

# MEDICAL GAS PIPE LINE SYSTEM

## **AUTOMATIC MANIFOLD FOR OXYGEN.**

The Manifold shall be a fully automatic type & shall switch from “Bank in Use” to “Reserve” bank without fluctuation in delivery supply line pressure & without the need for external power after the switch over the “Reserve” bank shall then become the “Bank in Use” and the bank in use shall become the reserve bank. The system should be able to maintain continuous supply in case of power failure.

- Fully automatic self-contained shuttle-valve/ Solenoid-valve with no electrical power required for switching.
- Microprocessor controlled display unit for monitoring of different parameters and loggings (if the design/standard (latest version) allow for this requirement; otherwise the system standard design with standard design requirements will be followed)
- LCD / LED display for the left bank, the right bank for the supply pressure. Complete with relief valve, Emergency shut off valve and battery / bank room alarm for left and right cylinder bank.
- Equipped with NIST Connection

## **CAPACITY:**

1. **To be decided in the pre-bid meeting** compliance with MTH standards complete with two-way valve having handing valve over each Cylinder plus high pressure standard pig Tail connections plus high quality single stage imported Regulator.

## **GAS OUTLETS (BS SYSTEM)**

Gas outlets, complete in Box/casing gas Specific, Self-sealing valve, indexed to eliminate interchangeability /erroneous tapping of gas, Filter, and cover plate as per Standard Design requirements of the bidder with following color coding.

Oxygen White

Compressed Air 4 bar Black/ B&W Stripes

## **BED HEADS UNIT FOR ICU/HDU (local with imported parts)**

- Each unit consists of: 1500 mm and above
- Horizontal type
- Built in over bed Light with ON/OFF switch.
- Built in reading Light with ON/OFF switch.
- Provision for Nurse Call/ Alert Button
- Gas outlets (2x Air, 2x Oxygen complete fitted)
- Electrical provisions;
- Electrical sockets: 3 Nos. All wiring conforms to standards, ground/earth
- Separate ducts for Electrical & Gas Pipes.

## **ALARM AREA WITH REMOTE SENSORS FOR TWO GASES**

Supply and installation of Alarm System for different gases with both Visual as well as Audible alerts are available in system, which indicate normal and low pressure of Medical Gases. Hold & press for Mute / Silence (Locally made with imported instruments and imported both should be quoted)

#### **MULTIPLE ZONE VALVE BOX FOR TWO GASES**

Supply & installation of Medical Gases Zone Valve Service Unit including shut-off valve with complete box & fittings (Locally made with imported instrument and imported both should be quoted)

#### **OXYGEN & AIR FLOW METER**

Oxygen flow meter with humidifier and probes Oxygen Flow meter complete set from 1 to 15 lpm or better with autoclave able and unbreakable humidifier bottle for neonate / Paeds (0-6 lpm)

#### **COPPER PIPING AND FITTING ACCORDING TO THE EN 13348**

Supply and installation of seamless medical graded copper pipe deoxidized and degreased along with required fitting etc., various sizes /diameter as per Drawing of the project and Design standard of the bidder with matching color indications of out lets. The sizes will vary from 12mm, 15mm, 22mm, 28mm,35mm, 42 mm & 54 mm as per design. Supply & Installation of 18 gauge seamless Copper pipe for Medical Gases System, includes supply of all Fittings accessories, clamps & Supports as per Standard HTM. Certificates from PQSCA must be required in case of local pipe.

Oxygen White

Air Black/ B&W Stripes

#### **VENTURI SUCTION ADULT/PEADS**

Air Venturi suction regulator having minimum suction capacity of 15l/min or better with minimum 2 Liter Unbreakable Jar for each Bed Head. Noise level should be less than 65dB.

#### **MEDICAL COMPRESSED AIR STATION**

Medical Air Plant with Breathable Air. Elimination of Toxic Gases such as carbon dioxide, Nitrogen dioxide, Nitrogen monoxide, Carbon monoxide; and other pollutants. Air compressors with following capacities are required.

#### **RESERVOIR**

- Compatible medical grade.
- Air receiving tank as per actual requirement according to manufacturer.
- Vertical type.
- Air receiving tank **1,000 L**. or as per actual requirement.
- Galvanized internally with auto drain.
- Minimum 10 bars output pressure of tank.

