20Nm3/H PSA Nitrogen Generator 99.99% Purity For Food, Metallurgy, Chemical

Our Product Introduction

Basic Information

- Place of Origin: China
- Brand Name: Eco-Tech
- Certification: CE ISO13485 ISO9001
- Model Number: EN4020
- 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: 20Nm/h
- Inlet Diameter: DN25
- Outlet Diameter: DN15
- Size: 1450*900*1900mm 600 Kg
- Demand For Clean Compressed Air: 1.67
- Recommend Air Compressor: 15Kw 2.1 M3/min 10Bar) Or 15Kw (2.4m3/min 8Bar)
- Control System: PLC
- Type: Nitrogen Generator
- Warranty: 1 Year
- Highlight: **20Nm3/H PSA Nitrogen Generator**, **PSA Nitrogen Generator 20Nm3/H**, **Metallurgy psa in nitrogen plant**

Our Product Introduction

Product Description

PSA Nitrogen Generator/Nitrogen Generator Rental: 20Nm3/H, 99.99% Purity, For Food, Metallurgy, Chemical
Description of 99.99% Purity 20Nm3/H PSA Nitrogen Generator Food, metallurgy, chemical industry applicable

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

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.

PN4020 PSA Nitrogen Plant Technical Specification				
lot	Item		Description /Specification	
1	Model/Place of Manufacture		PN4020	
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		20	Nm3/hr
5	Nitrogen Gas Purity		≥99.99 % 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		≤0.001mg/m3	
10	Residual dust		≤0.01um	
11	Residual water		≤0.069mg/m3	
12	Air inlet atmospheric dew point		-15	

13	Demand for clean compressed air	1.67	Nm^3/min	Recommend Air compressor	15Kw (2.1 m3/min 10Bar) or 15Kw (2.4m3/min 8Bar)
14	Inlet Diameter			DN25	
15	Outlet Diameter			DN15	
16	Maximum inlet temperature			MAX 30	
17	Allowable working pressure range			Min7.5Kgf / cm2 Max9.9Kgf / cm2	
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 unqalified 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:1450*900*1900mm 600 kg	
26	Price			含税含　交期20天	

2. Working Principles for PSA Nitrogen Generator

A nitrogen generator operates using the principle of Pressure Swing Adsorption (PSA) technology. It comprises two main adsorption towers and a set of control valves.

The process commences by introducing compressed air into one of the adsorption towers. Within the tower, a specialized adsorbent material, such as carbon molecular sieve, selectively adsorbs oxygen molecules while allowing nitrogen molecules to pass through.
Once the adsorption capacity of the tower for oxygen reaches saturation, the control valves switch the airflow to the second tower. Simultaneously, the first tower undergoes a desorption phase where the pressure is reduced, causing the adsorbent to release the previously adsorbed oxygen.

The released oxygen is then expelled from the system, while the second tower starts adsorbing oxygen from the incoming air stream. This cyclic process ensures a continuous supply of high-purity nitrogen.
By precisely regulating the airflow and pressure switching, the nitrogen generator achieves efficient separation and production of nitrogen with the desired purity level. This PSA-based principle enables reliable and cost-effective nitrogen generation across various applications.

3. Main Features for PSA Nitrogen Generator

- Raw material air is taken from nature. Nitrogen can be produced by supplying compressed air and power.
- Nitrogen purity can be adjusted conveniently and be produced by supplying compressed air
- The equipment is highly automated, produces gas quickly, and can be unattended. Nitrogen can be produced within 10-15 minutes of startup.
- The equipment process is simple, occupies a small area, consumes less energy and costs.
- Molecular sieves are filled by snowstorm method to avoid the pulverization of molecular sieves caused by avoid the pulverization of molecular sieves caused by high-pressure airflow impact and ensure the long-term use of molecular sieves.
- On-line inspection of imported analyzer with high access is simple, occupies a small area, consumes less energy,and costs.

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

Our nitrogen generator is designed to deliver exceptional performance with high quality, compactness, and efficiency. It incorporates spring-loaded valves for optimal balance and is equipped with a dedicated pressure sensor for added protection.
To achieve a purity level below 99.99%, we employ the CMS-240 adsorbent material. This proprietary carbon molecular sieve selectively removes oxygen molecules while allowing nitrogen to pass through, resulting in the desired purity.

For applications requiring an even higher purity of 99.999% in a single step, we utilize the CMS-260 adsorbent material. This advanced carbon molecular sieve offers superior adsorption capabilities, ensuring the production of ultra-pure nitrogen.
By integrating these cutting-edge components and adsorbent materials, our nitrogen generator guarantees reliable and efficient nitrogen production, precisely tailored to meet stringent purity requirements.

