

PSA 400Nm³/H High Pressure Nitrogen Generator 99.9% Purity For Food, Metallurgy, Chemical

Our Product Introduction

Basic Information

- Place of Origin: China
- Brand Name: Eco-Tech
- Certification: CE ISO13485 ISO9001
- Model Number: PN3400
- Minimum Order Quantity: 1
- Price: USD 12000-25000 pieces
- Packaging Details: Wooden Case
- Delivery Time: 20 days
- Payment Terms: L/C, D/A, D/P, T/T, Western Union, MoneyGram
- Supply Ability: 1000 pieces per year



Product Specification

- Capacity: 400Nm/h
- Inlet Diameter: DN50
- Outlet Diameter: DN40
- Size: 2500*1600*2900 5000kg
- Demand For Clean Compressed Air: 24.67
- Recommend Air Compressor: 185Kw 26.5m³/min 10Bar) Or 160Kw (28.2m³/min 8Bar)
- Control System: PLC
- Type: Nitrogen Generator
- Warranty: 1 Year
- Highlight: **PSA high pressure nitrogen generator, 400Nm³/H high pressure nitrogen generator, 99.9% psa nitrogen gas generator**

for more products please visit us on psa-generators.com

Product Description

PSA Nitrogen Generator: 400Nm³/H, 99.9% Purity, for Food, Metallurgy, Chemical
Description of 99.9% Purity 400Nm³/H PSA Nitrogen Plant Food, metallurgy, chemical industry applicable

We have been engaged in the assembly of PSA nitrogen plants and oxygen generators in our factory for 15 years, providing approximately 400 sets of PSA nitrogen plants and oxygen generators for domestic and international customers each year, including production, and debugging.

A PSA nitrogen plant is an industrial installation designed to generate nitrogen gas through the extraction and purification of atmospheric air. Utilizing advanced techniques, the plant separates nitrogen from other components of the air, ensuring a constant supply of pure nitrogen. This vital resource finds extensive use in diverse industries, including chemical manufacturing, electronics, and food preservation. By employing specialized equipment such as compressors, filters, and separation units, the nitrogen plant efficiently produces and delivers high-quality nitrogen for a wide range of applications.

In collaboration with Burkert Valves, we have customized our own double-acting pneumatic valve. Through the design of top and middle pressure equalization, and airflow orifice plates, we continuously optimize and reduce the air consumption ratio of the equipment, thus achieving energy savings. The energy consumption ratio of our equipment has reached the highest level in China. And through our patented silencer, our device noise is controlled to less than 55 db.

In terms of process flow, we have cutting, welding, assembly, filling of molecular sieves, automatic rust removal, spraying, and complete procedures and supporting equipment for commissioning.

In the supply chain aspect, we provide first-line brands such as Atlas Copco, Ingersoll Rand, GDK, Liutech, Bolaite, Hanbell, and BK for air compressors, and provide Boly, Atlas Copco, and Liutech refrigerated dryers, as well as Anshan Jiapeng and Anqing Bailian boosters. We can provide supporting equipment and accessories.

Currently, our company's products are aimed at end-users and distributors worldwide. We provide customized remote systems, color customization, display interface customization, and many other OEM services. And we also provide ASME standard equipment and pressure tanks for USA and Australian market.

For specific selection, please contact our customer manager. We hope to become your trusted long-term partner.

PN3400PSA Nitrogen Plant Technical Specification				
lot	Item			Description /Specification
1	Model/Place of Manufacture			PN3400
2	Nitrogen making principle			PSA Pressure swing adsorption PSA 吸附(放式)
3	Application	Operation place		Indoor
	Environment	Ambient temperature		Min -5 /Max 50 / design temperature37
		Ambient humidity		Min 40%RH Max90%RH
4	Capacity		400 Nm ³ /hr	
5	Nitrogen Gas Purity			≥99.9 % Test at outlet of psa Nitrogen
6	Nitrogen Purity Sensor			HT-TA261 1set
7	Nitrogen Flowmeter			Japan SMC flowmeter 1 sets
8	Inlet compress air pressure			0.75 -0.99Mpa
9	Inlet Oil Content			≤0.001 mg/m ³
10	Residual dust			≤0.01 um
11	Residual water			≤0.069mg/m ³
12	Air inlet atmospheric dew point			-15
13	Demand for clean compressed air	24.67	Nm ³ /min	Recommend Air compressor 185Kw (26.5m ³ /min 10Bar) or 160Kw (28.2m ³ /min 8Bar)
14	Inlet Diameter			DN50
15	Outlet Diameter			DN40
16	Maximum inlet temperature			MAX 30
17	Allowable working pressure range			Min7.5Kgf / cm ² Max9.9Kgf / cm ²
18	Carbon molecular sieve model/origin			CMS-240
19	The tower body pipe			2 sets
20	Air and nitrogen buffer tank			Piped storage tank
21	Instrument Tank, silencer			PB Silencer ≤55dB(A) patent number:ZL 2015 2 0545860.3