## AIR DRYER

S. No	Compressor Requirement
1	<p><b>To be decided in the pre-bid meeting</b> air compressor complete system with dryer, filter and regulator.</p> <ul style="list-style-type: none"><li>• Reciprocating/ Screw/ Scroll type.</li><li>• Mounted on anti-vibration base.</li><li>• Oil Free (Line will be oil free)</li></ul>

- Desiccant type.
- Dew point monitoring on LCD Panel
- Capacity suitable according to the compressor output.
- Including oil water separator.

## FILTRATION SYSTEM

- Clean Medical Grade Air supply in accordance with the requirements of HTM/ISO standards.
- Consisting of Pre-filter / humidity, Oil free and sterile/bacteria filter.
- Mounted with shut-off valves on an assembly panel.
- Parallel Connections of the filters. This will make it possible to exchange filter without interrupting the air supply.
- Flow / filtering rate according to the compressed air output.
- Parallel Connections of the filter make it possible to exchange a filter without interrupting the air supply.

## REDUCER PANEL COMPRESSED AIR

- Parallel switched reducer with gauge, safety valve, pressure switch for high and low Pressure and shut off valve with assembly panel size 5+ 8 bar.
- Complete with distribution block according to requirement, Incl. Shut off valve and pressure gauge for every distribution block, complete assemble panel with incoming and outgoing copper pipe for complete system.

## CONTROL

- Complete with 1x main warning system for compressed air for visual and acoustic monitoring of alarms conditions for the compressor room.
- Test point in the system for air quality.
- 1x switch cabinet for automatic Unit incl. All necessary fitting and installation material for smooth running of the system without any interruption.

## POWER:

Power Supply- 1-Phase/3 Phase, 220V (50Hz)/380 – 400V (50 Hz.)

**Brand New Oxygen Cylinder 240 Cft BOC or equivalent tested**

240 cft Medical Cylinder O<sub>2</sub>

Nominal Capacity: 6800 ltrs / 240cft

Nominal Pressure: 200 Bar or better

Bull nose valve

A handle wheel with transport safety cap shall be supplied with the cylinder.

BS specification With Color code standard.

**Liquid Oxygen Tank Requirement**

Liquid Oxygen Tank for continuous oxygen supply is mandatory.

**For 50 beds Hospital: 5000 Liters Liquid Oxygen Tank shall be installed.**

**For 100 beds Hospital: 10000 Liters Liquid Oxygen Tank shall be installed.**

**SPECIAL TERMS & CONDITIONS:**

1. All equipment must be according to international safety standard.
2. The color of outlets, for recognition will be BS type for all the system Equipment.
3. Low pressure visual and acoustic alarms must be present on nursing counter and main operating room.
4. Civil work required for manifold etc. to be done by the bidder.

**Note: quantities can be increase /decrease as per requirement and Budget amount.**

**TECHNICAL EVALUATION CRITERIA FOR CENTRAL OXYGEN  
SUPPLY FOR THE YEAR 2020-2021**

(Maximum Allocable Marks Score = 70 marks)

**Technical Evaluation Criteria for the Purchase of Central Oxygen Supply for FY 2020-  
2021**

Firm Name: \_\_\_\_\_  
\_\_\_\_\_

Bid Reference No:

<b>S. No.</b>	<b>Description of Variables</b>	<b>Allocated Points/Marks</b>
<b>A</b>	<b>Product / Manufacturer Evaluation Parameters</b>	
1	Product General Information	
1.1	Name of equipment	
<b>2</b>	<b>Conformance to Specification</b>	
2.1	Fully compliance with the required specifications as per Statement of Requirement.  Minor deviations may be accommodated up to 4, subject to the condition that main function and performance in any aspect would not be affected. More than 4 minor deviation will be considered as major deviation and the bidder will be considered as non-responsive for the quoted item. (One mark for each deviation will be deducted).	20
<b>3</b>	<b>Product International Certification</b>	
3.1	Certificate of US Food and Drug Administration (USFDA) of the quoted model.	5(25)

