TECHNICAL SPECIFICATION FOR CRITICAL CARE ICU VENTILATOR

- It should be advanced technology ventilator with inbuilt compressor for use in ICU, for ventilating pediatric & adult patients.

- It should employ multi-microprocessor controlled system with individual selection of various ventilation parameters & PEEP. Rapid trigger response time in all modes for minimum work of breathing

- The ventilator should be modular in design and be open end system for future upgradation.

- Automatic changeover between compressor and central compressed air line is mandatory.

- It should be capable to work on either of single gas source in case of emergency such as in absence of O2 it should work on air and in absence of air it should work on 100% O2.

- The ventilator should be capable to measure input gas pressures of O2 and Air coming from Central Pipeline or compressor.

- The machine should have a Bias flow of not more than 2 l/min.

- Should be also suitable for use during transportation within the hospital.

- The machine should have non-consumable type O2 sensor. It should not be required to change.

- It should be compatible for upgrade of NAVA application. (Preferable)

- The system should have the facility for both Pressure triggering & Flow triggering

- Should have the following invasive modes of ventilation:

  A. Volume control
  B. Pressure control
  C. P.R.V.C.
  D. Pressure support with back-up ventilation
  E. CPAP
  F. SIMV(Volume Control) + Pressure support
  G. SIMV(Pressure Control) + Pressure support
  H. SIMV(P.R.V.C.) + Pressure support
  I. It should have Non Invasive Ventilation (NIV) facility with following NIV modes:
     1. Pressure Control
     2. Pressure Support

- The machine should have AUTOMODE: Starting in controlled ventilation and automatically switching to supported ventilation when the patient is triggering to support

a smoother & safer patient transition between start and steady states and features adjustable apnea time.

- The machine should have Volume Support mode that decreases the patient's work of breathing through pressure support, with added benefit of a set target tidal volume.

- The machine should have Bi-Vent mode that allows a mix of controlled and assisted ventilation at low and high pressure levels, also the timings for each pressure level can be set and the patient can breathe spontaneously at both.

- The system should have the following parameters:

A.	Tidal Volume:	100 ml – 2000 ml
B.	CMV Frequency:	4 – 100 breaths / min
C.	SIMV frequency:	1 – 60 breaths / min
D.	Inspiratory time:	0.1 – 5 sec
E.	Pause time:	0 – 30% of breath cycle time
F.	Pressure level	0 – (120 – PEEP)
G.	PEEP:	0 – 50 cm H2O
H.	Trigger flow:	0 – 100%
I.	Trigger Pressure	- 20 – 0 cm H2O below PEEP
J.	Inspiratory rise time	0 - 20% of brea th cycle time
K.	I : E ratio	1 : 10 – 4 : 1
L.	Pressure level above PEEP for NIV	0 – 30 cmH2O
M.	Inspiratory Cycle off for NIV	10 – 70 % of the peak flow
N.	Max. Leakage compensation level for NIV	50L/min

- Should have monitoring of following parameters:
  A. Airway pressure: Peak, Mean, Plateau, PEEP.
  B. Total breath rate.
  C. O2 concentration.
  D. I:E ratio.
  E. Tidal volume: Inspired, Expired.
  F. Minute volume: Inspired, Expired.
  G. End expiratory flow.
  H. Inspiratory time.
  I. Total PEEP.
  J. Leakage fraction for NIV