22	Solenoid valve brand/origin	AirTAC	7 sets
23	Pneumatic valve brand/origin	PB-Customized	11 Sets (two for auto drain unqualified Gas)
24	Control System	Control Power Supply	0.2kw/set 220V 50 HZ
		PLC	Mitsubishi core integrated screen /or Siemens S7-200 Smart
		electrical box	built-in 1 set
		touch screen	Mitsubishi core integrated screen/ MCGS
25	size LxWxH (mm) / Weight:(Kg)	About:2500*1600*2900// 5000kg	
26	Price	含税含 交期20天	

2. Working Principles for PSA Nitrogen Generator

The PSA nitrogen generator is an advanced automated device that effectively produces nitrogen gas from air. By employing carbon molecular sieve as an adsorbent and utilizing the pressure reduction desorption principle, it selectively removes oxygen molecules from the air, resulting in the separation of nitrogen gas. This process ensures a reliable and efficient production of high-purity nitrogen for various industrial applications.

3. Main Features for PSA Nitrogen Generator

- The equipment utilizes compressed air and power to produce nitrogen, conveniently adjusting its purity as needed. It operates with high automation, enabling quick and unattended gas production within 10-15 minutes of startup.
- The design of the equipment focuses on streamlining the process flow and ensuring intuitive operation. Unnecessary steps and components are minimized to reduce complexity and enhance user-friendliness. User-friendly interfaces, clear instructions, and visual aids are incorporated to guide operators through the process efficiently.
- To optimize space utilization, the equipment features a compact footprint. It is designed to occupy a smaller area, making efficient use of limited production or workspace areas. Vertical or modular configurations are utilized to maximize floor space, allowing for optimal utilization of available space.
- Implementing energy-efficient components and technologies is crucial to reduce energy consumption in equipment design. Incorporate features like low-power consumption motors, LED lighting, and intelligent controls to minimize energy usage. Consider integrating energy recovery systems to capture and reuse waste energy, further enhancing overall energy efficiency. Select cost-effective materials and components without compromising quality and performance. Conduct thorough market research to identify suppliers offering competitive pricing. Consider the lifecycle cost of the equipment, including maintenance, repair, and replacement expenses, to ensure long-term cost-effectiveness.
- Optimize the equipment process to minimize waste, improve efficiency, and reduce resource requirements. Implement lean manufacturing principles and techniques, such as value stream mapping, to identify and eliminate non-value-added steps. Continuous improvement initiatives help streamline the process and maximize resource utilization.
- Explore automation and robotics technologies to enhance efficiency and reduce labor requirements. Automate repetitive tasks and integrate robotic systems to handle specific processes, improving productivity and process performance. Automation optimizes energy usage, reduces errors, and enhances overall efficiency.
- Design equipment with ease of maintenance and serviceability in mind. Incorporate features like easy access to critical components, standardized parts, and clear documentation for troubleshooting and repairs. Simple maintenance procedures and readily available spare parts minimize downtime and maintenance costs.
- Perform a comprehensive lifecycle cost analysis, considering factors such as initial investment, operational expenses, maintenance, and expected lifespan. Evaluate different equipment options based on their total cost of ownership, including energy consumption, maintenance requirements, and potential efficiency gains.
- Molecular sieves are filled using the snowstorm method to prevent their pulverization caused by high-pressure airflow impact, ensuring their long-term use. The imported analyzer for online inspection is simple to access, occupies a small area, consumes less energy, and is cost-effective.

