



## PSA Nitrogen Gas Generators



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PSA Nitrogen (N<sub>2</sub>) Gas Generator plant is an Inertisation Gas Atmosphere Generator ... enabling a permanent source of onsite NITROGEN Gas, with minimum energy consumption. PSA Nitrogen (N<sub>2</sub>) 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 N<sub>2</sub> Gas can be produced onsite for direct use or can be stored in Nitrogen storage tanks / Cylinders for intermittent use. (Nitrogen and Argon) This process is referred as PSA (Pressure Swing Adsorption).

### TECHNOLOGY SUPPORT – KURARAY CHEMICAL CO. LTD ( JAPAN)

Mellcon Engineers offers PSA Nitrogen Gas Generators in Technical support from Kuraray Chemicals Co Ltd (Japan).

Kuraray have been in business of producing Activated Carbon from 1965.

Kuraray Carbon Molecular Sieves (CMS) is unique high performance molecular sieving carbon this generates high purity nitrogen gas and reduces the amount of air processed.

The advanced design Control panel is fully automatic and provided with all necessary controls for precise operation of the equipment. All models are fitted with remote electronic control panel which is adjustable to suit most requirements.

## Mining Application

The use of Nitrogen Gas for fighting underground fires was based on the experience with the use of carbon dioxide. Many countries have used nitrogen Gas 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 Gas Generators and Oxygen Gas Generation Systems. 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 Dry Nitrogen Gas (N<sub>2</sub>) 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 Nitrogen Gas cylinders or cryogenic Liquid N<sub>2</sub> Storage tank. Each Nitrogen system can be equipped with a Nitrogen Gas Analyser to monitor the purity of N<sub>2</sub> Gas continuously.

**NITROGEN** N<sub>2</sub> Gas Generator plant eliminates all disadvantages associated to the purchase and operation costs of high-pressure N<sub>2</sub> cylinder systems or cryogenic nitrogen gas storage 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 **N<sub>2</sub>, NITROGEN Gas** can be connected to an external buffer 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

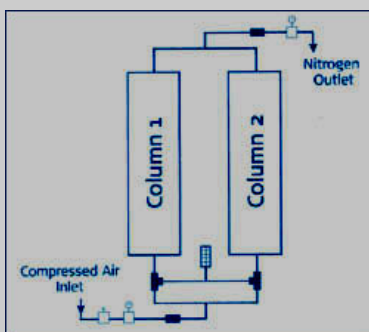
- System integration to customer components

## 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 Cryogenic Liquid Nitrogen plants.
- Don't waste more money with Nitrogen Cylinders /Cryogenic Liquid N2 tanks.

Industry	Application		Main technical Specification	
FOOD and MAP Processes	<ul style="list-style-type: none"><li>• Modified Atmospheric Packaging of juice, milk, water, coffee etc.</li><li>• Olive Oil</li><li>• Wine Storage and Production</li><li>• Cooking Oil</li><li>• Milling</li><li>• Cold Storage of fresh vegetables. <a href="#">Learn More</a></li></ul>		Nitrogen Gas Purity	Up to 99.999 %
ELECTRONICS	<ul style="list-style-type: none"><li>• Laser Cutting</li><li>• Heat Treatments</li></ul>	<a href="#">Learn More</a>	Nitrogen Gas Pressure	Up to 350 bar
PHARMACEUTICALS	<ul style="list-style-type: none"><li>• Packaging</li><li>• Process</li></ul>		Minimum Air Pressure	6 Bar
FOUNDRY	<ul style="list-style-type: none"><li>• Nitration</li><li>• Blanketing</li></ul>	<a href="#">Learn More</a>	Maximum Particle Content	0.01 µm
metal WORKS	<ul style="list-style-type: none"><li>• Heat Treatment</li><li>• Aluminum extrusion</li><li>• Laser Cutting</li></ul>	<a href="#">Learn More</a>	Electrical Consumption	120 W @ 230 VAC
CHEMICAL	<ul style="list-style-type: none"><li>• Reservoir Blanketing</li><li>• Solvent Blanketing</li><li>• Fuel Storage</li><li>• Polymer production</li><li>• Solvent paint Production</li></ul>			
AUTOMOTIVE	<ul style="list-style-type: none"><li>• Tyre inflation, Tire Inflation <a href="#">Learn More</a></li><li>• Leak testing <a href="#">Learn More</a></li></ul>			
OTHER	<ul style="list-style-type: none"><li>• Pest Control <a href="#">Learn More</a></li><li>• Copper Cable production</li><li>• Moulding Injection</li><li>• Protective Atmosphere for Heat Treatment Of Steels &amp; Metals</li><li>• Coal Mill Bag Filter Inertisation Plant</li><li>• Fire Fighting in Coal Mines</li></ul>			



