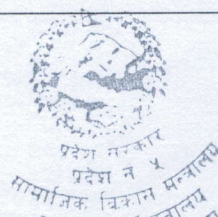


# Technical Specification of Ventilator-Infant, Paediatric, Adult

S.N.	Purchaser's Specifications		Bidder's Compliance Sheet		
			Yes /No	Ref Docs Page No	Remarks
	<b>Ventilator-Infant, Paediatric</b>				
	<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	Infant/ Paediatric/Adult Ventilators provide artificial respiration support to infants/neonates/paediatric and adults in NICU/ICU, with high performance turbine or with air compressor.				
<b>2</b>	<b>Operational Requirements</b>				
2.1	Microprocessor Controlled integrated ventilator suitable for neonate, child, Adult ventilation.				
2.2	It shall operate from the mains supply with central oxygen supply or oxygen cylinder (0-7bar). It shall be high performance turbine based ventilator or compressor based.				
<b>3</b>	<b>System Configuration</b>				
3.1	Ventilator- Infant, Paediatric & adult with company made trolley, Servo controlled humidifier, turbine based or medical Air Compressor with all complete accessories.				
<b>4</b>	<b>Technical Specifications</b>				
4.1	Must have not less than 12 inch colour LCD touch screen for monitoring of the ventilation parameters, curves and loops.				
4.2	Automatic compliance & Leakage compensation for circuit and ET tube.				
4.3	It must be a pneumatically driven and electronically controlled ventilator.				
4.4	<b>Ventilation mode:</b> <ol style="list-style-type: none"> <li>Volume controlled(VAC)</li> <li>Pressure controlled(PAC)</li> <li>Pressure support(PSV)</li> <li>SIMV (Pressure Control and volume control) with pressure support.(P-SIMV,V-SIMV)</li> <li>APRV</li> <li>PRVC</li> <li>NIV</li> <li>Apnea Ventilation</li> <li>CPAP</li> <li>Biphasic preferable(BIPAP)</li> <li>Backup Modes: PSV</li> </ol>				
4.5	<b>Tidal volume:</b> approximately 2-200 ml (neonatal 2-250 ml)				
4.6	<b>Ventilation frequency:</b> approximately 1-100 bpm (neonatal 1-150 bpm)				
4.7	<b>IE ratio:</b> 1:10 – 4:1				
4.9	<b>Inspiratory time:</b> approximately 0.1-10s				
4.10	<b>Inspiratory Pressure:</b> 1-100 cmH2O				
4.11	<b>Pressure support:</b> 0-100 cmH2O				
4.12	<b>Oxygen concentration (FiO2):</b> 21-100 volume %				
4.13	<b>PEEP/ intermittent PEEP:</b> 0-50 cmH2O				

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4.14	<b>Triggering mechanism:</b> Both pressure and flow triggering			
4.15	<b>Inspiratory Triggering sensitivity:</b> <b>Flow triggering:</b> 0.1-20L/min <b>Pressure triggering :</b> 0.1-20cmH2O			
4.16	<b>Expiratory trigger sensitivity:</b> Auto, 10-85%			
4.17	<b>Nebuliser:</b> Integrated internal pneumatic nebuliser			
4.18	The pneumatics must be designed such that the patient is always permitted for free spontaneous breathing.			
4.19	The ventilator should have backup air supply provision which could guarantee the ventilator work properly in emergency condition such as no air supply or no electricity supply and air passed through the backup air supply system should be cleaned by a HEPA filter before delivering to patient.			
4.20	The ventilator must have full- automatic system check procedure.			
4.21	Basic unit including support for medical gas supply from central pipeline system, NIST or DISS connectors for both gases. i.e air and oxygen			
4.22	The ventilator must have integrated electronic air-oxygen mixture control.			
	The ventilator must have paramagnetic oxygen sensor			
4.23	<b>Monitoring:</b> The ventilator must have the capability of monitoring of the following parameters			
	a. Airway Pressure- PEEP, Ppeak, Pplat, Pmean b. Tidal Volume- TVi, TVe,(Set/Monitored) c. Minute Volume- MV, MVspn, MVleak d. Frequency/ Rate - Set (Inspiratory), Spontaneous, Total , I:E Ratio e. O2 concentration: FiO2 f. Display Loops including Pressure-Volume, Flow-Volume, Flow-Pressure, show up to 2 loops simultaneously g. Waveforms and loops display simultaneously h. Must have Configurable graphical and numerical display i. Display graphics including standard waveforms showing pressure, flow, volume, CO2, Pleth, auxiliary pressure over time, show up to 3 waveforms simultaneously			
4.24	Standard monitoring of the following parameters: Pressures, flow, volumes, time, frequency, real time waveforms, trends, oxygen percentage.			
4.25	Sensors must be automatically calibrated every time it is switched on			
4.26	Medical Air Compressor(If turbine based no need of bellow mentioned points): <ul style="list-style-type: none"> <li>• Imported Medical Air compressor</li> <li>• Snap fit with the Ventilator module to provide an oil free Medical air .</li> <li>• Peak output flow must be minimum 160 LPM.</li> <li>• Air quality must comply with ISO compressed air purity class.</li> <li>• Medical Air Compressor must automatically activate in the event of wall air supply loss.</li> <li>• Replacement of internal filters must be performed without removing the compressor</li> </ul>			



