

### Technical Specifications of Ventilator

S.N.	Purchaser's Specifications	Bidder's Compliance Sheet		
		Yes/No	Page no. in Catalogue	Remarks
	Ventilator (Infant to Adult)			
	<b>Manufacturer</b>			
	<b>Brand</b>			
	<b>Type / Model</b>			
	<b>Country of Origin</b>			
<b>1</b>	<b>Description of Function</b>			
1.1	Advanced automated adaptive assisted wide-range turbine/blower based ventilation system.			
<b>2</b>	<b>Operational Requirements</b>			
2.1	Electronic microprocessor controlled ventilator with integrated facility controlled by volume and pressure to fit for all types of patients from neonate to Adults.			
<b>3</b>	<b>Technical Specifications</b>			
3.1	Should have TFT Touch Screen of minimum 15 inch			
3.2	Should be able to easily switch between a NIV mode and IV modes by UI operation only			
3.3	<p>. It Should have following Ventilation Mode:</p> <p>A .Invasive Ventilation Mode:</p> <ul style="list-style-type: none"> <li>• Assist control (Volume Control Ventilation)</li> <li>• Assist control (Pressure Control Ventilation)</li> <li>• VSIMV (Volume Synchronized Intermittent Mandatory Ventilation)</li> <li>• PSIMV (Pressure Synchronized Intermittent Mandatory Ventilation)</li> <li>• CPAP/PSV (Continuous Positive Airway Pressure/Pressure Support Ventilation)</li> <li>• PRVC (Pressure Regulated Volume Control)</li>   <li>• BiPAP (Bi-level Positive Airway Pressure)</li> <li>• APRV (Airway Pressure Release Ventilation)</li> <li>• Apnea Ventilation</li> </ul> <p>B. Non-invasive Ventilation Mode:</p> <ul style="list-style-type: none"> <li>• PC-ACV(Pressure Controlled – Assist Control Ventilation)</li> <li>• PVC-ACV(Pressure Volume Controlled-Assist Control Ventilation)</li> <li>• PC-SIMV(Pressure Controlled – Synchronized Intermittent Mandatory Ventilation)</li> <li>• PVC-SIMV(Pressure Volume Controlled –</li> </ul>			

	<p>Synchronized Intermittent Mandatory Ventilation)</p> <ul style="list-style-type: none"> <li>• PC-Dual PAP(Pressure Controlled-Duo Positive Airway Pressure)</li> <li>• PC-APRV(Pressure Controlled – Airway Pressure Release Ventilation)</li> <li>• CPAP/PSV</li> <li>• CPAP-VG(Continuous positive airway pressure-Volume guarantee)</li> </ul>			
3.4	<p>It should have following Measured and displayed patient parameters:</p> <ul style="list-style-type: none"> <li>• Tidal volume: Neonates:5 to 200mL Pediatric:20 to 400mL Adult:100 to 2000mL</li> <li>• Rate: 1 to 100bpm</li> <li>• Texp : 0.3 to 12.0 s</li> <li>• Tslope : 0.00 to 2.00 s</li> <li>• PEEP/CPAP: 0 to 50 cmH2O</li> <li>• Inspired Oxygen Concentration (FiO<sub>2</sub>):21 to 100%</li> <li>• I:E ratio: 1:10 to 4:1</li> <li>• Inspiratory time (TI): 0.2 to 5 s</li> <li>• Flow trigger: 0.2 to 15 l/min</li> <li>• Pressure trigger: -0.5 to -20cmH2O</li> <li>• Pressure control: 5 to 90 cmH2O</li> <li>• Pressure support: 0 to 90 cmH2O, added to PEEP/CPAP</li> <li>• Pressure ramp: 0 to 2s</li> <li>• Apnea absence: 10 to 30s</li> </ul>			
3.5	<p>Should have O<sub>2</sub> therapy with controlled flow of 2-50L/min and controlled flow accuracy of <math>\pm</math> (2L/min+10% of Setting) (BTPS) (body temperature, pressure, water vapor saturated) and O<sub>2</sub> concentration between 21 to 100% with accuracy of <math>\pm</math> (3 Vol.% +1 % of setting) .</p>			
3.6	<p>Must have real time graphical representation of</p> <ul style="list-style-type: none"> <li>• Pressure-time Waveform</li> <li>• Flow-time Waveform</li> <li>• Volume-time Waveform</li> <li>• Measurement of volumetric capnography of CO<sub>2</sub></li> <li>• Pressure-volume Loop</li> <li>• Flow-time Loop</li> <li>• Pressure-flow Loop</li> </ul>			
3.7	<p>It should have operator-adjustable alarm system with :</p> <ul style="list-style-type: none"> <li>• Low/high minute volume</li> </ul>			

