MAHARAJA AGRASEN MEDICAL COLLEGE AGROHA (HISAR)

CORRIGENDUM

(Amendments in DNIT– ICU & Peads Ventilators)

E-Tenders are invited for the procurement, supply, and installation of a ICU and Peads Ventilator at Maharaja Agrasen Medical College (MAMC), Agroha (Hisar). The revised specifications are as under:-

E-Tender ID:- 2025_HRY_480243_2

Technical specifications of Ventilator

1) Advanced technology ventilator for use in ICU, suitable for ventilating all categories of patients from pediatrics to adults.

2) Microprocessor controlled system with individual selection of various ventilation parameters.

3) It should have following modes of ventilation:

a) Volume control

b) Pressure control

c) Pressure regulated volume control with on demand flow (PRVC).

d) Pressure support/ CPAP with back up ventilation.

e) SIMV (Volume Control) + Pressure support.

f) SIMV (Pressure control) + Pressure support.

g) Auto mode/ intelligent ventilation where frequency, tidal volume, pressure and I:E are based on physiological input from the patient.

h) Should have facility for NIV with same breathing circuit including all NIV modes and nasal CPAP

4) The system should have the following parameters:

a) Frequency range: 1 to 80 breaths per minute.

b) Inspiratory time: 0.1 to 5 sec

c) Pause time: 5 to 30% of breath cycle time.

d) Pressure level: 0-40 cm H2O.

e) PEEP: 0-35 cm H2O

f) Trigger: Flow trigger/ pressure trigger

g) Inspiratory rise time: 0-20% of breath cycle

h) I:E ratio: 1:10-4:1

i) Tidal volume: 20-2000ml

5) Should have the following audio-visual alarms:

a) Airway pressure

b) High continuous pressure

c) FIO2

d) Expired minute volume

e) Apnea

f) End expiratory pressure

g) Respiratory rate

h) Gas Failure

i) Battery

j) leakage out of range in NIV

6) It should have built in battery back-up for 30 min or more.

7) Unit should be supplied with integrated/ pneumatic nebulizer for effective uninterrupted nebulization during mechanical ventilation.

8) Oxygen sensor and flow sensor should be permanent/ high quality with low maintenance or replacement need.

9) 15 inches or more of colour touch screen user interface screen.

10) It should be possible to display following loops for each breath:

Volume- pressure

Flow- volume.

11) Screen should display following waveforms:

Flow time.

Pressure time.

Volume time.

12) Should have access through touch screen/ main rotary dial

13) One set of autoclavable breathing circuits, one each for adult and pediatric patients should be supplied with the system.

14) It should have the gas flow from 0 to 3 litres per second.

15) It should be US-FDA & CE (Conformité Européenne) certified.

16) It should have expiratory base flow 2-3litre/ min, oxygen mixture accuracy of 2.5-5%.

17) It should have following monitoring parameters: Auto PEEP, P insp, P exp, Ppeak, Pplat, mean airway pressure, insp flow peak, exp flow peak, volume leak %, minute volume leak, f spontaneous, f control, f total, inspiratory volume, expiratory volume, static compliance, rapid shallow breathing index, inspiratory flow resistance, expiratory time constant, airway occlusion pressure.

18) It should have following monitoring parameters: oxygen concentration of delivered gas, I:E ratio, inspiratory time, expiratory time, battery remaining time.

19) It should have disconnect and connect detection.

20) It should have ideal body weight setting.

Amended Specification for Neonatal HFO Ventilator

(Dated: 17/02/2026)

1. It should be specifically designed for the Neonatal /Infant Patient Range.
2. It should allow the user to deliver conventional ventilation as well as High frequency oscillation ventilation (HFOV).
3. It should have the capability of mechanical ventilation of a range of patients from **300g to 30Kg body weight in conventional and 12 to 20kg in HFO.**
4. It should have an effective mechanism to reduce work of breathing for Neonates.
5. It should have

a. Conventional Mode Parameters:

i. BPM: 1to150
ii. Inspiratory Time: 0.1 to 2.0-3.0 sec
iii. CPAP Pressure: **0 to 30-35 mbar**
iv. Inspiratory Pressure: 0 to 65 mbar
v. FIO2: 21% to 100%
vi Tidal Volume 2 to **200-300 ml with Volume Guarantee in HFOV Tidal volume 0.2 to 30ml and** more.

b. HFO Mode Parameters:

i. HFO Frequency should be wide range with **3-5 to 20 Hz**
ii. 1:E Ratio: 1:1. 1:2, 1:3
iii. Tidal Volume 2-200 ml with Volume Guarantee
iv. It should have Delta Pressure of up to 80 mbar or more

6. It should have following modes CPAP, CMV+ TTV, PTV, PSV, SIMV+ TTV + PSV. HFO/PC-HFO, HFO+CMV /PC-CMV/PC-MMV.
7. It should have the ability to pre set parameters in all modes of operation.
8. It should have powerful HFO with active expiration to cover a wide range of patients
9. It should have a minimum 12 inch size full colour, total touch screen operation (preferably).
10. It should have integral flow monitoring measuring lung mechanics and displaying of loops and waveforms
11. It should have trending of measured parameters with memory of **at least 14 days.**
12. It should have integral battery with up to **60-180 minutes** operating capability.
13. It should have same Circuit for conventional and HFO mode of ventilation.
14. It should be supplied with a 1Resusable and 1 disposable circuit. I addition o2 flow sensor and Servo heated humidifier with temp adaptor for both reusable as well as disposable circuit.
15. It should be a European CE or US-FDA certified product.
16. Proposal for full service AMC/CMC, year 2 to 5, covering (i) 2 preventive maintenances per year, (ii) on-call technical interventions, spare parts and travel.

Medical Superintendent
For Director