S.N.	Purchaser's Specifications	Bidder's Compliance Sheet		
	<ul style="list-style-type: none"> <li>Must have washable air filter.</li> </ul>			
4.27	Adjusting alarms			
	<ul style="list-style-type: none"> <li>a. Must contain all standard operator-adjustable as well as special audible as well as visual alarms for all the vital ventilation parameters like volumes, pressures, frequencies, oxygen percentage, Apnoea.</li> <li>b. High/low (airway pressure, minute volume, respiratory rate, expiratory tidal volume, PEEP, inspired oxygen concentration, etCO2)</li> <li>c. The ventilator should be able to give alarm for Apnea(15 - 60 sec), breathing circuit disconnect/leakage, breathing circuit occlusion</li> <li>d. The ventilator should be able to give alarm for power supply fail and gas supply fail.</li> </ul>			
4.28	Battery back-up time: Approximately 60 min or more.			
5	<b>Communication and interface:</b>			
5.1	Ventilator data, trends and screenshots can be exported to USB. Should have communication ports like RS232, VGA, USB, Ethernet, nurse call.			
6	<b>Accessories, spares and consumables</b>			
6.1	<b>Accessories:</b> <ul style="list-style-type: none"> <li>a. Humidifier -Servo controlled with digital monitoring of inspired gas temperature complete with heating wire-01 no.</li> <li>b. Nebulizer compatible with ventilator-01</li> <li>c. Medical Air Compressor(if not inbuilt turbine)-01 no.</li> <li>d. Air Hose-01 no.</li> <li>e. Oxygen Hose-01 no.</li> <li>f. Paediatric autoclaveable/reusable silicon breathing circuit-01 nos.</li> <li>g. Infant autoclaveable/reusable silicone breathing circuit-01 nos.</li> <li>h. Non corrosive company made trolley and hinged arm: 01no.</li> <li>i. Silicon test lung adult and neonate 1 set each.</li> <li>j. Disposable NIV Mask(Adult/Neonate)- 1 set each</li> <li>k. 20 HME filters</li> </ul>			
6.2	All standard accessories, consumables and parts required to operate the equipment, including all standard tools and cleaning and lubrication materials, to be included in the offer. Bidders must specify the quantity of every item included in their offer (including items not specified above).			
7	<b>Operating Environment</b>			
7.1	The system offered shall be designed to be stored and to operate normally under the conditions of the purchaser's country. The conditions include Power Supply, Climate, Temperature, Humidity, etc.			
7.2	Power supply: 220 – 240 VAC, 50Hz fitted with appropriate plug. The power cable must be at least 3 metre in length.			
8	<b>Standards and Safety Requirements</b>			
8.1	Must submit ISO13485 or better for Medical Devices.			
8.2	Must submit European CE (93/42 EEC Directives) or USFDA approved product certificate			
8.4	Certified to be compliant with ANSI/IEC Medical Electrical Equipment—Particular Requirements for the Safety of Lung			

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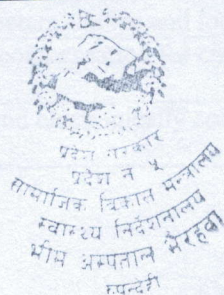


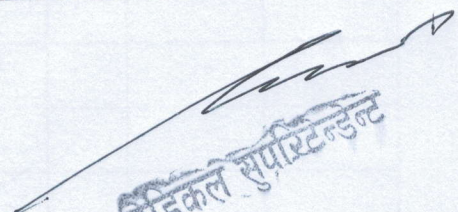
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	Ventilators—Critical Care Ventilators.			
<b>9</b>	<b>User Training</b>			
9.1	Must provide user training (including how to use and maintain the equipment).			
<b>10</b>	<b>Warranty</b>			
10.1	Comprehensive warranty for 2 years after acceptance.			
<b>11</b>	<b>Maintenance Service During Warranty Period</b>			
11.1	During the warranty period supplier must ensure planned preventive maintenance (PPM) along with corrective/breakdown maintenance whenever required.			
<b>12</b>	<b>Installation and Commissioning</b>			
12.1	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>13</b>	<b>Documentation</b>			
13.1	User (Operating) manual in English			
13.2	Service (Technical / Maintenance) manual in English			
13.3	List of important spare parts and accessories with their part numbers and costing.			
14.4	Certificate of calibration and inspection from factory.			
Bidder must completely fill the Technical Specification Form (TSF). Only Yes/no/all complies should not be written. Page number in the catalogue of all the required parameters must be clearly mentioned and highlighted. Failure in doing so may lead to rejection of bid from technical committee				

  
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