Medical Oxygen Generating System

Presents

MOGS
RELIABLE, ECONOMICAL & NATURAL OPTION

Hospitals all over the world are realizing that on-site oxygen generation provides a highly reliable and economic solution for their oxygen requirements. Eliminate the expense of purchasing, receiving, and monitoring your hospital's oxygen supply. Costly overstock, manual handling injuries and expensive emergency cylinder deliveries all add to the expense.
Why and What is MOGS?

- It is a new source of oxygen to the entire hospital
- It does not involve any third party, for supply
- The production depends on need, results in no wastage and expiry.
- Very cost effective compare to all existing sources.

- Oxygen produced by this system will confirm to United States Pharmacopeia (USP) XXII oxygen 93% (+-3) monograph.
- Hazardous risks of very high pressure, explosive and highly inflammability can be avoided using MOGS.
An OGSI Oxygen Generator is an on-site oxygen generating machine capable of producing oxygen on demand in accordance with your requirements. In effect, it separates the oxygen (21%) from the air it is provided and returns the nitrogen (78%) to the atmosphere through a waste gas muffler. The separation process employs a technology called Pressure Swing Adsorption (PSA). At the heart of this technology is a material called Molecular Sieve (Zeolite). This sieve is an inert, ceramic-like material that is designed to adsorb nitrogen more readily than oxygen. Each of the two beds that make up the generator contains this sieve. The process is described below.
Stage 1
Compressed air is fed into the first molecular sieve bed. Nitrogen is trapped, while oxygen is allowed to flow through.

Stage 2
When the sieve in the first bed becomes full of nitrogen, the airflow is then directed into the second bed.

Stage 3
As the second bed separates the oxygen from the nitrogen, the first bed vents its nitrogen into the atmosphere.

Stage 4
Compressed air is once again fed into the first bed and the process is repeated continuously. A constant flow of oxygen is produced.

STAGES OF PSA
Process involved in PSA O2 Generation

1. SCREW COMPRESSOR
2. Air RESERVOIR
3. REFRIGERATING UNIT
4. O2 RESERVOIR

- Cyclone separator with auto drain (1)
- 0.1 micron particulate filter
- 0.01 micron activated carbon filter
- Auto drains (2 & 3)
- 0.01 micron activated carbon filter with auto drain (4)
- To Central Line
Actual Images for virtual perception
Actual Installation
Technology Specification To Match The Feed Air Standards

• We provide the feed air matching ISO8573.1 Quality Class 1.4.1
• This class of air has a low dew point of 35 °F
• 99.99% water molecules are removed at various stages through the Eco-drain mechanism.
• The fine and carbon activated filters removes 99.999% oil aerosols and all solid particles larger than 0.01microns
• The feed air will be odor and taste less.
• This Air Standard is used for Food, and pharmaceutical industries.
MOGS provides uninterrupted O2 to your Hospital

- The MOGS Plant ensures the availability of O2 on 24x7.
- No manual attention required to ensure the availability of O2.
- Our “Smart PP Admin” always ensures that correct purity and pressure at your outlet port ‘s.
- “PP Admin +” provides one push change over to high purity sources.
Overview of “SMART PP ADMIN”

Fully Automatic

MOGS systems are made with the proper reserve capabilities, monitoring and alarm systems to meet local safety requirements. In the unlikely event the system deviates from its pre-set limits, it automatically switches to the secondary oxygen supply. The system's alarm calls attention to the problem so that corrective service can be performed. Each system can be operated without extensive technical knowledge or training.
Why MOGS quality is better than other O2 production technologies

- OGSi Oxygen Generator use molecular sieves (Zeolite) as adsorbent to separate oxygen from air. It adsorbs nitrogen, CO2, CO, Hydrocarbons, water. i.e. It attracts all polar molecules.
- This is the reason that CO2 & CO in the PSA generated can not exceed 1 PPM, Which is far less than 5 to 50 PPM that you find in cryogenic oxygen.
- There are no chemical residues left out in this process compared to other O2 generation process,
- Quality class is visible onsite than trusting an unknown source.
How MOGS is better than Liquid Oxygen?

- **Space**: Does not consume bigger space like Liquid oxygen which requires at least 225 Sq. Ft. to 3000 Sq.Ft. or more at **empty space**.

- **N.O.C.**: It is not required to take NOC from Chief controller of explosive, to install our system because it is not hazardous & inflammable as liquid oxygen is.

- **Cost**: It is one time installation cost. There is no monthly rental and fluctuation in price.

- **Losses**: There are no heat transmission, evaporation & leakage in our system.

- **Transportation**: Truck entering in hospital premises raises issue of safety.

