to bent switch shall be bi-stable and automatically begins mechanical ventilation in the ventilator position.
- g) Incorporation of CO₂ absorber canister of 1-2 liter volume.
- h) Should have adjustable pressure relief valve from 5 to 75 mbar.
- i) The workstation should be supplied with at least 2 sets of closed circuit system for adult and paediatric patients each.
- j) The work station should be supplied with at least 10 sets of Bain circuit and 10 sets of Jackson Rees circuits with masks for paediatric patients.

5. Anaesthesia Ventilator:-

- a) The system should have inbuilt ventilator with electronically controlled and Electronically driven technology.
- b) Should not require changing of bellows for adult & infants.
- c) Should have color TFT screen size of minimum 6" -9"
- d) Modes: Manual/spont, Volume controlled & Pressure controlled., SIMV/PS,
- e) The same ventilator should be capable to be upgrade to SIMV/PS & Pressure Support.
- f) Tidal Volume : 20 ~ 1400 ml
- g) PEEP : 0 ~ 20 mbar
- h) Breathing Frequency : 4 to 60 BPM
- i) I:E Ratio : 4:1 to 1:4
- j) Inspiratory pause : 0 - 50% of Ti
- k) Should be able to ventilate with atmospheric air, in case of total gas supply failure.

6. Integrated airway monitoring and display of :-

- a. Expiratory tidal volume
- b. Expiratory minute volume
- c. PEEP, Peak and plateau airway pressure
- d. Frequency (respiratory rate)
- e. Wave form display of airway pressure

7. Adjustable high/low flow alarm limits with audio /visual alarms for:-

- a. Minute volume
- b. Airway pressure
- c. Inspiratory oxygen concentration
- d. Audio power supply failure alarm
- e. Fail to cycle warning

Handwritten signature
 06.07.2018

Handwritten signature
 06/07/18
Handwritten signature

8. Multi parameter monitor

- a. LCD / TFT screen of minimum 15 inch. Monitor with integrated touch screen and trim/ rotatory knob.
- b. Suitable for adult, pediatrics, neonate patient monitoring
- c. Should monitor ECG, respiration, NIBP, SpO₂, dual temperature, MAC value, ETCO₂, anaesthetic agent.
- d. Preferably wave form of pressure versus time and flow versus time and carbon dioxide from gas module with PV loop and FV loop and display of all set and monitored parameters
- e. Should have pacer spike detection preferably
- f. De fibrillation and ESU protection should be present
- g. Monitor should have USB port for software up gradation
- h. Recordings of trends for the last five days should be possible

9. Anaesthesia Gas Module (AGM):

- a) It should be module type.
- b) It should deliver precise inspiratory and expiratory values for CO₂, and anaesthetic agents such as N₂O, enflurance, halothane, isoflurane, sevoflurane etc.
- c) Results are transferred to a monitor and displayed both in real time and as derived values.
- d) Measured parameters: MAC Value, EtCO₂ & AA value

10. Scope of supply:

- 3 gas Anaesthesia machine with integrated ventilator with Trolley & drawers
- Autoclavable Adult & Paediatric patient circuit – 1 no each
- Anaesthetic mask – Adult & child – 1 no each.
- O₂ Sensor – 1 no.
- Sevoflurane Vaporizer - 1no., Isoflurane – 1no.
- Central gas supply hoses (Color coded for O₂, N₂O & Air) – 1 no each
- Multi- Para monitor with inbuilt three channel recorder – 1 no
- AGM Module – 1 no.
- Water Trap for AGM – 12 nos.
- 3 lead ECG Cable – 1 no.
- SpO₂ finger sensor and extension cable – 1 no.
- Skin temperature probe – 1no.
- NIBP Hose – 1 no.
- Adult (Small)cuff 10cm.-1no., Adult (Medium)cuff 13cm.– 1no., Adult(Large) cuff 15 to 20cm.-1no., Child(8-12cm) – 1no., Infant(5cm)- 1no. & Neonate(3cm) cuff -1no.
- Power cable – 2 nos.
- Instruction for use.

Warranty: 5 year

[Handwritten signature]

*Prasanna
06.07.2018*

*[Handwritten signature]
6/7/18*

[Handwritten signature]