

PRISM® Fast-Track PSA Nitrogen Generation System



A reliable, cost-effective gas solution that can be installed on-site within two days.



Nitrogen on demand just got easier

The PRISM Fast-Track Pressure Swing Adsorption (PSA) Nitrogen Generation System is a turn-key fully skid mounted system that can be installed and started up in two days. The pre-designed, self-contained, fully automated system provides the lowest cost nitrogen solution for your application.

Serving diverse applications in:

- Metals treatment and processing
- Food processing and packaging
- Wineries bottling and inerting
- Electronics packaging and testing
- Chemicals and pharmaceuticals

Air Products' global success is built on providing our customers with economical on-site gas supply based on our proprietary technology, expertise and a commitment to continuous improvement. We apply that experience to provide the nitrogen purity and flow rate with the best solutions to meet your needs.

Features and benefits

Cost-effective gas supply

- Standard, pre-engineered systems allow for the most cost-effective nitrogen supply that can be optimized to meet flow and purity application requirements.
- Fully skid mounted, modular design for low-cost site installation.
- Compact design – minimal plot space. 18' (l) x 9.25' (w) x 12' (h)
- Fully automated controls for unattended operation.

High reliability and flexibility for a dependable gas supply

- Design and equipment selection proven through more than 75 years' experience operating air separation plants.
- Modular design allows for units to operate in parallel, providing higher flow rates and adding redundancy.

Low operating cost

- 50% turndown for power savings at reduced consumption rates.
- Air Products' proprietary adsorption process minimizes power consumption.
- Preventive maintenance program reduces overall maintenance costs.

Product characteristics

- Flow (scf/hr) ranges from 2,280 to 13,000 at up to 120 psig with purity in the range of 98% to 99.999%.

Process description

The PSA system comprises of four main operations:

- Air compression
- Air pretreatment
- Adsorption/desorption
- Product delivery



For more information,
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Air compressor

Atmospheric air is elevated to high pressure by a packaged air compressor.

Air pretreatment

The high-pressure feed air from the compressor passes through filters to remove excess water, oil and other contaminants.

Adsorption/desorption

The “treated” air enters an adsorption tower where it is contacted with a carbon molecular sieve that binds the oxygen and allows nitrogen to pass through. Purified nitrogen passes to product delivery operation. Once the oxygen capturing capacity in a bed is diminished, the feed switches to a new adsorption tower and the old bed is regenerated through rapid depressurization and is ready for the next cycle.

Product delivery

The “purified” nitrogen enters a nitrogen receiver tank that provides gas to the adsorber vessels during product repressurization and nitrogen buffer capacity. The nitrogen purity is continuously monitored by an oxygen analyzer prior to delivery to the customer houseline. Should the oxygen level rise above the preset alarm point, the product delivery valves isolate any off-specification product from the customer houseline. The system will automatically enter a “cleanup” mode, and product delivery will resume when the nitrogen purity is within specification. A flow control system prevents system overdraw.

Depending on your supply needs, we can also offer an integrated backup liquid nitrogen system to meet peak flow demands.



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airproducts.com/gasgeneration