	<ul style="list-style-type: none"> <li>• low/high pressure : 1 - 90 cmH2O</li> <li>• low/high tidal volume : OFF, 10 - 2000 ml</li> <li>• low/high respiratory rate: OFF, 1 - 90 BPM</li> <li>• apnea time : 5 - 60 sec</li> <li>• low/high oxygen</li> <li>• Optional: low/high CO2, low/high SPO2</li> <li>• Special alarms:</li> <li>• Oxygen concentration,</li> <li>• Circuit disconnection,</li> <li>• loss of PEEP</li> <li>• exhalation obstruction,</li> <li>• flow sensor</li> <li>• power supply batteries,</li> <li>• gas supply failure</li> </ul>			
3.8	should have Internal and swappable Li-ion batteries with battery running time of 3 hours and 2 Backup battery batteries of 5200mAh each			
3.9	Should have apnea ventilation facilities with volume-controlled apnea ventilation.			
3.10	Must have integrated self-check system with leak check and system tightness to secure the ventilation result			
3.11	Should have synchronized Tube Resistance Compliance with: <ul style="list-style-type: none"> <li>• ET Tube, Trach Tube</li> </ul>			
3.13	Should have sigh switch that can be turned ON/OFF with interval of 30s-3 hrs except for CPAP/PSV, DuoLevel, and APRV.			
3.14	Should have communication Interface Nurse call, USB, NET, RS232, VGA			
3.15	Should have logging capability that can store and display of up minimum log of minimum 1000			
3.16	Should have operating temperature of 5-40°C ,Relative Humidity of 10-95% for both operating ,storage and transport and Barometric Pressure of 62-106kPa			
3.17	Must have value added functions of nebulizer, PV Tool, P 0.1, Inspiratory Hold, Expiratory Hold, NIF and leakage compensation			
<b>4</b>	<b>Accessories, spares and consumables</b>			
4.1	<b>Accessories:</b> <ul style="list-style-type: none"> <li>• Trolley 1/Pedestal rotatable trolley with castors brake</li> <li>• Neonatal Humidifier chamber</li> <li>• Resuable pediatric patient circuit/W Heating</li> </ul>			

	<ul style="list-style-type: none"> <li>• Support arm</li> <li>• Disposable bacterial filter</li> <li>• Reusable Neonate patient circuit /W Heating</li> </ul>			
4.2	All standard accessories, consumables and parts required to operate the ventilator to be included in the offer. Bidders must specify the quantity of every item included in their offer (including items not specified above).			
<b>5</b>	<b>Operating Environment</b>			
5.1	The product offered shall be designed to be stored and to operate normally under the conditions of the purchaser's country. The conditions include Climate, Temperature, Humidity, etc.			
<b>5.2</b>	<b>Power supply:</b> 220-240v, 50/60Hz fitted with appropriate plug. The power cable must be at least 3 meter in length.			
<b>6</b>	<b>Standards and Safety Requirements</b>			
6.1	Must submit ISO13485:2003/AC:2007 <b>AND</b>			
6.2	Must submit European CE certificate			
<b>7</b>	<b>User Training</b>			
7.1	Must provide user training (including how to use and maintain the equipment).			
<b>8</b>	<b>Warranty</b>			
8.1	Warranty for 2year after acceptance.			
<b>9</b>	<b>Maintenance Service During Warranty Period</b>			
9.1	During the warranty period supplier must ensure planned preventive maintenance (PPM) along with corrective/breakdown maintenance whenever required.			
<b>10</b>	<b>Installation and Commissioning</b>			
10.1	The bidder must arrange for the equipment to be installed and commissioned by certified or qualified personnel; any prerequisites for installation to be communicated to the purchaser in advance, in detail..			
<b>11</b>	<b>Documentation</b>			
11.1	User (Operating) and Service (Technical / Maintenance) manual in English.			
11.2	The bidder should submit the original brochure or e-copy.			
11.3	The bidder should submit a valid authorization letter from the manufacturer			
11.5	The bidder should compulsorily fill the technical Specification tender form and clearly mention the Manufacturer, Brand, Model and Country of Origin.			