



## YOUR PARTNER FOR ALL YOUR AIR & GAS NEEDS

Are you still using dangerous high pressure N2 Cylinders or Liquid N2???



**Install our Latest PSA Technology based Onsite safe Nitrogen Plant Operating at Medium Pressure and Normal Temperature**



- ✓ Easy to install and maintain
- ✓ Generates Nitrogen as and when required.
- ✓ No dependency on outside source.
- ✓ Fully Automatic Operation requiring no special attention
- ✓ Proven Technology.
- ✓ Purity of Nitrogen up to 99.9999% can be achieved
- ✓ Generates Nitrogen at almost 1/10<sup>th</sup> cost of cylinder nitrogen
- ✓ More than 10000 Plants based on PSA Technology operating successfully in India and abroad.

### Our other Products:



PSA O2 Plant



Amm. Cracker



HL Dryer



HOC Dryer



SFNPL Dryer

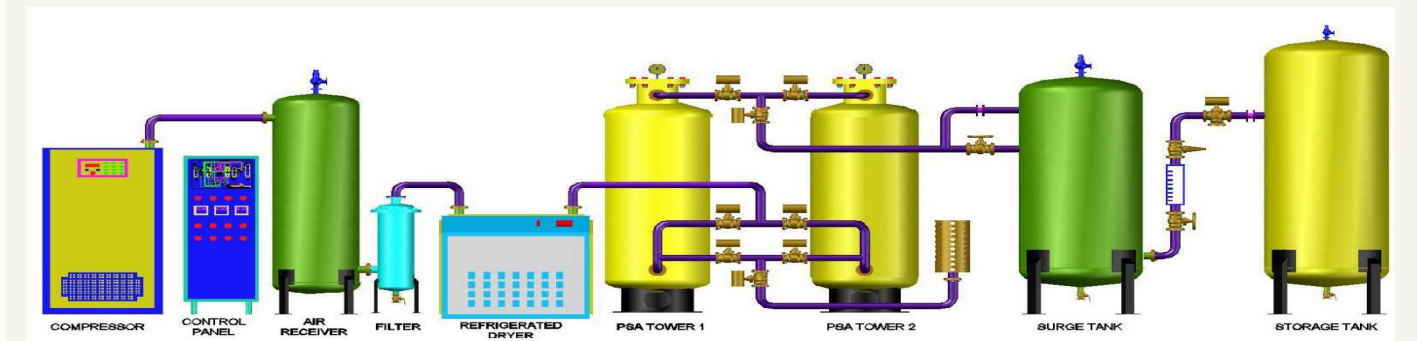


Refrigerated Dryer



Bio Gas Dryer

## Principle of operation:

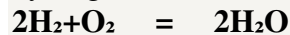


The compressed air is passed through a Twin Tower PSA module interconnected with automatic changeover valves. After passing through this bed of Activated Alumina air gets dried. Supply of dry compressed air from this layer of desiccant (activated alumina) will be continuous without any interruption. Dried compressed air will now come in contact with bed of carbon molecular sieves (CMS). Carbon Molecular Sieves are special grade of adsorbent which have the property of preferential adsorption of oxygen molecules. At a time one tower remains under nitrogen production cycle, whereas the other tower undergoes regeneration which is achieved through depressurization of the tower to atmospheric pressure. The two towers of PSA modules are inter-connected with automatic changeover valves through pneumatic signal given by solenoid valve which in turn get the electrical signal from the timer provided in the control panel. The changeover time cycle will be 1 + 1 minute. The outgoing nitrogen gas is sent to a surge vessel where the minimum nitrogen pressure will be maintained with the help of Back pressure Regulator. The product nitrogen will now be sent to the consumer point through a pressure reducing valves at required pressure. For High Purity & ultra-high purity Nitrogen De-oxo Unit is provided.

## Palladium De-oxo Unit for High Purity Nitrogen



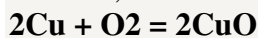
This is provided to remove oxygen in raw nitrogen from PSA Unit by chemically reacting with hydrogen. In presence of palladium catalyst the oxygen reacts with hydrogen and forms water



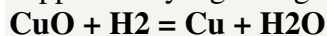
The moisture is further removed in a Molecular Sieve Based Dryer

## Cu De-oxo Unit for Ultra High Purity Nitrogen

Alternately where hydrogen in product nitrogen is not acceptable, Copper De-Oxo units are used. In this system, one tower remains in the Oxygen removal cycle, whereas, the other tower undergoes regeneration of the catalyst



During regeneration the spent catalyst i.e. CuO is converted back to copper by injecting Hydrogen – Nitrogen mixture in the tower under regeneration, so that copper catalyst gets regenerated as per following reaction:



## **AIR-N-GAS** PROCESS TECHNOLOGIES

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