SPECIFICATIONS FOR AN INTENSIVE CARE VENTILATOR

1. Microprocessor control, time-cycled, volume & pressure-controlled with adaptive ventilation for use in intensive care, suitable for ventilating all categories of patients from Neonatal to adults.
2. Should have a dynamic Lung View for an adult-paed patient to visualize assessment for compliance, resistance, obstructive and spontaneous breathing indication
3. Ventilator should be supplied with inbuilt turbine or external medical grade compressor (of the same make).
4. High Flow Oxygen Therapy with at least 60 LPM direct adjustable Flow with target RAMP should be available as standard along with one set of cannula for Adult / Ped / Neo patients.
5. Inbuilt display should be 12.5 inches or above, either color full touch screen or touch with rotary knob operation.
6. Ventilator should have the capability to upgrade SPO2 and ETCO2 measurement in the future.
7. Quoted model should have the capability to upgrade oesophageal pressure monitoring/ Smart Care / NAVA / TPP (Transpulmonary Pressure) for an adult-paed patient
8. Should have the following modes of ventilation –
    a. Volume control – VC / PC in CMV
    b. Assist control – VC / PC
    c. CPAP with Pressure Support
    d. Nasal CPAP with Apnoea backup for the neonatal patient
    e. Non-Invasive IPPV with 200 bpm
    f. Volume Support in PSV
    g. Adaptive Support Ventilation /Adaptive Ventilation Mode or equivalent for adult - ped (To ensure faster weaning and less manual settings, weaning mode)
    h. SIMV (Volume Control / Pressure Control) with Pressure support
    i. BIPAP /BIVENT/BI-LEVEL or equivalent with the settings of ventilatory breaths

j. Target vent modes such as PRVC / Auto Flow / PAV/ APV for automatic adjustment of pressure

k. Apnoea backup ventilation mode with adjustable settings option.

l. Separate independent NIV Mode (On/Off option on invasive mode is not acceptable) with automatic leakage compensation at least >120 LPM.

12. Should have the following parameters –

a.	Tidal Volume in Volume mode	: 5 to 2000 ml
b.	Inspiratory Pressure	: 1 – 99 cmH2O
c.	CPAP/PEEP /Intermittent PEEP	: 0 – 50 cmH2O
d.	Inspiratory Rate	: 2 – 100 bpm
e.	Inspiratory Time	: 0.5 – 10 sec
f.	Pressure support	: 0 – 60 cmH2O above PEEP
g.	Occlusion Pressure PO.1	: 0-100 mbar
h.	FiO2	: 21 - 100%
i.	Flow trigger range	: 0 to 15 LPM
j.	Pressure Trigger range	: 0 to -15 cmH2O

k. Peak Inspiratory Flow should be at least 220 LPM or above

l. Should have facility for Manual Breath, Inspiratory Hold, and Expiratory Hold.

m. Should be able to measure Intrinsic PEEP with a display of volume trapped.

n. Should have a display of weaning parameters like RSBI, Expiratory Time Constant, WOBi, etc.

13. It should display breath-to-breath measured values for Tidal Volume, Minute Volume, Spontaneous Frequency, FiO2, Peak/Mean Pressures, PEEP, Plateau, Resistance, Compliance, etc.

14. It should have three-level alarm management with different audio-visual color-coded alarms.

15. Should have inbuilt battery back-up for at least 4 hours for Ventilator and air source in the event of power failure.
16. It should have a simultaneous display of a minimum 3 waveforms along with 2 loops
    The screen should display the following waveforms:
    a. Flow – time,
    b. Pressure – time,
    c. Volume – time
    d. ASV/AVM Minute ventilation Graph
    e. And following loops:
        i. Pressure–volume,
        ii. Flow–volume,
        iii. Flow–pressure
17. Ventilator should have inbuilt Fio2 Monitoring.
18. In case of emergency, the machine should have the facility of Low-Pressure Oxygen, so that ventilation can be provided by low-pressure devices such as an O2 concentrator or flow meters in the event of non-availability of the high-pressure gas line.
19. The flow sensor should be Hot Air Anemometer or Variable Orifice Differential Pressure type.
20. Should have auto reusable expiration cassette /valves for complete disinfection capability.
21. Should have an inspiration synchronized inbuilt volume compensated nebulizer
22. Should have facility for ventilation data transfer via USB port and RS232 port
    Scope of supply should include the following with each ventilator-
    a. Modular corrosion-free ventilator Cart/ Trolley with circuit holding arm from the same source.
    b. Breathing Circuit Disposable with HMEF for adult -ped – 10 pcs
    c. Oxygen connecting Hose and Air connecting Hose (if needed) – 1pc each
    d. Nebulizer inspiratory synchronized for adult -ped – 10 pcs

e. Heated servo-controlled humidifier with reusable adult & neonatal chamber and breathing circuit -2 pc

f. Test Lung and Instruction Manual.