3.2	Certificate of European community Medical devices directive (CEMDD) of the quoted model.	5(30)
<b>4</b>	<b>Manufacturer Performance</b>	
4.1	Valid ISO 13485 Medical Devices Quality Management Systems Certificate for Quoted model.	3 (33)
4.3	ISO 9001 Quality Management Certificate from IAF (International Accreditation Forum).	3 (36)
<b>5</b>	<b>After Sale Product Local Performance</b>	
5.1	One mark for each after sale satisfactory performance certificate (verifiable) on letter head, signed and stamped letter for the quoted model or previous provided model of equipment from the public sector medical institution of Pakistan.  Supply Order / Purchase Order / Installation reports / Delivery challan will not be considered as satisfactory performance certificate.	5(41)
5.2	One mark for each after sale satisfactory performance certificate (verifiable) on letter head from private sector medical institution of Pakistan. The hospital must be recognized from Pakistan Medical and Dental Council (PMDC). The satisfactory performance certificate of non-recognized institution from PMDC will not be considered.  Supply Order / Purchase Order / Installation reports / Delivery challan will not be considered as satisfactory performance certificate.	4(45)
<b>6</b>	<b>Warranty</b>	
6.1	Warranty Period of three years both with spare parts and services & Next two-year services only without parts, from the date of Installation / Commissioning.	No marks, being Mandatory Parameter
<b>A</b>	<b>Total score of the Product / Manufacturer Evaluation Parameters</b>	<b>45</b>
<b>B</b>	<b>Firm Evaluation Parameters</b>	
<b>1</b>	<b>Firm Which can complete the mentioned work within 30-40 days shall bear extra five marks</b>	<b>5</b>

<b>1.1</b>	<b>Firm which can also provide liquid oxygen tank shall be given extra three marks</b>	<b>3</b>
<b>1</b>	<b>Personnel/Human Resource</b>	
1.1	Diploma of Associate Engineer (DAE) in electrical / electronic / biomedical / mechatronics / mechanical / industrial. DAE certificate must be submitted. (1 mark for each certificate)	3
1.2	Engineer with PEC Registration in electrical / electronics, biomedical / mechatronics / mechanical / industrial. PEC registration card of the engineer must be submitted. (2 marks for each Engineer)	6 (8)
1.3	BSc (Hons) Electronics /MSc Electronics / B-Tech (Hons) in electrical / electronic / biomedical / mechatronics / mechanical / industrial. Degree of BSc / MSc / B-Tech (Hons) must be submitted. (1 mark for each)	2 (10)
1.4	Factory trained technical staff on the quoted Products. (To be verified from the visa and passport)	1 (11)
<b>2</b>	<b>Workshop facility Testing/ Calibration tools of Equipment</b>	
2.1	Availability of workshop in Khyber Pakhtunkhwa to be verified with Ownership / Rent Agreement with Owner / Rent Agreement with Company Name.	Mandatory
2.2	Availability of workshop at National level to be verified with Ownership / Rent Agreement with Owner/ Rent Agreement with Company Name.	2(13)
<b>3</b>	<b>Firm Financial Strength</b>	
3.1	Marks will be allocated on the basis Annual turnover 100 M or above will be awarded 3 mark in last 3 years. Rs.50 to Rs.99.9 M will be awarded 2 marks in last 3 years. Less than Rs.50M will be awarded 1 marks	3(16)
3.2	Sale tax returns for the last three years (1 mark for each year).	3(19)
3.3	Last three years Audited Balance Sheet Duly attested by Chartered Accountant (1 mark for each year).	3 (22)
<b>4</b>	<b>Firm Registration</b>	

4.1	Firm registration at relevant forum (SECP/Registrar of Firm/FBR).	Mandatory
4.2	Firm registered with any Provincial Revenue Authority. KPRA (Khyber Pakhtunkhwa Revenue Authority), PRA (Punjab Revenue Authority), BRA (Balochistan Revenue Authority), SRB (Sindh Revenue Board).	1 (23)
4.3	Firm registered with DRAP (Drug Regularity Authority of Pakistan) to import / manufacture of medical devices where applicable.	1(24)
4.4	Valid ISO 9001 Quality Management Certificate of the firm from IAF.	1(25)
<b>B</b>	<b>Total Score of the Firm Evaluation Parameters</b>	<b>25</b>
<b>A+B</b>	<b>Total Score (A + B)</b>	<b>(45+25) = 70</b>