



# Nitrogen Engineers

Purifying Nitrogen Since 1997 ....

**Nitrogen/ Oxygen Gas Generators,  
Ammonia Crackers, Air/Gas Dryers,  
High Pressure Vessels, etc...**

**Applications:**

- Oil and Gas
- Pharmaceuticals
- Bulk Drugs Manufact.
- Chemicals
- Textile
- Fertilizers & Pesticides
- Steel
- Pesticide
- Food & Beverages
- Semiconductor
- Electronics
- Cement , Etc.

Visit us at : [www.nitrogenengineers.com](http://www.nitrogenengineers.com)

## ➤ How Pressure Swing Adsorption Works?

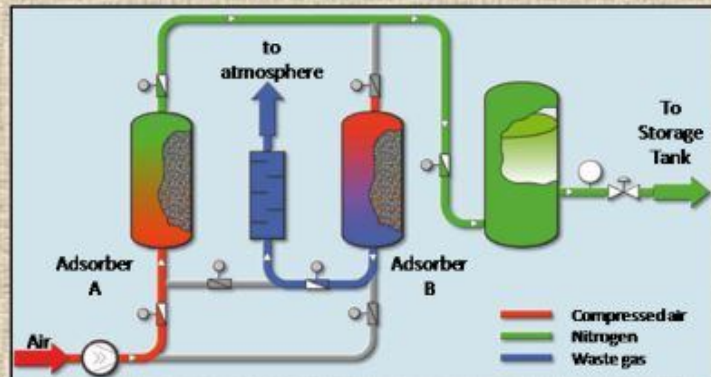
The Nitrogen Gas Generation takes place in two adsorber towers which are filled with Carbon Molecular Sieves .....

The PSA process cycle consists of two key mechanisms:

- Pressurisation/adsorption
- Depressurisation/desorption



Carbon Molecular Sieves



At the beginning the cycle one adsorber bed (A) is being pressurised and the other adsorber bed (B) is undergoing depressurisation, the description of the PSA process cycle is as follows:

As compressed air enters adsorber bed A, moisture, oxygen, and carbon dioxide are adsorbed. After operating pressure is reached, nitrogen product flows from adsorber bed A into a nitrogen product receiver prior to entering the product piping. Simultaneously, adsorber bed B is depressurised to atmospheric pressure.

Upon completion of nitrogen production from adsorber bed A, an equalisation step occurs in which equal pressure is maintained in both the adsorber. During this step, air is not consumed nor is product gas generated. Therefore a nitrogen receiver is applied to allow for a constant flow, purity and pressure of the nitrogen product throughout the PSA cycle.

Now Adsorber bed A then undergoes depressurisation and the oxygen enriched waste gas is vented to the atmosphere. At the same time, adsorber bed B is pressurised, and begins its nitrogen production portion of the cycle.

And nitrogen generation cycle continues.....

## ➤ Range Of Our N2 Generators:

MODEL NAME	NE-CN	NE-SN	NE-SHN	NE-UN	NE-MN
Flow Rate	1-1000 Nm <sup>3</sup> / hr	1-1000 Nm <sup>3</sup> / hr	1-1000 Nm <sup>3</sup> / hr	1-1000 Nm <sup>3</sup> / hr	1-1000 Nm <sup>3</sup> / hr
Nitrogen	98-99.5%	99.5-99.99%	99.99-99.999%	~100%	98-99.5%
Oxygen	Balance	Balance	Balance	< 3 ppm	Balance
Dew Point	(-)40°C To (-)80°C	(-)40°C To (-)80°C	(-)40°C To (-)80°C	(-)40°C To (-)80°C	(-)40°C To (-)80°C



A. NE-SHN Nitrogen Generator  
Purity: 97% to 99.999



B. NE\_UN Nitrogen Generator  
Purity: < 3 PPM

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## ➤ Oxygen Gas Generator:

They also work on adsorption process like Nitrogen Gas Generator but Zeolite based Molecular Sieves are used instead of CMS. Such kind of the plant is generally installed in the Copper smelting, Sewage treatment Industry and paper industry etc. Our medical oxygen concentrator provide oxygen suitable for hospital use. It avoids the dependency of the hospital on the oxygen cylinder and that too on quite cheaper cost.

**Model Name: NE-10**

**Flow Rate: 1 to 1000 Nm<sup>3</sup>/hr    Oxygen Purity: 95 to 99%**



## ➤ Air / Gas Dryers:

### ➤ Dryer Ranges:

- Heat Reactivated Type Air Dryers
- Heatless Type Air Dryers
- Heat of Compression Type Air Dryers
- Refrigerated Type Air Dryers
- No Purge Loss Type Air Dryers



HOC/ No Purge Loss  
Air Dryer



Heated /Heatless Type  
Air Dryer

## ➤ Hydrogen Gas Generator:

The hydrogen gas plant based on ammonia cracking process consist of a ammonia cracker unit and PSA unit. In the ammonia cracker unit anhydrous ammonia is cracked at 8000c to 8500c to produce cracked ammonia. The cracked ammonia contains 75% of hydrogen and 25% of nitrogen. In the PSA unit, cracked ammonia is passed through a desiccant in twin tower where the hydrogen gas is separated from the nitrogen gas.

**Model Name: NE-HP**

**Flow Rate: 1 to 1000 Nm<sup>3</sup>/hr    Hydrogen 99. %    Nitrogen : 0.5%**



## ➤ What else do we make.....



Compressed  
Air / Gas  
Filters.  
of 0.001 to  
25 Micron



Ammonia Cracking  
Furnace

High Pressure  
Vessels / Tanks  
Upto 5000 Litres.



Membrane  
Based  
Nitrogen  
Generator  
Plant



LPG/  
CNG  
Filing  
System

## About Us...

Since 1997 in the business and supplied over 200 plants for various companies in India and abroad.

Only Nitrogen Engineers offer.....

- 2 years of warranty.
- Standby controller for uninterrupted N<sub>2</sub> generation.
- Annunciator for visual alerts and alarms.

From small scale companies to major brands, we have experience in working with all, so feel free to contact.

## Our Other Products and Supplies ...



- **Flow Valves :**
- Dome Valve
  - Globe Valve
  - Exhaust Valve
  - Etc.

- ← **Gas Analyzers**
- Calliberation
  - Service & Repair



→ **Oxygen Sensors**

- ← **Molecular Sieves :**
- CMS & Alumina,
  - ZMS,
  - Palladium Catalyst,



## Our Clients...

- Bajaj Auto Ltd.
- Parle Biscuits Pvt. Ltd.
- Ambuja Cement
- IIT Bombay
- Videocon

- Lupin Limited.
- Aarti Drugs
- Glaxo Smith Kline
- MERCK, Goa
- Hindustan Uniliver

- Jindal Steels
- Prasol Chemicals
- Sharp Industries

.... And yet more



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