Kirtipur Municipality
Technical Specification for Oxygen Generation System/Plant

	Purchaser's Specifications	**Bidder's Compliance sheet**		
	Oxygen Plant	**Compliance Yes/No**	**Deviation (if any)**	**Corresponding page no. of data sheet/ catalogue in support of specification**
	Manufacturer			
	Brand			
	Type/ Model			
	Country of Origin			
1.	**Description of Function**:			
1.1	Microprocessor based Oxygen Generator System. a. Should be based on Pressure Swing Adsorption (PSA) technology			
1.2	The complete system should be installed and handed over to the respective site **within 2 weeks from the date of work order**			
2.	**Operational Requirement:**			
2.1	**PSA Oxygen Generator:** Should have generate oxygen purity: 95% $\pm$ 1%			
	Should have capacity **36 m^3/h** capable for 200 beds. (120 cylinders/day)			
	Should have Outlet pressure not less than **4 bar**			
	Should be heavy duty medical oxygen gas generator plant able to operate to work 24X7, 365 days.			
	Should have compressed air quality: ISO 8573.1 Class 1.4.1			
	Should feature an automatic restart after power failure function as required under DIN ISO 10083:2008-12			
	Must have non-corrosive materials like aluminum and stainless steel, as standard for all process component			
	Column Vessels: should be manufactured according to Pressure equipment directive and should be power coated and calculated for demanding unlimited load cycle requirement.			
	Should have adsorbent material of high quality, long life molecular sieve (ZEOLITE) with industry energy air factor. **Expected life time and warranty for ZEOLITE must be 10 years** and should be classed as a consumable exchange material and commitment of the same shall be provided by the manufacturer.			
2.2	**Compressor:**			

	Should be air cooled and oil injected rotary screw type with close coupled motor wound and class F insulation and temperature rise class B inlet air filter.			
	Model and motor capacity to be mentioned in the bid.			
	Should have integral oil separation.			
	Should have heavy duty, built in dust retention screen filter for air filtration			
	Should have efficient motor, a compact, durable, and low-maintenance with power approx. 45 KW.			
	With digital control display indicating Failure, LCD Display, Records at least 24 hrs. operation data.			
	High efficiency air cooler made in copper pipe for high heat transfer of the inlet air to the dryer less than 40º C / 45º C			
	Should have maximum Outlet pressure 8 bar.			
	Dedicated ventilation system for low operation temperature.			
	Should feature an automatic restart after power failure function as required under ISO.			
	Should be fully automatic monitoring and control			
	Must meet with the requirements of the standards. CE marked with the specified.			
	Must have "Traffic LED Light" indicators to show operational status at a glance			
	Noise level (at 1.5 mtr in front) should not be more than 70 dB			
2.3	**Compressed Air Dryer:** The compressed air system should be fitted with a refrigerant type dryer. Drying, staged filtration and purification to ISO 8573-1 class 1.4.1			
	Should have pressure dew point + 3º C or less			
	Should have Max. Pressure 14 bar			
	Maximum pressure loss should not exceed 0.1 bar.			
	Dryer with capacity of above mentioned NM^3/hr rating			
	With automatic restart after power failure			
2.4	**Filtration and Purification System:** Should have four stage air filtrations to remove condensates, dust, odors and other impurities in the compressed air			
	Should contain Activated Carbon bed for filtration.			
	Should have high class process filter be fitted to insure inlet and outlet gas quality.			
	Should have Inlet filtration: Super fine filter of 0.01 micron for particle filtration			

	Should have Outlet filtration: Dust filter for removal of less than 0.01mg/m3 ensuring air quality as per ISO.			
	Should have 3-micron size dust filter in the outlet filtration.			
	It should be mounted with electronic level-controlled condensate drains for energy saving			
2.5	**Air buffer tank:** Vertical design, made with mild carbon air buffer tank of not less than 1000 liters size and maximum permissible operating pressure of 10 bar.			
	Should be equipped with oxygen pressure gauge, oxygen safety valve, oxygen manual drain, inlet and outlet shut-off valve.			
	Should be inside and outside hot dip galvanized			
	Should be design criteria according to Directive 97/23/EC (PED)			
2.6	**Product Tank:** Should be equipped with oxygen pressure gauge, oxygen safety valve, oxygen manual drain, inlet and outlet shut-off valve.			
	Should have capacity not less than 1000 liter and maximum permissible operating pressure of 10 bar			
	Should be design criteria according to Directive 97/23/EC (PED)			
3	**Technical Specification**			
	Should have color touch control panel			
	High definition touch screen, featuring advanced control and monitoring functions, with continuous display and recording of oxygen purity, oxygen consumption, oxygen pressure, oxygen flow, outlet pressure, sensor value and display of alarms and trends			
	Should have onscreen message and remote desktop notification.			
	Should have facility for data export of all process values via Ethernet or USB.			
	Should have automatic service reminders for periodic maintenance due.			
	Should have solely angle **seat pneumatic process valves** with stainless steel body and piston stems which guarantee a reliable operation in long service life. The valves must be self-lubricating type with a fitted valve status indicator			

