



*Dedication to Industry, presence  
in more than 65 Nations and for  
every known application....*



**NITROGEN GAS GENERATOR**

**HYDROGEN GAS GENERATOR**

**AMMONIA CRACKER UNIT**

**HYDROGEN GAS PURIFIER**

**OXYGEN GAS GENERATOR**

**COMPRESSED AIR/ GAS DRYERS**



INNOVATION IN GAS TECHNOLOGY



[www.samgasprojects.com](http://www.samgasprojects.com)

*Gas Generation Technology at its best.....*





# PSA NITROGEN GAS GENERATORS

We manufacture & export wide range of Nitrogen gas generators in accordance with client's specific requirements. Our Product range is classified in following categories: a) MS-Model, b)DX-Model (high purity), c) CU-DX-Model (Ultra high Purity), where oxygen impurity is not acceptable. Further, Nitrogen gas generator can produces raw Nitrogen of 99% to 99.99% purity as these are based on PSA technology.

## GAS COMPOSITION FOR ALL MODELS OF NITROGEN GAS PLANTS

Composition	MS MODEL	DX MODEL	CU-Dx MODEL
Process	Pharmaceutical & Food Packaging Steel, Chemicals, Coal mine fire prevention etc.	Chemical blanketing, Annealing and bright Annealing, etc.	Brazing, Annealing and bright Annealing, Heat treatment, Electronics industry, and Sintered processing.
Capacity	1-1000 Nm <sup>3</sup> /Hr.	1-1000 Nm <sup>3</sup> /Hr.	1-1000 Nm <sup>3</sup> /Hr.
Oxygen	95%-99.99%	99.999%	99.9999%
Nitrogen	0.01%-5%	≤ 1-10 PPM	≤ 1-10 PPM
Hydrogen	NIL	0.5% or higher	NIL
Dew point	(-) 40 °C to (-) 60 °C	(-) 60 °C to (-) 80 °C	(-) 60 °C to (-) 80 °C
Pressure	≥ 5.0 bar(g)	≥ 5.0 bar(g)	≥ 5.0 bar(g)

### N2- MS

This model is the simplest to produce Nitrogen of purity in range from 95% to 99.99% purity. Even 99.999% purity Nitrogen can be produced from this model. But running cost would be higher in case of higher purity. Thus, this model is recommended for purity up to 99.99% only. This model is generally used for purging or inertization applications.

### N2-Dx

The Dx Model is commonly used in metallurgical industries for providing Oxygen free Nitrogen for heat treatment furnaces. Here, the Oxygen is less than 1-ppm and but Hydrogen is around 0.5 to 7% which is desirable as reducing constituent in most of heat treatment applications.

### N2-CU Dx

CU-Dx Model contains an extra Nitrogen purification module based on copper De-Oxo catalyst. This model finds application in Synthetic fiber, Optical cables, Electronic industries and Speciality chemicals, it produces very pure Nitrogen gas i.e free from Oxygen and Hydrogen as well. It is applicable where Hydrogen contents are detrimental to the process.





## N2 MEMBRANE

Membrane technology is regarded as an emerging gas separation technique in the industry due to the lower cost in both initial capital and energy consumption, basic principal is based upon differential rate of penetration of gas mixture through polymer membrane, due to its partial pressure drop and construction of membrane.

### Salient Features

- Cost-effective gas supply pre-engineered product range.
- Less power consumption Less operating cost.
- No moving parts negligible maintenance, with Less space requirement.
- Installation ready modular design.
- Automated controls for operation.
- Fast start up time to run plant at full load.



### APPLICATIONS:

Ideal for food and packaging, Marine ships, On-shore applications.

### GAS COMPOSITION

Flow Rate	1 -200 Nm3/ hr.
Nitrogen	95% to 99.99%
Oxygen	0.01% to 5.0%
Hydrogen	Nil
Dew Point	(-) 40°C to (-) 60°C

## AMMONIA CRACKER BASED HYDROGEN GAS PLANT

We manufacture and export comprehensive range of Ammonia Crackers with Purifier. Ammonia is cracked to form H<sub>2</sub> and N<sub>2</sub> in presence of Nickel Catalyst at high temperature. The Cracked Gas produced is further purified in cracked gas purifier to remove traces of un-cracked Ammonia & moisture. Produced gas is a mixture of 75% Hydrogen and 25% Nitrogen. To get pure Hydrogen, cracked ammonia is passed through Hydrogen PSA unit filled with molecular sieve for removal of Nitrogen and pure Hydrogen is recovered at outlet of Hydrogen gas plant.

### GAS COMPOSITION

Hydrogen	75.00%
Nitrogen	25.00%
Oxygen	Nil
Residual Ammonia	1 ppm (max)
Dew point	(-) 30° C to (-) 80° C

### Application

#### Heat Treatment Application

- Annealing
- Sintering
- Galvanizing
- Steel Wires
- Reducing furnace atmosphere
- Bright annealing of Stainless Steel
- Bright annealing of Carbon Steel





## HYDROGEN GAS GENERATION BY ELECTROLYSIS PROCESS

This method generates Hydrogen through Water Electrolysis with purity of 99.8% (bipolar type) along with gas boosters and De-Oxo units (helps further in purifying it up to 99.999%). Electrolysis dissociates the elements of water (Oxygen and Hydrogen) by charging water with electrical current. The Hydrogen obtained is collected in a Hydrogen gasholder and is further used for processing. In electrolysis process, symmetrical conductive structure is provided with anode in the middle and cathode at ends that avoids the shortage of voltage. The purified gas obtained after the process is used in heat treatment furnaces like annealing, sintering and as reducing furnace atmosphere. & other applications.



### Industry Applications

- Hydrogenation of Edible Oil & Fatty Acids
- Reducing Protective Atmosphere
- Protective Atmosphere For Casting Float Glass On Molten Metal Bath
- Protective Atmosphere For Manufacture Of Electronic Component
- Petroleum and chemical industries
- Used as a shielding gas in welding methods such as atomic hydrogen welding
- Hydrogen being an authorized food additive that allows food package leak testing among other anti-oxidizing properties.

### Technical Specifications

Flow Rate	1 to 100 Nm <sup>3</sup> / hr.
H <sub>2</sub> Purity	98% - 99.999%
Pressure	5- 25 Bar
Oxygen	1 ppm -2%



Customer Satisfaction is Our Motto...

#### 24X7 ON CALL

SAM is highly equipped with a team of expert Engineers in assisting Our Customers on phone with typical RESPONSE time within 10-12 Hrs.

#### PERIODIC MAINTENANCE

SAM machines are typically designed for trouble free operation, ensuring that PERIODIC MAINTENANCE is done by our expert service engineer.

#### AMC & CMC

Our esteemed Customers Domestic and International, are extended with AMC and CMC options, with deployment of a dedicated Engineer, for trouble free Plant Operation, thus, resulting to Maintenance free operation with increased Productivity.

### HYDROGEN PURIFIER



## SAM GAS PROJECTS (P) LTD.

(AN ISO 9001 : 2015 CERTIFIED COMPANY)

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