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| C:\Users\BMSICL\Desktop\bmsicl_logo.jpg | **Bihar Medical Services & Infrastructure Corporation Limited 4th floor State Building Construction Corporation Limited. Hospital Road, Shastri Nagar, Patna 800023, Phone/Fax: +91612 2283287,+ 91612 2283288** |
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**Corrigendum-I**

Bihar Medical Services and Infrastructure Corporation Limited (BMSICL) had invited E-Bids from the interested parties for the procurement, rate contract and the supply of medical equipment for different Govt. Medical Colleges and Hospitals of Bihar vide Notice Inviting Tender No.-BMSICL/2019-20/ME-143. A Pre-Bid Meeting was held on 06.09.2019. In the meeting some technical specification amendments have been made as per the Annexure-I of this corrigendum. In order to facilitate maximum participation of bidders the tender schedule is being revised as follows:-

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| --- | --- |
| Tender Reference No. | **BMSICL/2019-20/ME-143** |
| Date and time for downloading of bid document | **Up to 01st October 2019 till 17:00 Hrs.** |
| Last date and time of submission of online bids | **03rd October 2019 till 17:00 Hrs.** |
| Last date and time of submission of original documents of EMD, Tender Fee and Document. | **04th October 2019 till 14:00 Hrs.** |
| Date, Time and Place of opening of Technical Bid | **04th October 2019 (at 15:00 Hrs.) on the website of** [**www.eproc.bihar.gov.in**](http://www.eproc.bihar.gov.in/)**in the office of BMSICL** |
| Date and time of opening of financial Bids | **To be announced later on www.eproc.bihar.gov.in** |

**Note:-**Please refer to the **Annexure-I** of this corrigendum before submission of bid.

**Sd/-**

**GM (Procurement)**

**BMSICL**

**Annexure-I**

**VENTILATOR (NEONATAL)**

Technical Specification:

1. Advanced technology ventilator for use in NICU, suitable for ventilating Premature Neonates patients.
2. Should have facility for Invasive and Non-Invasive ventilation
3. Microprocessor controlled system with individual selection of various ventilation parameters & PEEP.
4. Display screen of minimum 8-10" Color-TFT.
5. Machine should be Compressed air (medical oil free air compressor of the same brand or USFDA approved as ventilator) or Turbine Base.
6. Should have battery backup at least 30min.
7. It should allow the user to deliver conventional ventilation with proximal flow sensor as well as HFOV
8. Should have the following modes of ventilation:
   * + - 1. Assist/ Control
         2. Pressure control
         3. Pressure support
         4. SIMV with pressure support (Pressure and volume control)
         5. PEEP
         6. Noninvasive ventilation-BIPAP, CPAP/NIV/High flow
         7. Apnea ventilation, user selectable, volume & pressure control
         8. HFOV
9. Should have facility to measure and display of the following parameters:
10. Airway Pressure (Peak & Mean)
11. Tidal volume (Inspired & Expired)
12. Minute volume (Inspired & Expired)
13. Respiratory mechanics
14. Spontaneous Minute Volume
15. Total Frequency
16. FiO2
17. PEEP
18. Plateau Pressure
19. Use selector Alarms for all measured & monitored parameters
20. Occlusion Pressure
21. Pressure Flow & Volume curves
22. Automatic compliance and leakage compensation for circuit and ET tube.
23. Conventional ventilation& HFO Ventilation Mode Parameters:
24. BPM: 4to120
25. Inspiratory Time: 0.1 to 2.0 sec
26. CPAP Pressure: 2 to 25 mbar
27. Inspiratory Pressure: 10 to 65 mbar
28. FIO2: 21% to 100%
29. Tidal Volume 5-200 ml with Volume Guarantee
30. I: E Ratio: 1:1, 1:2, 1:3
31. HFO Mode parameters
32. HFO Frequency should be wide range with 5 to 20 Hz
33. Alarm
34. Adjustable Alarm. - Low/high minute volume, low/high pressure, low/high tidal volume, low/high rate, apnea time, low/high oxygen.
35. Special alarm - O2 cell Failure, flow sensor, battery, power supply, gas supply, oxygen concentration,
36. Should have inbuilt Nebulization assembly facility.
37. Ventilator, Compressor & Humidifier should be Same Trolley/cart mounting for easy transportation.
38. Humidifier
39. Servo controlled heated Respiratory Humidifier.
40. Display Should be of LED /LCD.
41. Temperature control settings & Temperature range: 28-40 deg.
42. Temperature should be adjustable.
43. Jar should be autoclavable
44. **Standard Accessories/spare & Consumable.**
45. Silicon breathing circuit circuit (Neonatal reusable) - 5 complete set.
46. Nebulization assembly compatible circuit 5 complete set.
47. Humidifier - 2 No.
48. Hose for O2 connection with connector - 5 mts.
49. Hose for compressed air with connector - 5 mts.
50. Test lung - 1 No.
51. HME filter – 10 no.
52. Inbuilt / integrated nebulizer-1 N0.
53. All sensors and other non-consumable items (other than reusable silicon ventilator circuits) should be free of cost during 5 years of warranty and 5 years of CMC.
54. All attachment regarding non invasive ventilation should be provided in all sizes minimum of 10 in number (additional).
55. Ventilator, Humidifier & Compressor Power Supply input to be 200-240VAC, 50 Hz fitted with Indian conditions Plug .
56. Suitable online UPS with commensurate capacity for all ventilators including compressor & Humidifier with maintenance free batteries for minimum one hours back-up should be supplied.
57. Ventilator, Humidifier & Compressor Should be US FDA or European CE. approved Model should be offered.

