

PSA NITROGEN GAS GENERATOR TECHNOLOGY

PSA Nitrogen N₂ Gas Generator Plant is an Inertisation Gas Atmosphere Generator enabling a permanent source of onsite NITROGEN / inert gas, with minimum energy consumption. PSA Nitrogen N₂ Gas Generator Equipment is an Inert Gas Atmosphere Generator & incorporates Two sets of columns filled with Carbon Molecular Sieves CMS. Under Pressure these columns retain all Active Molecules compounds present in air like (Oxygen, Carbon Dioxide and Water) with the exception of the inert gases like Nitrogen & Argon. The N₂ Gas can be produced onsite for direct use or can be stored in Nitrogen storage tanks Bottles or cylinders for intermittent use. (Nitrogen and Argon). This process is referred as PSA (Pressure Swing Adsorption).



Mining Application

The use of Nitrogen for fighting underground fires was based on the experience with the use of carbon dioxide. Many countries have used nitrogen successfully in their mining industry. For more than last 50 years, nitrogen

has been used most widely in the mining industries of the Czech Republic, later in the Great Britain, Russia, Germany, France, Poland, Romania, Slovakia, China, Canada, Bulgaria, India, Australia and in other countries with a modern coal mining industry.

Description

Mellcon is the world leader in gas separation technology, providing on-site, non-cryogenic industrial nitrogen generator Plants and oxygen gas generation plants. Mellcon Offers NITROLINE a line of robust, reliable and modular Nitrogen Gas generators based on Pressure Swing Adsorption (PSA) technology incorporating state-of-the-art Carbon Molecular Sieves (CMS) Adsorbents to deliver dry Nitrogen Gas (N₂ gas) onsite.

Mellcon Engineers Manufactures PSA Nitrogen Gas Generators (Inert Gas) which produce high purity Nitrogen from compressed air, allowing continuous availability at a very competitive cost, compared to alternative supply with cylinders or cryogenic Storage Tank.

Each Nitrogen Gas generator system can be equipped with a Nitrogen Gas Analyzer to monitor the purity of N₂ Gas continuously.

NITROGEN N₂ Gas Generator eliminates all disadvantages associated to the purchase and operation costs of high- pressure N₂ cylinder systems or cryogenic tanks, enabling a permanent source of **onsite NITROGEN**, with minimum energy consumption and maintenance requirements. PSA NITROGEN Gas Plant is designed to be easily installed in any indoor facility. Requiring only a compressed air line and a power connection.

With purities up to 99.9999% of **N₂**, **NITROGEN Gas** can be connected to an external buffer Storage Tank allowing a reserve or a delay of production/consumption in accordance to the needs of each

application.

Standard system design

- Automatic Pressure control
- Automatic Flow control
- Automatic Purity control
- Alarms available for visual, audible or output contacts

Custom designed systems to meet customer requirements

- Integrated Compressor packages
- Redundant components for service
- Receiver tank integration
- High pressure systems
- Customer special control systems
- System integration to customer components

Advantages of Onsite Nitrogen Gas Generator

- Return on investment is less than 2 years.
- Independence from external gas suppliers and from fluctuation of the nitrogen gas market price.
- Suppression of logistic operations with cylinders or liquid Nitrogen and supplier management.
- Modular, flexible and low maintenance units as compared to liquid nitrogen plant .
- Don't waste more money with Nitrogen Cylinders / Cryogenic Liquid N2.

