

Committed To Quality

**MAAAS AIR-N-GAS** TECHNOLOGIES PVT. LTD.



MANUFACTURER OF GAS SEPERATION SYSTEMS & AIR DRYER



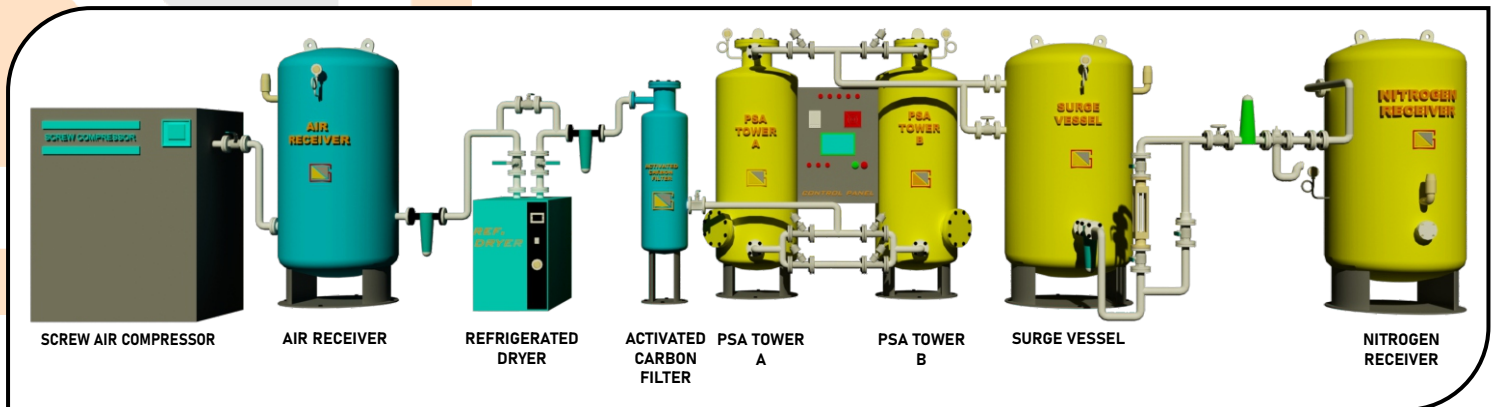
**PSA Nitrogen Generation Plant**

## What is PSA Based Nitrogen Generation Plant??

PSA (Pressure Swing Adsorption) Technology a revolution in Non Cryogenic Air Separation and Nitrogen/Oxygen Generation Technology by the use of special grade of Molecular Sieve. The Compressed air is passed through a Twin Tower PSA module interconnected with automatic changeover valves. At a time one tower remains under Nitrogen/Oxygen production cycle, whereas the other tower undergoes regeneration which is achieved through depressurization of the tower to atmospheric pressure.



## Process Description for PSA Nitrogen Plant :



The compressed air is passed through a Twin Tower PSA module interconnected with automatic change over 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). Molecules of oxygen, moisture & other unwanted gases are adsorbed on surface of C.M.S and Nitrogen which is not adsorbed by C.M.S comes out of adsorption tower. The two towers of PSA modules are inter-connected with automatic changeover valves. The outgoing pure gas is sent to a surge vessel where the minimum gas pressure will be maintained with the help of back pressure Regulator. The product gas will be sent to the consumer point through a pressure reducing valves at required pressure

## Some Salient Features of PSA Nitrogen Plant :

- Fully Automatic Operation no special Attention Required
- Manless Operation
- Generates Nitrogen as and when required
- Easy to install and maintain.
- Purity of Nitrogen up to 99.9999% can be achieved.
- Generates Nitrogen at almost 1/10th cost of cylinder nitrogen
- Based on proven PSA Technology operating successfully in india.
- Low power consumption
- Easy & smooth start up
- Digital continuous purity indicator with electro-magnetic sensor.

## 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

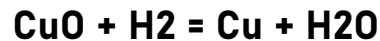


## Cu De-oxo Unit for Ultra High Purity Nitrogen

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:



## Applications of PSA Nitrogen Plant



Metalurgical industries  
(To provide inert Atmosphere)

Synthetic & fiber industries



Chemical industries  
(Nitrogen Blanketing)

Eletronic industries

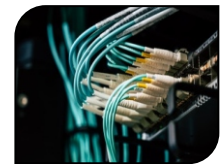


Food Packing industries



Pharmaceutical industries

Optical fiber industries



Tyre Inflation  
(Longer life & low seepage of air)

# MAAS AIR-N-GAS TECHNOLOGIES PVT. LTD.

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