BAUER NPX™
High-Purity PSA Nitrogen Systems
NITROGEN

› Properties of Nitrogen ................................................................. 4
› Uses of Nitrogen .................................................................. 4
› Generating Nitrogen: PSA & Membrane Methods ...................... 4
› Types of Nitrogen and Logistics .................................................. 5

OVERVIEW OF BAUER NITROGEN SYSTEMS

› Why Buy Nitrogen When You Can Make Your Own? .................. 6
› BAUER Guarantees System Performance Over Time ................. 6
› BAUER PSA Based Nitrogen Systems For a Wide Variety Of Applications .................................................. 7

BAUER NPX™

› BAUER NPX™ System 1 ................................................................. 8
› BAUER NPX™ System 2 ................................................................. 9
› BAUER NPX™ System 3 ................................................................. 10
› BAUER NPX™ System 4 ................................................................. 11

CUSTOMER SUPPORT

› Parts & Training ............................................................................. 12
› Global Service & BAUER Helpdesk ................................................. 12

BAUER CONNECT®

› BAUER CONNECT® IOT .............................................................. 14

HIGH-PURITY NITROGEN IS OFTEN USED IN THE GAS ASSIST PLASTICS INJECTION MOLDING PROCESS
Nitrogen is an inert gas that is abundant in nature. The air we breathe consists of 78% nitrogen.

Two of the great properties of nitrogen are that it is inert and typically dry.

What makes nitrogen practically inert is the triple atomic bond of the \( \text{N}_2 \) diatom, which is one of the strongest atomic bonds observed in nature. Significant energies are needed in order to break this bond.

Nitrogen is extremely dry with a gaseous dew point of -70°F (-57°C).

Nitrogen is an inert gas that is abundant in nature. The air we breathe consists of 78% nitrogen. The two most common separation technologies for nitrogen are membrane and pressure swing adsorption (PSA).

The two most common separation technologies for nitrogen are membrane and pressure swing adsorption (PSA).

Most of the nitrogen used in industrial applications is generated by separating the nitrogen from the oxygen present in ambient air. The two most common separation technologies for nitrogen are membrane and pressure swing adsorption (PSA).

The benefit of these technologies is that nitrogen can be produced anywhere at any time.

The disadvantage is that the end-user is dependent on a vulnerable supply chain. Furthermore, liquid nitrogen is stored in cryogenic vessels which are expensive, bulky, and subject to leaks, thus creating waste. Cryogenic nitrogen suppliers typically require a long term contract at a locked-in rate which means that it is more expensive than other forms of nitrogen.

Nitrogen in liquid form is purchased from a merchant gas supplier. The advantage of nitrogen in liquid form is that large volumes of nitrogen can be shipped and stored onsite. The disadvantage is that the end-user is dependent on a vulnerable supply chain. Furthermore, liquid nitrogen is stored in cryogenic vessels which are expensive, bulky, and subject to leaks, thus creating waste. Cryogenic nitrogen suppliers typically require a long term contract at a locked-in rate which means that it is more expensive than other forms of nitrogen.

Nitrogen can be purchased in compressed gas form. This requires the use of heavy, high-pressure cylinders which can be hazardous. The use of high-pressure nitrogen cylinders is limited to small applications because of the limited storage capacity of the bottles. Furthermore, not the entire volume of the bottles can be used thus the end-user pays for gas which is not being used. Users of nitrogen cylinders are subject to the same supply chain interruption risks as users of cryogenic nitrogen.

Generating nitrogen onsite, on-demand is simple and is explained in the following sections.

Generating nitrogen onsite, on-demand is the preferred method for end-users who are in remote locations or who cannot afford any interruption in their nitrogen supply. Generating nitrogen onsite, on-demand is preferred for applications requiring >99.5% \( \text{N}_2 \) purity with the ability to provide nitrogen purities up to 99.999%.

The benefit of these technologies is that nitrogen can be produced anywhere at any time.

The disadvantage is that the end-user is dependent on a vulnerable supply chain. Furthermore, liquid nitrogen is stored in cryogenic vessels which are expensive, bulky, and subject to leaks, thus creating waste. Cryogenic nitrogen suppliers typically require a long term contract at a locked-in rate which means that it is more expensive than other forms of nitrogen.

Nitrogen in liquid form is purchased from a merchant gas supplier. The advantage of nitrogen in liquid form is that large volumes of nitrogen can be shipped and stored onsite. The disadvantage is that the end-user is dependent on a vulnerable supply chain. Furthermore, liquid nitrogen is stored in cryogenic vessels which are expensive, bulky, and subject to leaks, thus creating waste. Cryogenic nitrogen suppliers typically require a long term contract at a locked-in rate which means that it is more expensive than other forms of nitrogen.

Nitrogen can be purchased in compressed gas form. This requires the use of heavy, high-pressure cylinders which can be hazardous. The use of high-pressure nitrogen cylinders is limited to small applications because of the limited storage capacity of the bottles. Furthermore, not the entire volume of the bottles can be used thus the end-user pays for gas which is not being used. Users of nitrogen cylinders are subject to the same supply chain interruption risks as users of cryogenic nitrogen.

Generating nitrogen onsite, on-demand is simple and is explained in the following sections.

