

MEMBRANE BASED NITROGEN GAS GENERATOR



(ISO 9001 : 2008 CERTIFIED COMPANY)



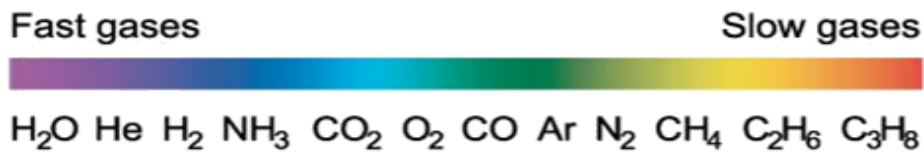
SAM GAS PROJECTS is ISO 9001:2008 certified, Professionally Managed Engineering Organization, Specialized in Design , Manufacture , Supply & commissioning of ‘**State of the Art**’ Nitrogen, Medical Grade / Industrial Oxygen Gas Plants , Hydrogen Gas Plants, Ammonia Crackers, Gas Purification Systems, Compressed Air Dryers and Gas storage systems.

SAM GAS PROJECTS has supplied more than **600** Systems, which are working satisfactorily all over India & across the Globe in more than 50 countries.



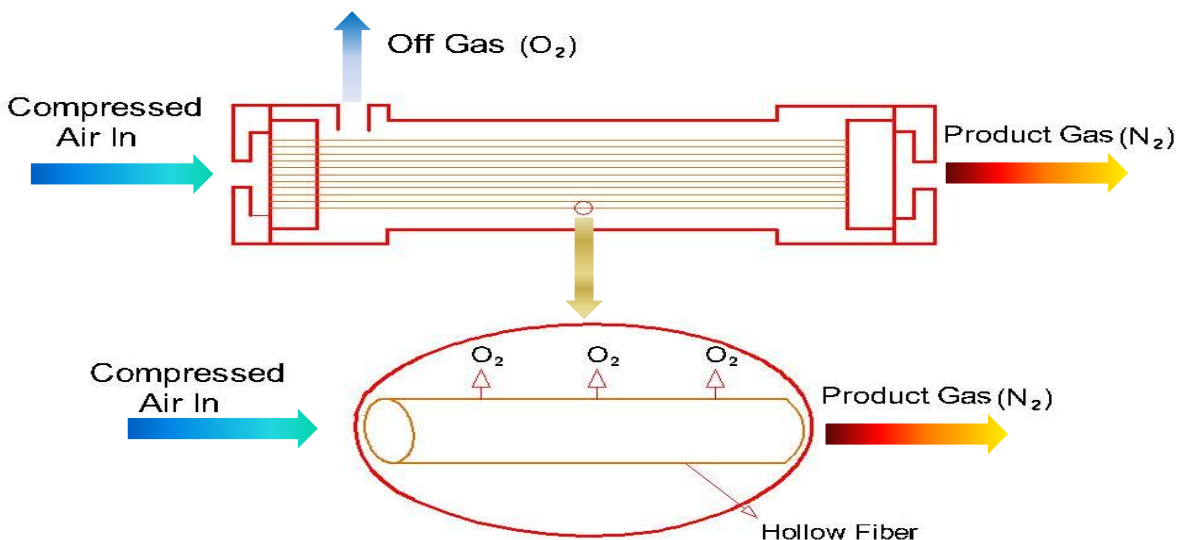
❖ MEMBRANE SEPARATION PRINCIPLE

The principle of membrane separation of gas mixtures is based on the difference in the rate of penetration of gas mixture components through polymer membranes due to partial pressure drop on the membrane sides. In air mixture, oxygen has higher penetration ability as regards the membrane than nitrogen.



In the manufacture of its air / gas separation plants, “**SAM GAS Projects**” uses the most sophisticated fifth-generation membranes. The modern membrane is no longer a flat plate or film; it consists of porous polymer fibers with a gas separation layer applied to its external surface.

Structurally, membrane hollow fibers are specially configured to form a cylindrical cartridge with two end parts bundling fiber outlets. The cartridge is placed in the membrane module with one pipe fitting for intake of the feed gas mixture and two pipe fittings for discharge of separated components.