**NOTE:**

1) Reusable consumables (other than reusable silicon ventilator circuits) should last during the warranty period.

2) Ventilator & Humidifier any additional reusable consumables are required during the warranty period those will be supplied free of charge by the supplier.

3) The life expectancy of the reusable consumable is expected to be of at least one year from the date of installation of the same. The reusable consumables will be procured at the prices accepted as per the contract.

4. The bidders should submit all reusable consumable items price & their authorized local office/ distributor name in the financial bid.

# Oxygen concentrator

A portable mains electricity (AC-powered) device designed to concentrate oxygen (O2) from ambient air and deliver the concentrated O2, typically through an attached nasal cannula, toa patient requiring oxygentherapy.

* 1. Flow rate: 0~5 LPM, purity >93%,
  2. O2 delivery pressure: 0.03 to 0.07 MPa (2.9 - 7.25PSI).
  3. Atomizing pellet (ml/min.) > 0.5, uninterrupted flow of oxygen.
  4. Low pressure alarm, high pressure alarm and power failure alarm
  5. Unit capable for supplying oxygen to 1 or 2 outlets simultaneously using one independent flow meters.
  6. Should be capable of providing minimum 12 hours of continuous operation.
  7. Noise (in db): less than 50db.
  8. Accessories, spares and consumables
     + Humidifier Bottles- 4nos, power cord- 1no.
     + Nasal Cannula with extension tubing-2nos.
     + Gross particle cabinet filter.
     + compressor intake filter and bacterial filter of 0.8-1.0 micron-1 number each.
     + Should work with input 200 to 240Vac 50 Hz supply.
  9. The mains supply voltage variation may be 180-270V and frequency variation max. 3 %. The necessary protective device shall be there with themachines.
  10. Model Should by US FDA / CE / BIS approve product.
  11. Electrical safety conforms to standards for electrical safety IEC60601/IS-

13450.

# Suction Machine (Electrical Operated)

* 1. 0 to 700 mm Hg, and above, regulatable- 1/2HP.
  2. Single phase 1430 RPM Motor;±20/ regulatable flow rate of air upto 60 lts./min.
  3. flutter free vacuum control knob.
  4. Wide mouthed 2 x 2 Litre (light weight, unbreakable and clear) with self- sealing bungs and mechanical over flow safety device autoclavable jars and autoclavable lids.
  5. Noise (in dBA)- 40 dB A
  6. Collection container & its cap, suctions tube tips, a vacuum gauge, two sets of moisture & microbial filters and control knob.
  7. SiliconeTubing:8 mm ID x 2 meter (PVC), 2x2 litre jar (one set extra jar & tubing).
  8. It should be Mobility, portability.
  9. Equipment shall operate on 220V-240V, 50 Hz, single phase electric supply.
  10. USFDA/European CE with 4 digit certification as per medical device directive.