APPLICATIONS OF NITROGEN GAS GENERATORS

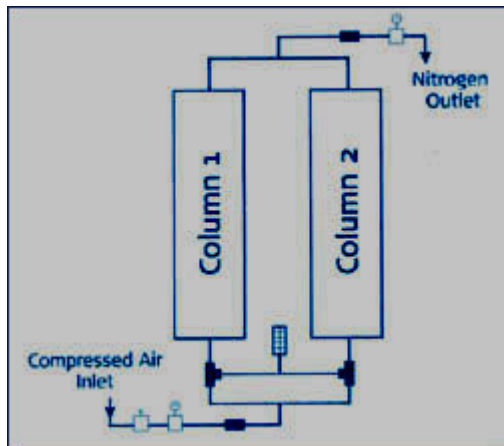
Industry	Application
FOOD and MAP Processes	<ul style="list-style-type: none"> • Modified Atmospheric Packaging of juice, milk, water, coffee etc. • Olive Oil • Wine Storage and Production • Cooking Oil • Milling • Cold Storage of fresh vegetables. Learn More
ELECTRONICS	<ul style="list-style-type: none"> • Laser Cutting • Heat Treatments Learn More
PHARMACEUTICALS	<ul style="list-style-type: none"> • Packaging • Process
FOUNDRY	<ul style="list-style-type: none"> • Nitration • Blanketing Learn More
METAL WORKS	<ul style="list-style-type: none"> • Heat Treatment • Aluminum extrusion • Laser Cutting Learn More
CHEMICAL	<ul style="list-style-type: none"> • Reservoir Blanketing • Solvent Blanketing • Fuel Storage

Main technical Specification	
Nitrogen Gas Purity	Up to 99.999 %
Nitrogen Gas Pressure	Up to 83.5 bar
Minimum Air Pressure	6 Bar
Maximum Particle Content	0.01 µm
Electrical Consumption	120 W @ 230 VAC



	<ul style="list-style-type: none"> • Polymer production • Solvent paint Production
AUTOMOTIVE	<ul style="list-style-type: none"> • Tyre inflation, Tire Inflation Learn More • Leak testing Learn More
OTHER	<ul style="list-style-type: none"> • Pest Control Learn More • Copper Cable production • Moulding Injection • Protective Atmosphere for Heat Treatment Of Steels & Metals • Coal Mill Bag Filter Inertisation Plant • Fire Fighting in Coal Mines

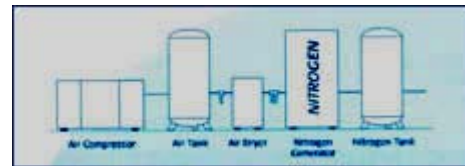
A modular PSA Nitrogen Gas Generator system allows synchronized operation of several parallel units. In order to ensure a constant flow at the required purity.



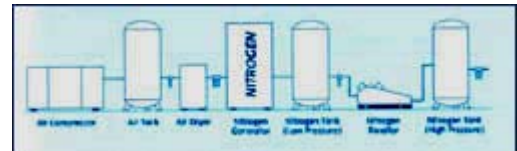
Standard PSA Nitrogen Gas Generator Installations

The installation is designed according to the customer needs, however the standard installation are shown below.

**Low Pressure Diagram
PSA N2 Gas Plant**



**High Pressure Diagram
PSA N2 Gas Plant**



Model	Flow (N ₂ Nm ³ /h)			
	99%	99.5%	99.9%	99.99%
NITROLINE 2	2.58	2	1.4	0.7
NITROLINE 5	6.45	5	3.5	1.75
NITROLINE 10	12.9	10	7	3.5
NITROLINE 15	19.35	15	10.5	5.25
NITROLINE 20	25.8	20	14	7
NITROLINE 25	32.25	25	17.5	8.75
NITROLINE 30	38.7	30	21	10.5
NITROLINE 35	45.15	35	24.5	12.25
NITROLINE 40	51.6	40	28	14
NITROLINE 50	64.5	50	35	17.5
NITROLINE 60	77.4	60	42	21
NITROLINE 70	90.3	70	49	24.5
NITROLINE 80	103.2	80	56	28
NITROLINE 90	116.1	90	63	31.5

NITROLINE 100	129	100	70	35
NITROLINE 150	193.5	150	105	52.5
NITROLINE 200	258	200	140	70
NITROLINE 400	516	400	280	140
NITROLINE 500	645	500	350	175

The above capacities of PSA N2 Gas Generator are rated at 7.0 bar (0.7 Mpa) INlet Air Pressure
For Higher capacities and higher purities PSA Nitrogen Generators Please [Contact Us](#)

OR EMAIL US : PSA@MELLCON.COM