4. Technical indicators

- Capacity Range : 2~2000Nm³/H
- Purity Range : 95%~99.9999%
- Outlet Pressure :0~6Bar or 0~ 8Bar
- Booster outlet pressure range : 10 to 200Bar
- Service Life 8-10 years as long as regular maintenance

Carbon Molecular Sieve

High quality,high density, compact spring loaded, top/bottom balance, protected by a dedicated pressure sensor.
We usually use CMS-240 for purity below 99.99%
And use CMS-260 for purity of 99.999% in one step .

5. Standard Features

- Siemens PLC
- Customized and improved domestic valves
- 7-inch LCD display
- Taiwan AirTAC solenoid valve
- Chengdu Jiuyin Nitrogen analyzer
- SMC flowmeter
- Professional brand molecular sieve

6. Optional Features

- Remote control system
 - Better valve of brand Gemu, Burkert
 - Dew point analyzer

- Import Molecular Sieve
- Italian ODE solenoid valve

Item No.	Capacity	Purity	Size mm	Inlet Diameter	Outlet Diameter	Weight Kg	Power
PN3010	10Nm3/H	≥99.9%	1000*800*1600	DN15	DN15	300	AC220V/0.2 KW
PN3015	15Nm3/H	≥99.9%	1200*850*1900	DN15	DN15	400	AC220V/0.2 Kw
PN3020	20Nm3/H	≥99.9%	1200*850*1900	DN25	DN15	500	AC220V/0.2 Kw
PN3025	25Nm3/H	≥99.9%	1450*900*1900	DN32	DN15	600	AC220V/0.2 Kw
PN3030	30Nm3/H	≥99.9%	1450*900*1900	DN32	DN15	700	AC220V/0.2 Kw
PN3040	40Nm3/H	≥99.9%	1450*900*1900	DN40	DN15	800	AC220V/0.2 Kw
PN3050	50Nm3/H	≥99.9%	1450*900*1900	DN40	DN25	900	AC220V/0.2 Kw
PN3060	60Nm3/H	≥99.9%	1600*1100*1950	DN40	DN25	1100	AC220V/0.2 Kw
PN3100	100Nm3/hr	≥99.9%	1800*1000*2300	DN40	DN25	1850	AC220V/0.2 Kw
PN3120	120Nm3/hr	≥99.9%	1800*1300*2450	DN40	DN25	2400	AC220V/0.2 Kw
PN3150	150Nm3/H	≥99.9%	2000*1300*2450	DN40	DN25	2600	AC220V/0.2 Kw
PN3200	200Nm3/H	≥99.9%	2000*1400*2550	DN40	DN25	2900	AC220V/0.2 KW
PN3250	250Nm3/H	≥99.9%	2200*1500*2650	DN50	DN40	3400	AC220V/0.2 KW
PN3300	300Nm3/H	≥99.9%	2500*1600*2680	DN50	DN40	3600	AC220V/0.2 Kw
PN3400	400Nm3/H	≥99.9%	2500*1600*2900	DN50	DN40	5000	AC220V/0.2 KW
PN3500	500Nm3/H	≥99.9%	2500*1600*3750	DN80	DN65	7200	AC220V/0.2 KW

-Applications-

Application of SMT industry

- **Semiconductor silicon industry application**
Semiconductor and integrated circuit manufacturing process atmosphere protection, cleaning, chemical recovery, etc.
- **Electronic components industry application**
Selective welding, purging and encapsulation with nitrogen. Scientific nitrogen inert protection has proven to be an essential step in the successful production of high quality electronic components.
- **Semiconductor packing industry application**
Packaging, reduction, storage with nitrogen.
- **Powder metallurgy, metal processing industry**
Heat treatment industry application, Steel, iron, copper, aluminum products annealing, carbonization, high temperature furnace protection, Low temperature assembly and plasma cutting of metal parts.
- **Chemical industry, advanced material industry application**
Nitrogen is used to create oxygen-free atmosphere in chemical process, improve the safety of production process, fluid transmission power source, etc: It can be used for nitrogen purging of pipes and vessels in the system, filling nitrogen Storage tank, gas displacement, leak detection, combustible gas protection, chemical reaction agitation, chemical fiber production protection, also used in diesel hydrogenation and catalytic reforming.
- **Oil and gas industry**
- Oil refining, container machine pipeline nitrogen-filled purge box leak detection, nitrogen injection oil recovery.
- **Food and medicine industry Application**
Mainly used in food packaging, food preservation, food storage, (Configurable sterilization filter), food drying and sterilization, medicine packing, medical replacement gas, medicine delivery atmosphere, etc.