**Nebulizer (Ultrasonic Technolgoy)**

1. Compact, lightweight, low noise  
2. Durable long-life compressor. Suitable for heavy duty/ institutional (hospital) use, should be able to run uninterruptedly for one hour, Max Press= 2.0-2.5 bars  
3. Should have a dust protect filter.  
4. Piston-type electric aspirator that offers high performance and great durability.  
6. Protective thermal cut out relay.  
7. Air delivery rate app.15 L/min.  
8. US FDA/ European CE approved model should be offered.

9. Power Supply 220VAC +/- 10 %, 50Hz fitted with Indian plug.

10. Should be supplied with nebulization accessory kit.

11. Particle size .5 micron.

**Ethylene Oxide Sterilizer (ETO)**

1. Should have microprocessor controlled operation no manual interaction.

2. The ETO gas sterilizer should be fully automatic type.

3. Chamber size 7-10 cubic foot or equivalent Litre.

4. The sterilization chamber should be double walled, corrosion and gas resistant of suitable alloy.

5. Chamber should maintain negative pressure throughout sterilization cycle-80mb.

6. Equipped with a thermal barrier layer.

7. Double protective doors, insulation, sealing and leak-proof.

8. The sterilizer should automatically perform all the stage of sterilization process using ETO like, Vacuum/pressure, Humidity, Exposure period, chamber temperature and aeration. Video screen to check cycle status.

9. Automatic computer control, LCD/digital panel display. Should have LCD display & built in or external alpha numeric printer to be available to monitor continuously all the vital sterilization parameter like temperature, vacuum, time etc.

10. Auto exhaust system should be sound proof.

11. Audio-visual alarm system for temperature, pressure and leakage.

12. Temperature accuracy: ± 1 °C.

13. Composition of gases (100% Ethylene Oxide).

14. Operating temperature to be settable at 35⁰C- 55 ⁰C.

15. Should provide the Following standard Accessory & Consumable:-

a. Sterilization basket of suitable size 1 no,

b. EO gas cartridges: 100 No .

c. Packaging material of all sizes, Each 5 rolls.

d. Should provide pedal operated sealing machine- 1 no.

e. Printer Paper-5 Rolls/Pack, Biological Indicators-25 box, Chemical Indicator – 100 Nos , Indicator Tapes for Ethylene Oxide (EO) Sterilization -5 Roll.

f. Packing tables With Self-1 nos,

16. Should provide the suitable Air compressor and accessories.

17. US FDA and/ European CE approved model should be offered.

18. Power Supply 200VAC +/- 10 %, 50Hz fitted with Indian plug.

19. The supplier must undertake all associated civil, mechanical, electrical furnishing jobs the area allocated for ETO sterilizers room. All regulatory requirements for installing ETO sterilizers should be incorporated within the site; including the safe disposal of exhaust gas from the sterilizer as per existing regulatory norms.

20. Power backup of 30 mintues included.

NOTE:

1. The life expectancy of the consumable is expected to be of at least one year from the date of installation of the same. The reusable consumables will be procured at the prices accepted as per the contract.

2. The bidders should submit all reusable consumable items price & their authorised local office/ distributor

**Anaesthesia Work Station (All parts should be from same manufacturer)**

1.Circle absorber system:-

Co2 absorber system with following features:-

a. Single/Double canister

b. Autoclavable

c.Canister capacity of 1.2 kg or more.

d.It should be possible to bypass the canister if removed during clinical cases to change sodalime.

2. APL valve assemble and Bag mount should be conveniently placed.

3. Should be able to hold two seletatec vaporizers (isoflurane, Sevoflurane/Desflurane) simultaneously, vapourizers should be maintenance free. Cost of vaporizers to be quoted separately.

