Contact


FLOXAL™ Nitrogen

Nitrogen Pressure Swing Adsorption (PSA) Supply Systems


World leader in gases, technologies and services for Industry and Health, Air Liquide is present in 80 countries with close to 50,000 employees and serves more than 2 million customers and patients. Oxygen, nitrogen and hydrogen have been at the core of the company’s activities since its creation in 1902. Air Liquide’s ambition is to be the leader in its industry, delivering long-term performance and acting responsibly. 14AIR1446
N₂PSA Supply System

An Air Liquide N₂PSA system is a compact, fully integrated system that provides a continuous supply of nitrogen (N₂) as demand changes. It is a reliable, low-cost N₂ supply solution when cryogenic purity is not required.

N₂PSA Technology

N₂PSA production is a clean air separation operation that requires only ambient air and electricity. This process uses a carbon molecular sieve (CMS) to “adsorb” oxygen and separate N₂ from the air. It is the most economical mode of supply for a wide range of flow rates.

PSA BENEFITS

✓ Standard sizes cover a broad range of flow rates and purities
✓ Continuous, reliable N₂ supply of consistent quality
✓ Investment, installation, operation and maintenance by Air Liquide
✓ Customized system design ensures the lowest cost
✓ Modular design provides upgrade flexibility if demand increases
✓ Load following of N₂ demand minimizes energy costs
✓ Guaranteed performance—energy and flow rate
✓ Telemonitored performance tracking supported by a network of alarm response centers and qualified service technicians
✓ Liquid N₂ backup system assures uninterrupted supply
✓ Carbon footprint reduced significantly compared to delivered liquid N₂
✓ Optional iDATAL™ service provides real-time operating data via the Internet

Depending on purity, the range of flow rates available are as specified below.

<table>
<thead>
<tr>
<th>PURITY</th>
<th>FLOW RANGE (SCFH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>99.9%</td>
<td>2,500 - 50,000</td>
</tr>
<tr>
<td>99.5%</td>
<td>3,500 - 70,000</td>
</tr>
<tr>
<td>99.0%</td>
<td>4,500 - 105,000</td>
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<td>6,900 - 160,000</td>
</tr>
<tr>
<td>95.0%</td>
<td>7,800 - 185,000</td>
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</tbody>
</table>

Standard supply pressures of up to 110 psig with optional configurations available for higher pressure requirements.

THE N₂PSA SEPARATION PROCESS

Production Mode

✓ Compressed air is fed into the bottom of the vessel under pressure.
✓ Oxygen (O₂) molecules are adsorbed by CMS packed in the vessels.
✓ N₂ passes through the vessel and flows to the customer.
✓ Once the CMS material is “saturated” with O₂, switching valves open and close appropriately to initiate the regeneration of the CMS material and prepare it for the next production cycle.

Regeneration Mode

✓ The vessel is depressurized through the exhaust valve.
✓ O₂ molecules are released from the CMS.
✓ N₂ is injected at the top of the vessel to purge the depressurized vessel.
✓ The O₂ – rich waste stream exits the vessel and is exhausted to the atmosphere.
✓ Vessel is now ready for another N₂ production cycle.

YOUR N₂PSA SOLUTION IS ONLY THREE STEPS AWAY.

1. Meet with an Air Liquide representative to establish your facility’s N₂ supply requirements, including flow rate, flow profile, purity and pressure, and evaluate opportunities to optimize N₂ consumption.
2. Allow Air Liquide to design the optimal solution tailored to your unique needs.
3. Evaluate Air Liquide’s proposed solution and commercial offer and negotiate a supply agreement.

THE N₂PSA SYSTEM COMPONENTS INCLUDE

✓ Properly sized N₂PSA generator
✓ Air-cooled rotary screw compressor(s)
✓ Air pre-treatment equipment such as dryer(s) and filters
✓ Product analyzer(s) and a PLC control system
✓ Liquid N₂ system to back up and supplement the N₂PSA generator
✓ Teleflo™ system to remotely monitor the N₂PSA supply system
✓ Control room and spare parts storage

Whether you are replacing a bulk N₂ supply system or an existing N₂ generator, Air Liquide will help you minimize your N₂ costs with an optimally designed N₂PSA supply system to meet your specific and unique N₂ usage profile.

Our proven track record operating on-site N₂ supply systems assures you of the highest level of quality and reliability. And we back that up with our unique 100 percent gas cost assurance. Contact us today at 1-800-338-7028 and allow us to evaluate your N₂ needs and provide our recommendations.
An Air Liquide N\textsubscript{2}PSA system is a compact, fully integrated system that provides a continuous supply of nitrogen (N\textsubscript{2}) as demand changes. It is a reliable, low-cost N\textsubscript{2} supply solution when cryogenic purity is not required.

### PSA BENEFITS
- Standard sizes cover a broad range of flow rates and purities
- Continuous, reliable N\textsubscript{2} supply of consistent quality
- Investment, installation, operation and maintenance by Air Liquide
- Customized system design ensures the lowest cost
- Modular design provides upgrade flexibility if demand increases
- Load following of N\textsubscript{2} demand minimizes energy costs
- Guaranteed performance-energy and flow rate
- Telemonitored performance tracking supported by a network of alarm response centers and qualified service technicians
- Liquid N\textsubscript{2} backup system assures uninterrupted supply
- Carbon footprint reduced significantly compared to delivered liquid N\textsubscript{2}
- Optional iDATAL™ service provides real-time operating data via the Internet

### THE N\textsubscript{2}PSA SEPARATION PROCESS

#### Production Mode
- Compressed air is fed into the bottom of the vessel under pressure.
- Oxygen (O\textsubscript{2}) molecules are adsorbed by CMS packed in the vessels.
- N\textsubscript{2} passes through the vessel and flows to the customer.
- Once the CMS material is “saturated” with O\textsubscript{2}, switching valves open and close appropriately to initiate the regeneration of the CMS material and prepare it for the next production cycle.

#### Regeneration Mode
- The vessel is depressurized through the exhaust valve.
- O\textsubscript{2} molecules are released from the CMS.
- N\textsubscript{2} is injected at the top of the vessel to purge the depressurized vessel.
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- Vessel is now ready for another N\textsubscript{2} production cycle.

### YOUR N\textsubscript{2}PSA SOLUTION IS ONLY THREE STEPS AWAY.
1. Meet with an Air Liquide representative to establish your facility’s N\textsubscript{2} supply requirements, including flow rate, flow profile, purity and pressure, and evaluate opportunities to optimize N\textsubscript{2} consumption.
2. Allow Air Liquide to design the optimal solution tailored to your unique needs.
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