Conditions for tenderer:

1. All accessories should be from the same Original Equipment Manufacturer for the main unit.
2. Instruments must be ISO certified and a copy should be enclosed. (The ISO Certificate must be issued by any organization accredited by the Bureau of Indian Standard or accredited by the international accrediting forum "IAF" (Certificate to be attached).
3. Should be USA FDA and European CE be approved by 4 digits notified body.
4. Other necessary certifications if any required will be provided by the bidder for the smooth functioning of the machine.
5. Installation process should be performed by O.E.M trained service engineers/ service representatives on OEM letterhead or Service Report within 15 days of supply, with the mandatory provision of providing preventive services visit of OEM trained Service Engineer/ Service Representative quarterly per year till the completion of warranty period (i.e., 20 visits for the first 05 years) & further quarterly visits (04 visits/year) year till the completion of CMC period.
6. The equipment should have a Brand name/ Model Number embossed/etched on the equipment.
7. All the technical specifications in the compliance statement must be supported by Original Literature from the firm/ O.E.M with highlighting Numbering & flagging of all technical certificates.
8. Offered Equipment should have a strong Government Installation base.
9. Offered Equipment should have a Regional Sales Service Centre of the Original Equipment Manufacturer in the region for a 95 % uptime guarantee.
10. For the offered main unit, the essential, optional required consumables'/accessories' shelf life should be declared on the Original Equipment Manufacturer's letterhead.
11. In case of technical snag/failure/breakdown the response time for the inspection should be within 24 hours and repair within 05 days otherwise provide a service machine/ alternate

arrangement to be made till the period of recovery of the breakdown of the unit, failing which attracts penal action as per the decision of institute/ hospital.

12. For offered equipment the Training of technical staff and users should be performed by Original Equipment Manufacturer trained Service Engineers at the proper designated place- at bidders' cost.
13. Company should quote their latest model and need to provide an affidavit for the same.
14. As a tendering process the Demonstration of the offered Equipment is Mandatory at hospital/institute premises or other designated places at the bidder's cost.
15. The bidder must comply with the General Financial Rules and their modifications if any issued by the Government of India- 2017.
16. Any bidder from a country that shares a land border with India will be eligible to bid in the tender only if the bidder is registered with the Competent Authority (i.e., Registration certificate issued by the Ministry of Commerce and Industry (Department for Promotion of Industry and Internal Trade- DPIIT after October 2020). If any such bidder is not registered with DPIIT they will be liable for technical disqualification.
17. Principal (OEM) must authorize only one agent to be quoted in the bid otherwise multiple quotes through different agents in the same bid will be canceled.
18. The Bidder and its OEM both have to submit a notarized affidavit on the Indian Non-Judicial Stamp Paper of Rs.100/- that the bidder has not quoted the price higher than the current financial year and last financial year supplied to any government Institute/ Organization/ reputed Private Organization. OEM also has to submit that the price quoted by the bidder in the bid is on its behalf and the lowest in the current and last financial year in the country. Therefore, if at any stage it has been found that the supplier and its OEM have quoted lower rates than those quoted in this bid; the Institute (the purchaser) would be given the benefit of lower rates by the Supplier and any excess payment if any, will become immediately payable to the Institute (the purchaser). If such an affidavit is not submitted, the bid will be outrightly rejected. (Part of technical bid).
19. Guarantee / Warranty Period: Separate offers of Comprehensive Maintenance Contract (CMC on main equipment) and Annual Maintenance Contract (AMC on main equipment) for further 5 years after expiry of 5 years of warranty (i.e., 6^{th}, 7^{th}, 8^{th}, 9^{th} and 10^{th} years) in rupees only (and on basis of percentage of price) should be included in a financial bid in the absence of which the offer is liable to be rejected. Payment for CMC/AMC shall be

made only after the expiry of the warranty of 5 years, in case the Institute (the purchaser) decides for availing of CMC/AMC services. Contract for CMC/AMC shall be decided on expiry of warranty but rates (not more than 5% inclusive of all taxes for 6th to 10th year) will be frozen at the price of an issued purchase order before the release of payment by the Institute (the purchaser). However, the Institute (the purchaser) may decide not to enter into any CMC/AMC contract without assigning any reason for the same, which shall be binding upon the bid.