

**ANNEX 2**

**NRC2022-015**

**Technical conditions book**

**Medical oxygen generating station**

**For the Red Crescent Hospital in Aleppo**

## **Technical Specifications**

**The purpose of the project:**

**to supply, install, operate and straining of staff of a single medical oxygen generation plant with technology (PSA) (Pressure Swing Adsorption)**

**To secure the hospital's need of medical oxygen with a purity (95% +/-1) and in compliance with international standards (ISO 10083-2008).**

## **The station must consist of the following parts:**

### **1. Compressor Generating Unit:**

- It must have a flow and pressure appropriate to the needs of the oxygen generating set.
- It must be of the helical type and the maximum operating pressure must be /10 / bar.
- It must be equipped with a tank to separate the oil from the air (tank).
- It must be equipped with refrigerant (after cooler).

### **2. Cyclone Filter:**

- and from the finest international brands and types specialized in this field.
- It must provide adequate flow and pressure for the operation of the air compressor.

### **3. Refrigerant Dryer:**

- The flow of the dryer must provide adequate flow and pressure for the operation of the air compressor.
- The dryer should operate at dew point +3.

### **4. PRE Filter:**

- It must ensure the purification of the compressed air from oils, vapors and solid particles of dust.
- It must meet the specifications required for compressed medical air.
- It must provide adequate flow and pressure for the operation of the air compressor.

**5. MICRO Filter:**

- It must ensure the purification of compressed air from oils, vapors and solid particles of dust.
- It must meet the specifications required for compressed medical air.
- It must provide adequate flow and pressure for the operation of the air compressor.

**6. OIL MAIT ADSORBER (Carbon Tower):**

- It must ensure the purification of the compressed air from fumes.
- It must meet the specifications required for compressed medical air.
- It must provide a suitable flow and pressure for the operation of the air compressor.

**7. MICRO Filter:**

- It must ensure the purification of compressed air from oils, vapors and solid particles of dust.
- It must meet the specifications required for compressed medical air.
- It must provide adequate flow and pressure for the operation of the air compressor.

**8. PUR Medical Pure Air Tank:**

- The tank capacity should be 1500 liters.
- It must be made of painted steel.
- It must bear the pressure of work and experimentation.
- It must be specially manufactured for storing medical air.
- The tank must be equipped with all the necessary accessories to perform its work well and monitor its pressure.

## **9. Pure Oxygen Generating Unit:**

- This unit must provide a flow of pure medical oxygen not less than (40 Nm<sup>3</sup>/h) at an oxygen pressure of 6 bar and an oxygen purity of 95%.
- The purity of oxygen flowing from this unit must be not less than 93%.
- The unit must be equipped with a control panel that shows the reading of the purity of the medical oxygen generated and the pressure of the medical oxygen generated.
- The unit must be equipped with a sensor to measure the oxygen percentage with accuracy from 0-96% and the type Zirconia Sensor Technology which is characterized by the long life of the sensor.
- The unit must be equipped with a mechanism to cut off the flow of oxygen from the hospital in case the purity percentage drops below the permissible limit, with an appropriate warning given.
- The unit must be equipped with a special device (exhaust to expel gas nitrogen out of the room, a silencer).

## **10. PUR Medical Pure Air Tank:**

- The tank capacity should be 1000 liters.
- It must be made of painted steel.
- Must withstand work pressure and experimentation.
- It must be specially manufactured in order to store medical oxygen.
- The tank must be equipped with all the necessary accessories to perform its work well and monitor its pressure.

## **11. The final filter (bacterial filter) at the outlet of the oxygen tank M0 STERIL FILTER:**

- It must provide the required flow.
- It must meet international standards for the purity of oxygen from bacteria types.

**note:**

- All components of the pure medical oxygen generating station with PSA technology must be from the finest international brands and types specialized in this field and assembled by a company specialized in this field such as the European **OXYMAT** company or equivalent.
- The supplier must undertake the installation, maintenance and training of technical personnel
- Pre-Installation and installation: Supplier must indicate explicitly the following aspects to match infrastructure capabilities within the health facility:
  - Acceptable mains capacity.
  - Appropriate connections/adaptors.
  - Compatibility with back-up power supply (e.g., generator).
  - Compatibility with housing for the plant.
  - Infrastructure requirements for operation e.g., roofing, ventilation, air conditioning, room requirements without oil, grease and petroleum-based or other flammable products.
- Warranty:
  - Life span designed for minimum of 10 years; guaranteed by a letter from the manufacturer.
  - Warranty 48 months, with option to extend.
  - Agreements of terms of warranty and maintenance contract.
- Maintenance agreement, during warranty period:
  - Preventative maintenance parts and kits during warranty period must be included. The system should establish the costs for preventative a corrective maintenance and spare parts for a period of a least 48 months from date of installation.
  - Manufacturer must propose the maintenance routines and the predetermined system for procuring spare parts that are brand/model related.

Supplier Name:

Signature:

Stamp:

Date: