

Working Principle of Medical Oxygen Concentrator



If a person has respiratory problems such as asthma, chronic obstructive pulmonary disease, lung disease or when undergoing surgery and some other problems, the level of oxygen in the person's body often becomes low. For such a person, doctors often recommend the use of supplemental oxygen. The recent COVID outbreak has also made us aware of the use and importance of medical oxygen.

Unprecedented times have taught us that it is rarely available to those who need it most. And, even when it is available somewhere, it is often expensive and generally

troublesome for the least fortunate (India experienced a terrible shortage of ICU beds or ventilators in the COVID-19 pandemic). This is why all medical centers must develop medical oxygen systems and install on-site gas generators to provide an uninterrupted supply of oxygen whenever needed.

PSA (Pressure Swing Adsorption) technology is a practical option for the on-site generation of oxygen for medical use. It has been used in the medical industry for over 30 years.

What is an oxygen concentrator?

Oxygen generator equipment uses a bed of molecular sieves to separate pure oxygen from the atmosphere and distribute air to people with low blood oxygen levels. On-site oxygen concentrators are cost-effective and more efficient than traditional oxygen tanks. Learn how medical oxygen generators work and the main components of these generators.

How do medical oxygen generators work?

An oxygen generator is like an air conditioner in our homes, it takes in air, changes it and delivers it in a different form (cold air). Medical oxygen is produced from ambient air and delivered to people who need oxygen due to low oxygen levels in their blood. In the past, medical facilities relied mainly on oxygen cylinders and dewars, but since the development of technology, hospitals and nursing homes prefer on-site medical oxygen generators because they are cost effective, efficient and safe to handle.

The working process of a medical oxygen generator

1. The generator obtains air from the atmosphere.
2. Compress the oxygen.

3. Remove the nitrogen from the air.

4. Adjust the way of gas delivery.

5. Deliver the purified air to the user.

The main components of oxygen generator

Air compressor: It helps to push the room air into the machine and push it into the molecular sieve bed.

Filter: The filter helps to filter out the impurities from the air.

Molecular sieves: There are two molecular sieve beds in the plant. These sieves have the ability to trap nitrogen gas.

Switching valves: These valves help to switch the compressed air flow between the molecular sieve towers.

Flow meter: Helps to set the flow rate in liters per minute.

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