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 Nm3/H	Purity	Size mm	Inlet Diameter	Outlet Diameteer	Weight Kg	Power
PN5003	3	≥99.999%	900*500*1400	DN15	DN15	200	AC220V/0.2KW
PN5005	5	≥99.999%	1200*850*1550	DN20	DN15	300	AC220V/0.2KW
PN5010	10	≥99.999%	1450*1000*1900	DN25	DN15	600	AC220V/0.2KW
PN5015	15	≥99.999%	1450*1000*1900	DN25	DN15	700	AC220V/0.2KW
PN5020	20	≥99.999%	1450*1000*1900	DN25	DN15	800	AC220V/0.2KW
PN5030	30	≥99.999%	1650*750*1900	DN32	DN15	900	AC220V/0.2KW
PN5040	40	≥99.999%	1800*1200*2300	DN32	DN25	1100	AC220V/0.2KW
PN5050	50	≥99.999%	1800*1200*2300	DN25	DN25	1200	AC220V/0.2KW
PN5060	60	≥99.999%	1800*1200*2300	DN40	DN25	1500	AC220V/0.2KW
PN5080	80	≥99.999%	1800*1200*2450	DN40	DN25	2500	AC220V/0.2KW
PN5100	100	≥99.999%	2000*1400*2550	DN50	DN25	2600	AC220V/0.2KW
PN5120	120	≥99.999%	2000*1400*2550	DN50	DN25	2800	AC220V/0.2KW
PN5130	130	≥99.999%	2000*1400*2550	DN50	DN25	2950	AC220V/0.2KW
PN5150	150	≥99.999%	2200*1600*2650	DN50	DN25	3200	AC220V/0.2KW
PN5180	180	≥99.999%	2500*1600*3200	DN65	DN40	4500	AC220V/0.2KW
PN5200	200	≥99.999%	2500*1600*2900	DN65	DN40	5500	AC220V/0.2KW
PN5250	250	≥99.999%	2500*1600*2900	DN65	DN50	5500	AC220V/0.2KW
PN5300	300	≥99.999%	3000*2000*3550	DN80	DN50	8500	AC220V/0.2KW

-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, puring 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 industy application**
  Packaging, reduction, strage 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**
  Mianly 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?
A nitrogen generator can produce nitrogen gas of various purities, ranging from standard industrial-grade nitrogen (typically 95% to 99% purity) to high-purity nitrogen (usually exceeding 99.9%), and even ultra-high purity nitrogen (typically exceeding 99.999%). The choice of purity depends on specific application requirements.

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 includes several key tasks to ensure its optimal performance. These tasks involve:
Cleaning and Replacement: Regular cleaning and replacement of the adsorber with molecular sieves or membrane separator are essential to maintain efficient nitrogen generation. Over time, these components can accumulate impurities and require cleaning or replacement to ensure the nitrogen purity remains high.
Compressed Air System Inspection: The compressed air system, which supplies the nitrogen generator, should be inspected regularly. This involves checking for any leaks, ensuring proper pressure levels, and verifying the quality of the compressed air.
Performance Monitoring: Monitoring the nitrogen generation performance is crucial to ensure consistent and reliable operation. This may involve measuring and analyzing nitrogen purity levels, flow rates, and pressure to identify any deviations from the desired specifications.
It is important to note that specific maintenance requirements may vary depending on the type and model of the nitrogen generator. For detailed and accurate information, it is recommended to refer to the user manual or follow the maintenance guidance provided by the manufacturer of the nitrogen generator. They will provide specific instructions tailored to the particular model to help ensure the generator operates at its best.

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 is influenced by factors such as its specific model, specifications, and operating conditions. Overall, nitrogen generators are known for their relatively low energy consumption, particularly when compared to traditional nitrogen supply methods that involve gas cylinders.
Nitrogen generators are designed to optimize energy efficiency by adjusting nitrogen production based on the actual demand. This helps minimize energy waste and ensures that nitrogen is generated only when needed, reducing unnecessary energy consumption. By dynamically adjusting nitrogen production, nitrogen generators can adapt to varying usage patterns and maintain a steady nitrogen supply while optimizing energy efficiency.
The energy consumption of a nitrogen generator can be further optimized through various design features and technologies. For example, some nitrogen generators incorporate energy-saving components such as high-efficiency compressors, advanced control systems, and heat recovery systems. These features help minimize energy losses and improve the overall energy efficiency of the system.
It is worth noting that the specific energy consumption of a nitrogen generator can vary depending on factors such as the purity level of the generated nitrogen, the capacity of the generator, and the ambient conditions in which it operates. Manufacturers typically provide energy consumption specifications or guidelines based on standard operating conditions, allowing users to evaluate and compare different models based on their energy efficiency.
In summary, nitrogen generators are designed with energy efficiency in mind, resulting in relatively low energy consumption compared to traditional nitrogen supply methods. Their ability to adjust nitrogen production based on actual demand helps optimize energy efficiency and

minimize unnecessary energy consumption. Incorporation of energy-saving components and technologies further enhances their overall energy efficiency.

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:

Honeywell 霍尼韦尔 · ABB · 上海电气 SHANGHAI ELECTRIC · ZKH 震坤行 · Andanda · MGM MULTI GAS MEDIKA · ICA · BOSCH Invented for life · Yanfeng · SIMCO · AMETEK FLOORCARE & SPECIALTY MOTORS · 绿塔 AIR CLEANSE · YOKOGAWA · Unit Safety Ltd · BYD 比亚迪汽车 BYD AUTO

OUR PARTNERS:

上海交通大學 SHANGHAI JIAO TONG UNIVERSITY · 富士康 FOXCONN · 迈邦生物 MediumBank

Warranty

After Sales Support

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.

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