	Oxygen sensor should be ultrasound/ zirconium (or equivalent) sensor			
	Individual protection system against air humidity, loss of purity and power cut.			
4	The Oxygen generated from the system should be connected to the hospital manifold system.			
4.1	If plant fails to operate, in that case, oxygen should be automatically supplied through the manifold system			
4.2	If plant fails to provide desired output pressure, in that case, oxygen should be automatically supplied through the manifold system			
5	**Accessories, Spare Parts and Consumables**			
5.1	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).			
5.2	All hydraulic compressed air connections to be supplied. All connections of the oxygen network in stainless steel or copper with flexible systems or semi-rigid components to be supplied.			
6	**Operational Environment:**			
6.1	The complete system should be such as to function in the hospital environment that includes temperature, climate, humidity, altitude, mains power etc.			
6.2	a. Altitude: 1400 meter above sea level. b. Temperature: 0º C to 40 º C (min/max) c. Relative humidity max: 80%			
6.3	The system offered shall be designed to operate normally under the conditions of the purchaser's country. The operation of the equipment should be feasible to the specific geology/ location that includes Power supply, altitude, ambient temperature, pressure, humidity			
6.4	Power supply: 3 phase, 400 VAC and 1 phase, 220 – 240 VACs, 50Hz fitted with appropriate plug. The MCCBs, MCBs and required power cable must be installed by the bidder.			
7	**Warranty**			
7.1	**Authorization certificate from manufacturer of complete plant** is mandatory. Supply of components from different authorization letters is not accepted.			
7.2	Should have **2-years comprehensive warranty** inclusive of spare parts, accessories and consumables after installation			

7.3	Should have **3-years' service warranty** after completion of comprehensive warranty			
7.4	Commitment letter should be provided from the manufacturer guaranteeing the availability of spare parts for the next 10 years from the date of supply			
7.5	Price List of important spare parts, accessories and consumables which do not vary for the next 10 years from the date of supply			
7.6	AMC and CMC Proposal amount should be submitted along with the bid			
8	**Standards & Safety Requirements**			
8.1	Must submit ISO 9001, ISO 8573-1, ISO 10083 and ISO 13485 for Medical Devices **AND**			
8.2	CE (93/42 EEC Directives) or USFDA approved product certificate.			
8.3	Electrical safety conforms to standards for electrical safety IEC-60601-1 General Requirements and IEC-60601-2-25 Safety of Electrocardiograms.			
9	**Installation and Commissioning**			
9.1	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.			
9.2	**All the device of oxygen plant should be manufactured or supplied by the Single company and that are tested and verified by the same company**			
9.3	Room dimension and layout required for the installation			
10	**Maintenance Service During Warranty Period**			
10.1	During the warranty period supplier must ensure planned preventive maintenance (PPM) along with corrective/breakdown maintenance whenever required with timely replacement of accessories and consumables as mentioned in Service Manual			
11	**User Training**			
11.1	**Service training** to maintenance staffs at the operation site by factory trained engineers/ technicians.			
11.2	The Supplier shall conduct onsite **user training** for this equipment to enable operators to use the equipment properly. The training shall include the use of all operational functions of the equipment, as well as routine checks and maintenance expected by users.			
12	**Documentation**			

12.1	Service and User/Instructions manual shall be provided in English.			
12.2	Original Catalogue must be submitted			
12.4	Certificate of calibration and inspection from factory.			
12.5	Bidders must completely fill the Technical Specification Form (TSF). Only YES/NO/COMPLY should not be written. Page number in the catalogue must be clearly mentioned and highlighted. Failure in doing so may lead to rejection of bid from technical committee.			