Ten common questions about nitrogen generators

1. What purity of nitrogen gas can a nitrogen generator produce?
 - The nitrogen generator is a versatile and adaptable equipment that offers a wide range of options to meet diverse application requirements. It enables the generation of nitrogen gas with varying levels of purity, ensuring a tailored solution for specific needs.
 - With a nitrogen generator, users can choose from a spectrum of nitrogen purities to match their application demands. For standard industrial applications, nitrogen generators can produce nitrogen gas within the purity range of 95% to 99%, which is suitable for many general-purpose uses.
 - In addition to standard industrial-grade nitrogen, nitrogen generators excel at providing high-purity nitrogen. They are capable of producing nitrogen gas surpassing 99.9% purity, which is often required in industries such as electronics, food and beverage, and pharmaceuticals,

where stringent quality standards are essential.

- Furthermore, the remarkable capability of nitrogen generators extends to producing ultra-high purity nitrogen. These generators can achieve nitrogen purities that exceed 99.999%, making them indispensable in critical applications such as semiconductor manufacturing, analytical laboratories, and scientific research, where an exceptionally clean and pure nitrogen environment is vital.
- The ability of nitrogen generators to generate nitrogen gas with different levels of purity allows users to select the most suitable option for their specific application needs. This flexibility ensures that businesses can optimize their processes, maintain product integrity, and meet industry standards efficiently.
- By leveraging the capabilities of nitrogen generators, businesses can confidently obtain nitrogen gas with the desired purity level, ensuring optimal performance and reliability in their operations.
- The choice of nitrogen purity depends on the specific needs of the application. Industrial-grade nitrogen, with its purity range of 95% to 99%, is commonly used in manufacturing processes, chemical synthesis, and as a blanketing or inerting gas in storage and transportation of sensitive products.
- On the other hand, high-purity nitrogen, with its purity level exceeding 99.9%, finds application in industries such as electronics, semiconductors, and pharmaceuticals. These industries require a controlled environment with minimal impurities to ensure the quality and reliability of their products. High-purity nitrogen is crucial for preventing oxidation, moisture damage, or contamination during production and storage processes.
- In applications where the highest level of purity is required, like in research laboratories, analytical instrumentation, or specialized manufacturing processes, the use of ultra-high purity nitrogen becomes indispensable. With purity levels typically surpassing 99.999%, this ultra-pure nitrogen guarantees minimal interference and contamination, enabling precise and accurate outcomes in delicate experiments and cutting-edge technologies. It ensures the integrity and reliability of results, facilitating the advancement of scientific discoveries and the production of high-quality products.
- By offering different levels of nitrogen purity, a nitrogen generator provides flexibility and customization to cater to a wide range of industrial and scientific applications. It enables businesses and researchers to meet their specific purity requirements, ensuring optimal performance, reliability, and quality in their processes and products.

2. What is the working principle of a nitrogen generator?

The working principle of a nitrogen generator is primarily based on either the adsorption technology using molecular sieves or membrane separation technology. Adsorption technology selectively adsorbs oxygen and moisture using a specific adsorbent material, such as molecular sieves, while allowing nitrogen to pass through. Membrane separation technology, on the other hand, utilizes the size and permeability of gas molecules to achieve the separation of nitrogen from other gas components on a membrane.

3. What inputs does a nitrogen generator require, and how does it operate?

A nitrogen generator typically requires air as the input source. When operating the nitrogen generator, air is compressed using an air compressor and then processed through the adsorber with molecular sieves or the membrane separator within the nitrogen generator. Finally, pure nitrogen is obtained as the output. Some nitrogen generators may also require an electrical power supply.

