

DEPARTMENT OF PEDIATRICS

SPECIFICATIONS OF NASAL CPAP MACHINE

- Bubble CPAP machine with compressor (FDA/CE/ISO13485:2012 approved).
- CPAP generator with pressure range from 3 to 10 cm of water.
- Capable of giving nasal/nasopharyngeal CPAP.
- Integrated pneumatic Air and oxygen blender calibrated with flow from 0-15 lit/min.
- Safety mechanism for relief of excessive pressure through pressure relief valve/regulator.
- Soft nasal prongs.
- Alarms for the device –
 - Low/high Temperature
 - Flow increase/decrease alarm
 - O₂ pressure low alarm
 - Air pressure low alarm
- Flow meters: O₂ with each piece.
- Power 220-230 volts 50 Hz.
- Power pack (UPS with battery back of minimum 1 hour).
- System should be quoted with pole assembly to incorporate the whole CPAP machine.
- Standard accessories with each equipment
 - Heated wire servo-controlled humidifier 01
 - 5 ml test lung 01
 - Disposable patient circuits 30
 - Disposable nasal prongs 30 (10 each of different neonatal sizes)

Warranty: For 2 years for all parts excluding consumables.

CMC: CMC for 5 years after warranty inclusive of spare parts/accessories used during maintenance.

Please quote the price and catalogue No. of all the spares and flow sensor etc. likely to be changed during CMC, the price quoted should be frozen for 5 years.

The company should give the certificate that the model quoted is the latest and not obsolete; & spares will be easily available for next 5 years.

Certified that specifications are not tailor-made and many firms are manufacturing the same.

SPECIFICATION FOR NEONATAL VENTILATOR

- The ventilator should be microprocessor controlled designed for neonatal use. There should be possibility to upgrade with additional features.
- Continuous flow, pressure limited, time cycled ventilator design
- Ventilator modes: should have following modes available in the unit
 - IMV/IPPV
 - CPAP including non-invasive ventilation
 - SIMV, SIPPV/Assist-control
 - Volume targeted/guarantee mode of ventilation with ability to deliver and monitor tidal volume as low as 1-2 ml (Range 2 ml to 50 ml)
 - Pressure support mode of ventilation
 - Apnea back-up ventilation
- Should have integrated high resolution TFT medical grade screen(size min 4”) for real-time display of
 - Scalar (Pressure, Flow and Volume against time) and loop (Pressure-volume, volume-flow and pressure-flow) pulmonary graphics
 - Digital display of FiO_2 , peak pressure, mean airway pressure, CPAP/PEEP, Expiratory tidal volume, expiratory minute volume, total frequency, spontaneous frequency, lung function monitoring including Compliance, resistance, lung distention coefficient, (C20/C), Lung time constant, Rate volume ratio etc. Should have built-in logbook for recording events like various alarms
- Integrated monitoring: Integrated volume and pressure monitoring i.e. monitoring of PEEP P_{max} , P_{mean} and VT, VT_{spont} , MV and MV_{leak} . The volume monitoring should have NTPD to BTPS correction. Monitoring of I:E, frequency and Spont. Frequency.
- Settings range:

Trigger	Flow/ volume, leak adapted
PIP	8 to 80 cm H ₂ O
PEEP/ CPAP	0 to 25mbar
I:E ratio	1:0 to 1:10
Insp. Time	0.1 to 2 Sec
Exp. Time	0.2 to 30 sec
Frequency	Up to 200 BPM
Base Flow (VIVE)	1 to 30 LPM
Synchronization	Patient synchronization with adjustable flow trigger
Integrated blender for Oxygen	21% to 100%
- Integrated nebulization facility
- Integrated screen for display of Pressure-Time, Flow-Time and volume-time curves.
- Integrated monitoring of FiO_2 .
- Monitoring of flow: At the Y piece with facility to activate it.
- Audiovisual alarms with advisory on-screen message: MV high/Low, Apnea, tube obstruction, FiO_2 high/low high PIP, low PEEP/CPAP, fail to cycle, gas supply low, power failure, ventilator inoperative, alarm log book.
- The ventilator should have automatic compensation for leakage and should monitor and display leakages.
- The ventilator should show trends of important parameters viz. C,R, FiO_2 , MAP etc. for evaluation of patient improvement.
- Ventilator should be supplied with Good quality medical air compressor (FDA/CE/ISO13485:2012approved) and a heated limb humidified with servo regulation of humidity

- **Scope of supply**
 - Ventilator on trolley with wheels and brake facility
 - Integral medical air compressor (FDA/CE/ISO13485:2012approved).
 - Humidifier: Autoclavable humidifier chamber (FDA/CE/ISO13485:2012approved). and complete patient circuit (set of 2 patient circuits with each ventilator)
 - Circuit support arm
 - Nebulisation accessories (2 sets)
 - Bacterial filters 50 pieces
 - Flow sensors (20 set)
 - Oxygen cell
 - Oxygen connecting hose
 - Air connecting hose
 - Battery back-up (at least 30 minutes)
 - Instruction manual
 - Training CD/DVD

Optional:

- The ventilator should have following options for upgrade (please give prices for each option)
 - High Frequency Oscillation mode
 - Communication interface with Laptop
 - PC software for archiving and analysis.
- List of essential spares, accessories, expendables and consumables expected to be used in one year should be provided and quoted separately. Prices so quoted are to be frozen for 5 years.
- Warranty period: 2 years.
- CAMC for 5 years after warranty.
- Live demonstration of the equipment is mandatory.
- Original literature, and not the photocopy, to be supplied with the quotation.
- Company should certify that model quoted is latest and not obsolete, and spares are available for minimum 5 years after warranty.

Technical Specifications for MULTIPARA MONITORS:

- Please clearly specify OEM and model details
- Should be ready for NIBP, SPO₂, ECG, RR, Temp with simultaneous display of all graphs supplied with all applicable accessories
- SPO₂ sensor should have masimo/nelcor technology
- Display size of min 10"
- Should have defibrillation protection and auto pace maker detection
- Battery backup of min 1hour without NIBP use
- Patient storage data for upto 24 hours
- Should be ready of networking and connectable to central monitors
- Should have real-time ST Analysis
- Should have arrhythmia detection and alarm facility
- Wall mount stand required
- FDA/CE/ISO13485:2012approved
- 5 lead ECG acquisition
- Should be supplied with, Power cable, Operator manual hardcopy as well as soft copy in CD and 1 sets each of (ECG Acquisition cables, NIBP, SPO2 probe, Temp Probe)
- Should have auto base line correction
- Patient leakage should be < 10uA
- Frequency response range of min (0.05 to 100) Hz
- CMRR of > 100db
- Please specify
- ADC in bits
- Digital filter in Hz
- Input impedance in M ohms
- Sampling rate in samples/sec
- Separate price should be quote for software for CMS (PC, Switches and cabling to be provide by hospital)
- Should be upgradeable for Invasive BP monitoring and printer facility and price of which should be mentioned separately
- Should have 5 year warranty and for 5 year CMC plan
- Accessories to be supplied along with each monitor
 - a) Neonatal and infant size BP cuff (replaceable) 2 each
 - b) Non rigid Saturation probes neonatal size 5 each
- FDA/CE/ISO/13485:2012 approved