- **Low Temperature**: The low temperatures of oxygen from liquid plant can produce cryogenic burns and frostbite to the patients where long time ventilation required.
Why MOGS is better than Cylinder Oxygen?

- **Cost saving**: Saves 60 to 80% cost on oxygen.
- **Safety**: System is safer than cylinder oxygen.
- **Purity**: One cannot assure purity of oxygen in cylinder, from being unorganized suppliers.
- **Filled capacity**: Capacity filling level always???
- **Prevents losses**: 10% is always a loss before change over.
- **Less manpower**: Cylinder system needs 3 people in 8 hours shift to change cylinder banks.
- **Reduces overheads**: Stock maintenance, billing etc. involves cost.
MOGS matches the following Certifications

93% Oxygen for Medical use

OGSI's hospital oxygen equipment is designed and fabricated in accordance with all pertinent codes (ASME, ANSI, NEMA, CE), and can be configured to meet most relevant CRN, ISO, HTM and CSA standards. Oxygen produced meets the United States Pharmacopeia (USP) XXI Oxygen 93% Monograph as well as European and Indian Pharmacopeia.
The Imported Oxygen generating system of MOGS has the following certification to ensure its quality.
About the heart of MOGS (OGSI - USA)

As a premier oxygen generator manufacturer, Oxygen Generating Systems Intl. (OGSI) offers complete systems for oxygen generation, storage, and distribution. Operating in over 70 Countries, OGSI has the engineering and manufacturing experience to meet the facility's needs.

OGSI's Medical Oxygen Generators can directly supply the hospital house supply line, fill cylinders to provide backup, and/or supply for over peak demands. OGSI designs, builds and installs turn-key medical pressure swing adsorption (PSA) oxygen systems worldwide. Our hospital oxygen generating equipment is fully automated, easy to maintain, and produces a continuous flow of medical grade oxygen.

Economical
A modest capital investment in an OGSI oxygen system can result in up to an 80% reduction in your facility cost of oxygen. Our oxygen systems average only 3 to 4 kilowatts of electricity per 100 cubic feet of oxygen produced. Most OGSI oxygen systems pay for themselves within a short period of time.
Note: These are the standard model specifications. Machines can be modified to increase the flow or delivery pressure from them by 15-20%.

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"Wide range of OGSI makes the MOGS to cover from a small clinic to the biggest Multispeciality".
### Sample viability calculation for OG-250 (24 cylinders)

#### Monthly expense of cylinders if it is 24.

A ‘D’ type cylinder connected to the manifold can supply 7cum of O2. But due to residual left out it cannot be utilized in 100%.

In most of the cases cylinders are not filled to 150bar.

- Cost of a cylinder **Rs.- 250/-**
  - (Rental charges of cylinder not included in viability, it has to be included if paid)

<table>
<thead>
<tr>
<th>Total monthly expense for cylinder</th>
<th>(No. of cylinder per day) X (31 days) X (cylinder cost)</th>
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<tr>
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<td>= 24X31X250 = <strong>1,86,000/-</strong> (A)</td>
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#### Monthly expense of our MOGS plant

- **Power rating of our MOGS plant is 9 KW (compressor under load)**

Power consumption per month (in units)

(Number of hours the compressor under load) X (0.9 X Power rating) X (No of day in a month)

= 22HRS X 0.9 X 9KW X 31days = **5524units**

- **Per unit cost including all taxes Rs.8/-**

Total cost of power consumed per month

5524 X 8 = Rs. **44192/-** (B)

- **Total savings per month**

(A)-(B) => 1,86,000 – 44192 = **1,41,808/-**
**Sample viability calculation for OG-250 (24 cylinders) cont....**

There for on using the MOGS system, monthly saving comes to Rs. **1,41,808/-**

<table>
<thead>
<tr>
<th>Savings in first year</th>
<th>Rs. 1,41,808/- X 12 months</th>
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<tbody>
<tr>
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<td>=&gt; Rs. <strong>17,01,696/-</strong></td>
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<tr>
<th>Savings from second year onwards</th>
<th>(Rs. 1,41,808/- X 12 months) – CMC cost</th>
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<tr>
<td></td>
<td>=&gt; Rs. 17,01,696 - 1,00,000</td>
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<td>=&gt; Rs. <strong>16,01,696/-</strong></td>
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Investment cost of the MOGS system OG-250 => **Rs. 29,15,000/-**

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<th>Saving in first 2 years</th>
<th>=&gt;Rs. 17,01,696 + Rs. 16,01,696</th>
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<tr>
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<td>=&gt;<strong>Rs. 33,03,392/-</strong></td>
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**Conclusion**
The viability shows that the investment cost of the entire MOGS plan can be recovered in less than 2 years time. From 3rd year onwards the plant starts yielding the hospital.
Thank You