4. How is a nitrogen generator different from nitrogen supply in gas cylinders?

The main difference between a nitrogen generator and nitrogen supply in gas cylinders lies in the mode of nitrogen supply. A nitrogen generator continuously extracts nitrogen from the air, providing a continuous nitrogen supply without the need for cylinder replacements. In contrast, nitrogen supply in gas cylinders requires periodic cylinder replacements, and the supply quantity is limited by the cylinder capacity.

5. What should be considered for the maintenance of a nitrogen generator?

The maintenance of a nitrogen generator typically involves regular cleaning and replacement of the adsorber with molecular sieves or membrane separator, inspection and maintenance of the compressed air system, monitoring nitrogen generation performance, etc. Specific maintenance requirements should be referred to the user manual or guidance provided by the manufacturer of the nitrogen generator.

6. Which industries are nitrogen generators suitable for?

Nitrogen generators are widely used in various industries, including industrial, medical, food and beverage, and laboratory applications. They are commonly used in industries such as chemicals, electronics, and metal processing. In the medical field, they are used for anesthesia and gas delivery. In the food and beverage industry, they are used for packaging and preservation. In laboratories, they are used for atmospheric control and protection of equipment.

7. What is the noise level of a nitrogen generator during operation?

The noise level of a nitrogen generator varies depending on the model and design. Generally, nitrogen generators have low noise levels, especially when compared to traditional compressed air systems. Specific noise levels can be referred to the technical specifications or noise test reports of the nitrogen generator.

8. How long does it take for a nitrogen generator to start producing nitrogen gas?

The startup time of a nitrogen generator depends on the model and specifications. In general, nitrogen generators have short startup times, typically ranging from a few minutes to several tens of minutes. Larger capacity or higher purity requirement nitrogen generators may require longer startup times.

9. Can a nitrogen generator simultaneously produce nitrogen gas and oxygen gas?

The design purpose of a nitrogen generator is to separate oxygen and nitrogen to produce high-purity nitrogen gas. Therefore, in most cases, a nitrogen generator does not simultaneously produce nitrogen gas and oxygen gas. If simultaneous production of nitrogen and oxygen is required, additional equipment or techniques need to be used for further processing.

10. What is the energy consumption of a nitrogen generator?

The energy consumption of a nitrogen generator varies depending on the model, specifications, and operating conditions. Generally, nitrogen generators have relatively low energy consumption, especially when compared to traditional nitrogen supply in gas cylinders. Nitrogen generators are typically adjusted based on the actual nitrogen demand to improve energy efficiency and minimize energy consumption.

OUR SERVICE

1. Setting trace file for every sold product, quarterly survey for every sold product.
2. Providing remote instruction and training for free.
3. Providing on-site services and repairs for free during warranty period
4. Spare parts and on-site service would be charged with best price after warranty period.
5. 7*24 hours online service for free, solution within 48 hours.
6. If customer required, assigning experienced after-sales engineer for on-site service with 7 days. (Visa apply should be considered)

Our Certifications



COMPANY INTRODUCTION—BUSINESS LINE

- 1) Fabrication line and Automation system
- 2) Calibration/Testing system, ICT/FCT
- 3) PSA Oxygen and Nitrogen Generator
- 4) ABB Instrumentation Agent(Pressure, flow, Level, Temp, Drive, Motor)
- 5) ODM include Software & Hardware development and structure/fluid simulation
- 6) Onsite engineering Services / Technology Services: Installation, Commissioning and Maintenance

OUR CLIENTS:



OUR PARTNERS:



3

Our Certifications





Warranty

The Guarantee/Warranty Period shall be a period of twelve months after on-site startup & commissioning or eighteen months after shipment, whichever occurs first. If any trouble or defect, originating with the design, material, and workmanship or operating characteristics of any Goods, arises at any time during GUARANTEE/WARRANTY period, PB shall, at his own expense and as promptly as possible, make such alterations, repairs and replacements.

On-Site Support

PB can do paid services of on-site startup, commissioning, installation supervision, training, by providing purchaser with the services of qualified English-speaking engineer at step shall obtain all permits and licenses required to perform the services under this Agreement.

After Sales Support

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