4. **Anaesthesia ventilator**

The ventilator of the Workstation machine should have the following features:-

Ventilator should have automatic mode detection.

a. Should be electronically controlled/ gas driving.

b.      Should be suitable for both paediatric, adult and new born.

c.       It should have colored touch 12’’ screen with at a time loops & gaps.

d.      Volume and pressure control pressure support mode of ventilations.

e.       Electronic peep.

f. pressure Control mode.

Tidal volume range from 5ml to 1200 ml or more.

Respiratory rate from 4 to 80 or more.

I:E ratio: 4:1 to 1:6

Display: Respiratory rate, peak airway pressure and PEEP.

There should be no collection of water in the breathing system.

5.Should have safety features like:-

* + 1. Minimum oxygen flow of 50ml/min or more even when the machine is in on position.
    2. Should provide 25% or more of oxygen when an anaesthetic gaseous mixture is in used.
    3. Should be provided with mechanical hypoxic guard.
    4. Should have auxiliary flow meter for oxygen &/air.

6.Should have oxygen flush with a flow rate of more than 35L/Min.

7. Independent port for open circuit.

8. Should be provided with three or more drawers

1. **Anesthesia gas delivery system**
   1. Should have pipelines attachment for oxygen, nitrous oxide and compressed air.
   2. There should be digital control and display for oxygen &other gases & electronic gas mixing.
   3. Durable main switch to put the machine in the on or off position.
   4. Should have yoke assembly for oxygen and nitrous oxide with pin index system.
   5. 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.
2. Should have audio-visual oxygen Failure warning System with Nitrous oxide cut off.
3. Should have independent oxygen sensor for FiO2 monitor and flow sensor for spirometry.
4. Should be able to display atleast two wave forms at a time either of the following:
   * + - 1. Pressure Vs time.
         2. Volume Vs time
         3. Pressure Vs Volume.
5. Should be supplied with necessary attachments to use of the breathing circuits (Bains, Jackson-Rees and closed circuit etc.,) Reusable circuit for adult and pediatric will be provided.
6. Should have top shelf to keep monitors and a tabletop to keep anesthetic drugs, equipments etc.
7. Should have a battery backup of atleast 90 minutes.
8. Machine should have a good quality handle and casters to move the machine with locking system.
9. **Multipara Monitor**

The Monitor should have the following Features

a. A modular configurable patient monitor.

b. Should have atleast 15”TFT colour display with up to 12 waveforms at a time.

c. Should be touch screen/knob operated.

d. Should be able to measure the following parameters:

e. 3/5 lead ECG with electrocautery & defibrillator filter with ST segment & arrhythmia detection with analysis.

f. Respiration, SpO2, temperature.

g. NIBP, 2IBP, ETCO2

h. Multi-Gas analysis with auto detection of all anesthetic agents.

i.  Modular BIS Monitoring.

j. Upgradable to cardiac output (Thermodilution) monitoring.

15. Should be able to automatically detect and calculate MAC of all anaesthetic gases.

16. Should be able to calculate and display FiO2.

17. Intelligent cooling system to keeps the unit running quiet during use.

18. Separate indicator lights for technical and physiological alarms.

19. Maximum BEEP tone should be loud enough to be audible from atleast a distance of 12 feet’s.

20. Should have graded audio and visual alarms for the following parameters:

* 1. Blood Pressure- High and Low
  2. SpO2 - High and Low
  3. Heart rate- High and Low
  4. Respiration- High and Low
  5. FiO2- High and Low

21. Trends – Upto 24 Hours or more, trend analysis, Upto 24 hours full disclosure.

22. Battery Back up- Li-ion Battery of 1 hour or more.

23.The machine should be internationally reputed company and should be USFDA approved.

24. Bidder must ensure regular supply of Sodalime.

25. The machine should supplied with the following accessories:

a.       ECG cable -2 nos.

b.      Reusable SpO2 Sensors: 2 each for Adult, Pediatric & Neonatal.

c.       NIBP cuff: 2 each for adult, Pediatric & Neonatal.

d.      IBP Transducers: Disposable 10 nos.

e.       IBP cable: 2 nos.

f.       BIS Electrode:10 nos.

g.       ETCO2 Sample Line: 10 nos.

h.      Reusable autoclavable breathing circuit: 2 nos. each for Adult & Pediatric.