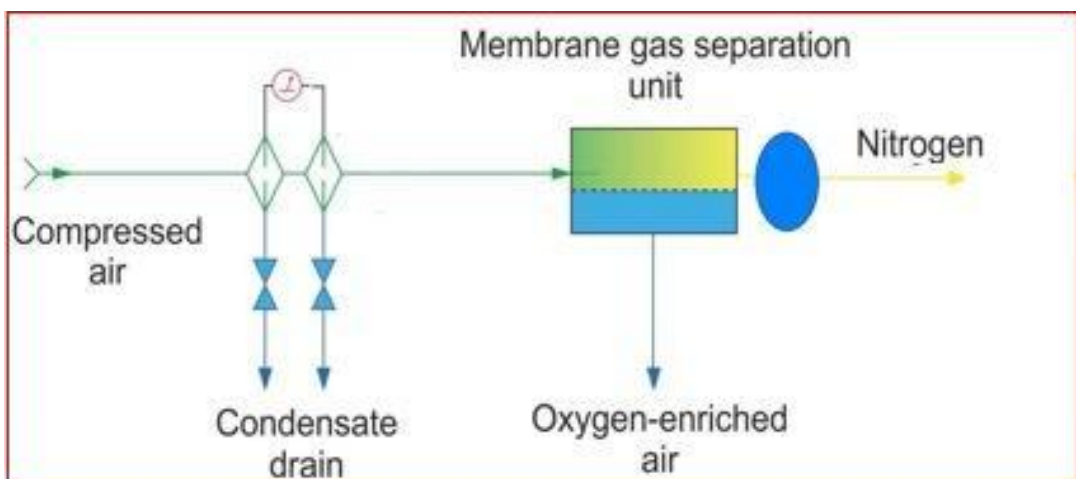


❖ OPERATION OF MEMBRANE SYSTEM

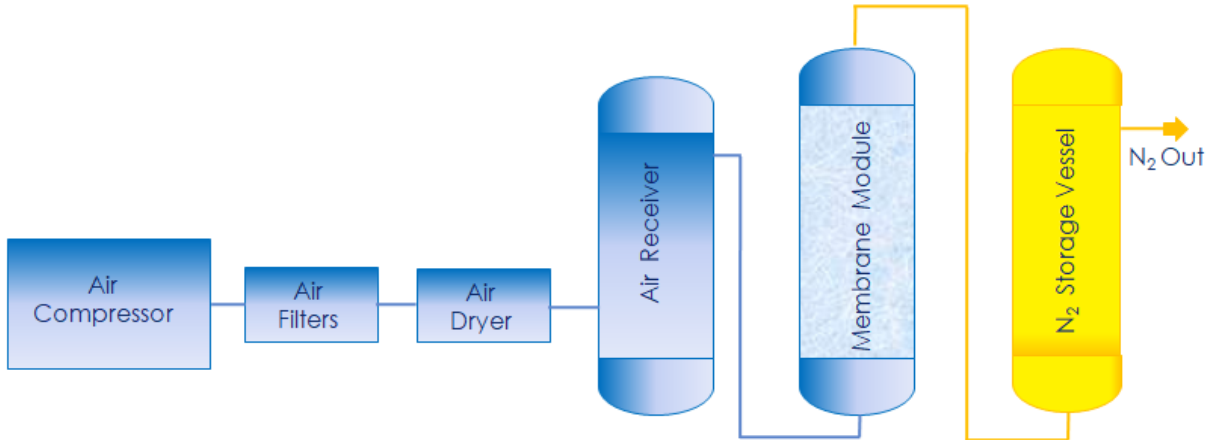
The main parts of the membrane nitrogen station are the compressor unit (our of scope of supply), air purification unit, gas separation unit and the plant control system (see Fig. 3).

The process of nitrogen production by a membrane nitrogen system is arranged as follows. Atmospheric air is compressed by the air compressor, dried and supplied to the coarse and fine filters for removal of mechanical impurities and oil vapors. Then, the air passes through the heating elements which help maintain the optimal air temperature for the gas separation process.

After that, the air heated up to the required temperature is supplied to the gas separation unit (GSU) which is the most important and technologically complex part of the station. The membrane GSU consists of the specially configured modules producing nitrogen from pressurized air. Oxygen and water vapors, which penetrate «fast» through the polymer membrane, enter the inter-fiber space and exit the membrane module through one of the outlet pipe fittings. Product nitrogen being a «slow» gas, exits the membrane module through the other outlet pipe fitting with nearly no pressure drop.



❖ BASIC FLOW DIAGRAM



❖ TECHNICAL SPECIFICATIONS

- ✓ Capacity : 1 to 200 NM³/Hr
- ✓ Purity : 95% to 99.9%
- ✓ Dew Point : (-) 40°C ADP
- ✓ Pressure : 2.0 to 6.0 Barg



❖ APPLICATIONS :

- ✓ Chemical Industry
- ✓ Pesticide Industry
- ✓ Fertilizer Units
- ✓ Cold Storages
- ✓ Food Packaging Industry
- ✓ Biodiesel Plants
- ✓ Biodiesel Plants
- ✓ Sulphur Grinding
- ✓ Autoclave Applications
- ✓ Pressure Testing
- ✓ Gas Seal Blanketing
- ✓ Fire Prevention Systems.

❖ ADVANTAGES

- ✓ On Site Nitrogen Generation
- ✓ Compact Design
- ✓ Suitable for Varying Demand of Gas
- ✓ Energy Efficient
- ✓ Less Noise Level
- ✓ Longer Fiber Life
- ✓ Simple in Operation.
- ✓ Negligible Maintenance
- ✓ Less Capital Investment.
- ✓ Ready to use Systems.
- ✓ Less Space requirements.
- ✓ Reliable Systems
- ✓ Robust Design & Longer Life
- ✓ Less Moving parts .



SAM GAS PROJECTS PVT. LTD.

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