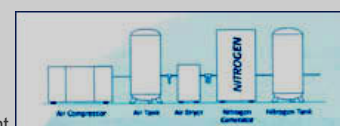


A modular PSA Nitrogen Gas Generator system allows synchronized operation of several parallel units. in order to ensure a constant flow at the required purity.

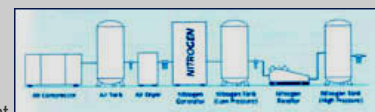
## Standard PSA Nitrogen Gas Generator Installations

The installation is designed according to the customer needs, however the standard installation are shown below. Low Pressure Diagram PSA N2 gas Plant

Low Pressure Diagram PSA N2 gas Plant



High Pressure Diagram PSA N2 gas Plant



Model	Flow (N2 Nm3/h)			
	99%	99.5%	99.9%	99.99%
NITROLINE 2	2.36	2	1.44	0.93
NITROLINE 5	5.9	5	3.6	2.32
NITROLINE 10	11.8	10	7.2	4.64
NITROLINE 15	17.7	15	10.8	6.96
NITROLINE 20	23.6	20	14.4	9.28
NITROLINE 25	29.5	25	18.5	11.6
NITROLINE 30	35.4	30	21.6	13.92
NITROLINE 35	41.3	35	25.2	16.24
NITROLINE 40	47.2	40	28.8	18.56
NITROLINE 50	59	50	36	23.2

NITROLINE 60	70.8	60	43.2	27.84
NITROLINE 70	82.6	70	50.4	32.48
NITROLINE 80	94.4	80	57.6	37.12
NITROLINE 90	106.2	90	64.8	41.76
NITROLINE 100	118	100	72	46.4
NITROLINE 150	177	150	108	69.6
NITROLINE 200	236	200	144	92.8
NITROLINE 400	472	400	288	185.6
NITROLINE 500	590	500	360	232


The above capacities of PSA N2 Gas Generator are rated at 6.4 bar ( 0.64 Mpa ) INlet Air Pressure  
For Higher capacities and higher purities PSA Nitrogen Generators Please [Contact Us](#)

### **SPARE PARTS FOR PSA N2 GENERATORS**

OR EMAIL US : [PSA@MELLCON.COM](mailto:PSA@MELLCON.COM)

## **OUR PRODUCT RANGES**

Air / Gas Dryers	Refrigerated Equipments	Other Products
Heatless Compressed Air Dryer	Air Cooled Water Chillers	Hot Air Blowing Equipment / Air Heaters
Refrigerated Air Dryer	Water Cooled Chillers	Solvent / Liquid Dryer
High Pressure Air/Gas Dryer	Screw Chillers / Chilling Plants	
Blower Heat Regenerated Air Dryer (BHR)	Walk in Coolers / Cold Rooms Units	
Internal Heater Dryer (IHR)	Refrigerant Recovery System	
Heat of Compression Air Dryer (HOC)		<b>Onsite Gas Generators</b>
Split Flow-No Purge Loss Air Dryer (SFNL)	<b>Storage Systems</b>	PSA Nitrogen Gas Generator
Custom Made Air Dryer	Liquid CO2 Storage Tanks	PSA Oxygen Gas Generator
Packaged Mobile Dry Air Plant	LPG Storage Systems	
Pressure Regulating Stations <b>NEW</b>	CO2 Recovery Plant <b>NEW</b>	<b>Spare Parts</b>
Hydrogen Gas Dryer <b>NEW</b>	CO2 Vaporiser <b>NEW</b>	Spare part for Air Dryer
Instrument Air Quality Standard <b>NEW</b>		Air Receiver Tank For Compressed Air
		Auto Drain Trap
		Dew Point Apparatus
		Spare Parts for PSA Nitrogen Gas Generator

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B - 297, Okhla Industrial Area, Phase - I, New Delhi - 110020, India  
Phone : +91-11-26816103, 26811727, 26816530  
Fax : +91-11-26816573

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