INDIRA GANDHI MEMORIAL HOSPITAL
MALE'
REPUBLIC OF MALDIVES
BIOMEDICAL ENGINEERING DEPARTMENT

Equipment: Anesthesia Workstation

Clinical purpose: The basic function of an Anesthesia Workstation is to prepare a gas mixture of Precisely known, but variable composition. The gas mixture can then be delivered to breathing system.

Used by clinical: Operation Theater

Department/ward

Technical Characteristics (Specific to this type of device**)**

1. The workstation should have a built-in anesthesia ventilator with pressure, volume-controlled SIMV, Pressure support with Apnoea backup and spirometry.
2. It should be electronically controlled, pneumatically operated.
3. Should provide adult and pediatric reusable and autoclavable lightweight tubing breathing circuits.
4. Should be able to deliver a tidal volume from 20ml to 1500ml. Peak flow without fresh gas flow should be a minimum of 110L/min
5. Should have a battery backup for at least 1 hr with low battery alarm and overcharge protection.
6. Should have monitoring facility of airway pressure, tidal volume, frequency, oxygen concentration, and AGM with modular integration.
7. Should have touch screen display of at least 10 inches for set parameters and graphical display for measured parameters
8. Should have automatic self-test plus automatic and manual leak test.

9. Anesthesia machine should be with 3 gas supply systems (O2, N2O, Air) with pipeline connections and reserve cylinder yokes.

10. Gas cylinder (pin indexed) yokes with sturdy clamping bars for easy handling.

11. Should supply pin index yokes for connecting cylinders for O2-1No, N2O – 1No, and 1no for Air through the pipeline.

12. Should have pressure measurements for all gas inlets including central lines mounted on the front panel for easy visibility.

13. Should have an audible and visual alarm for major events

14. Oxygen and Nitrous oxide should be linked either mechanically or pneumatically to ensure a minimum of 25% oxygen delivery at all times to avoid delivery of hypoxic mixture.

15. Should have dual cascade/ virtual type flow meter for O2 and N2O and air calibrated in multiple scales.

16. The anesthesia machine should have a master control ON/OFF switch.

17. Provision to mount any two selected vaporizers of the same manufacturer with the interlocking facility to allow the use of only one vaporizer at a time.

18. Iso and sevoflurane vaporizer of newer generation having specifications equivalent to tech 7 type to be provided.

19. Non-return cum pressure relief valve when pressure exceeds 120cmof H2O.

20. Should have only one common gas outlet (ACGO) and auxiliary O2 Outlet with flow meter

21. Should provide with oxygen flush switch.

22. Circle absorber with heated manifold / some inbuilt mechanism to remove water condensation. It should be autoclavable by dismantling without the help of any tools. It should be with ventilator selector switch and circle on/off switch. Should have an automatic Co2 bypass.

23. Should have low flow anesthesia technique with tidal volume and fresh gas flow compensation

24. Should have a facility to connect the passive scavenging system

25. Should have a safety certificate from a competent authority CE issued by a notified body registered in the European commission / FDA (US)/ STQC CB Certificate/ STQC S Certificate or a valid detailed electrical and functional safety test report from ERTL. Copy of the certificate/ test report shall be produced along with the technical bid

26. Should have a provision for mounting monitors with minimum 3 drawers

27. Should have antistatic wheels and Foot brakes.

28. Should supply with Standard Bains circuit – 2nos, Adult and pediatric Reusable circuit – 2nos each, JR Circuit (Reusable)-1 No, Limbo Circuit (disposable)- 5 Nos and HME filters-25 Nos. The circuits shall be of Anaesthetics/ Flexicare/ Neon make/ Standard manufacturer

29. Reservoir bag (500ml, 1 liter, 1.5 liter, and 2liters):-2 nos. each along with the machine.

30. Connectors for bains circuit: 5 no’s with each machine.

31. AMBU bag (adult & pediatric): 1 no each along with the machine. It should be autoclavable.

32. A pressure regulated valve with a 5-meter hose and connector (conversion kit) for oxygen and N2O should be provided with each machine – 1 each.

33. Should be supplied with driver gas hoses with necessary attachments (color-coded).

34. Should work in 220-240Vac 50 Hz input supply.

35. Should have inbuilt Electrical outlets of minimum 3nos with switches/ circuit Breakers

36. Should supply with automatic servo stabilizer of suitable capacity

37. The Anesthesia machine, ventilator, and vaporizer should be from the same manufacturer

38. Should have Medical grade IP44 or above-rated power cord to match D-Type plug. The protective earthling resistance (PER) and leakage current (LC) values should be as per IEC 62353/AAMI/NFPA-99.
39. Battery, O2 Cell and flow sensor should be covered under warranty as well as CAMC.

40. Should be supplied with medisorb or equivalent for circle absorber (4 kg)

41. The manufacturer must provide comprehensive training on maintenance, repair, and proper clinical operation of the anesthetic machine to the hospital's biomedical engineering team, doctors, and end-users.

42. Should have at least 24-month Warranty coverage from the date of installation.