Generating nitrogen onsite, on-demand is the preferred method for end-users who are in remote locations or who cannot afford any interruption in their nitrogen supply. Generating nitrogen onsite, on-demand is preferred for applications requiring >99.5% \( \text{N}_2 \) purity with the ability to provide nitrogen purities up to 99.999%.

The benefit of these technologies is that nitrogen can be produced anywhere at any time.

The disadvantage is that the end-user is dependent on a vulnerable supply chain. Furthermore, liquid nitrogen is stored in cryogenic vessels which are expensive, bulky, and subject to leaks, thus creating waste. Cryogenic nitrogen suppliers typically require a long term contract at a locked-in rate which means that it is more expensive than other forms of nitrogen.
OVERVIEW OF BAUER PSA NITROGEN SYSTEMS
35 Years Of Nitrogen Generation Experience

WHY BUY NITROGEN WHEN YOU CAN MAKE YOUR OWN?
The BAUER Nitrogen Generators are self-contained, fully integrated, modular systems that eliminate the hazards involved with the handling of high-pressure cylinders, as well as the burden of the merchant-supplied nitrogen gas. BAUER PSA nitrogen generator systems are designed for the on-demand supply of nitrogen gas at purities up to 99.999%.

Generating nitrogen to meet customer required purity and quality is a critical process. BAUER PSA nitrogen generation systems require exact control of feed-air-flow, pressure, temperature, and quality (oil content, moisture content and particulate content), which BAUER provides in its systems.

All BAUER PSA nitrogen systems are engineered to provide years of reliable performance. Critical performance values such as pressure, temperature and O₂ content are electronically monitored after each critical process step in order to assure optimal long-term total system performance. BAUER NPX™ nitrogen systems adapt automatically to changing environmental conditions, as well as, changes in PSA systems as they age.

BAUER GUARANTEES SYSTEM PERFORMANCE OVER TIME
› Process performance monitoring after each critical step to assure nitrogen quality and purity
› Adaptive system that automatically adjusts to various ambient conditions, as well as, PSA aging
› Remote telemetry to provide real-time feedback of system performance

BAUER PSA BASED NITROGEN SYSTEMS FOR A WIDE VARIETY OF APPLICATIONS
BAUER produces a complete product line of PSA-based nitrogen systems suitable for a wide variety of applications including:
› Chemical Plants (blanketing)
› Electronics (wafer soldering)
› Food & Beverage (MAP)
› Plastic Injection Molding (Gas Injection Technology)
› Oil & Gas Refineries (blanketing)
› Structural Foam Molding

For these applications, BAUER PSA nitrogen generating systems are configured to include:
› Feed air system (optional)
› Feed air buffer tanks
› Pre-filtration, Post-filtration, and desiccant dryers
› Nitrogen generators
› PSA swing buffer tanks
› BAUER N-Series boosters compressor (optional)

BAUER PSA NITROGEN GENERATION PROCESS

<table>
<thead>
<tr>
<th>Model</th>
<th>Nitrogen Purity</th>
<th>Nitrogen Flow From PSA*</th>
<th>Discharge Pressure From PSA</th>
<th>Required Feed Air Pressure</th>
<th>Required Feed Air Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SCFM</td>
<td>M³/HR</td>
<td>PSIG</td>
<td>BARG</td>
</tr>
<tr>
<td>BAUER NPX NITROGEN SYSTEMS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SYSTEM 1</td>
<td>99.5-99.999%</td>
<td>4.5-19.6</td>
<td>76-333</td>
<td>37.74</td>
<td>4.9-5.1</td>
</tr>
<tr>
<td>SYSTEM 2</td>
<td>99.5-99.999%</td>
<td>5.8-29.9</td>
<td>115-550</td>
<td>37.74</td>
<td>4.9-5.1</td>
</tr>
<tr>
<td>SYSTEM 3</td>
<td>99.5-99.999%</td>
<td>10.8-47.2</td>
<td>183-802</td>
<td>37.74</td>
<td>4.9-5.1</td>
</tr>
<tr>
<td>SYSTEM 4</td>
<td>99.5-99.999%</td>
<td>24.8-108.6</td>
<td>421-1845</td>
<td>37.74</td>
<td>4.9-5.1</td>
</tr>
</tbody>
</table>

*Note 1 Nitrogen flow is dependent on desired nitrogen purity.
BAUER NPX™ SYSTEM 1
Designed for High-Purity Nitrogen Flow
Stationary On-Demand Nitrogen Generation System
4.5-19.6 SCFM @99.5 - 99.999% N₂

SYSTEM FOOTPRINT
Approx. DIMENSIONS L X W X H inches
System 1: 136” x 90” x 96” (3454 mm x 2286 mm x 2438 mm). Approximate.

<table>
<thead>
<tr>
<th>Model</th>
<th>Nitrogen Purity</th>
<th>Nitrogen Flow From PSA</th>
<th>Discharge Pressure From PSA</th>
<th>Required Feed Air Pressure</th>
<th>Required Feed Air Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPX100S1-995</td>
<td>99.5%</td>
<td>19.6</td>
<td>71</td>
<td>4.9</td>
<td>100</td>
</tr>
<tr>
<td>NPX100S1-999</td>
<td>99.9%</td>
<td>13.7</td>
<td>72</td>
<td>4.9</td>
<td>69.1</td>
</tr>
<tr>
<td>NPX100S1-9999</td>
<td>99.99%</td>
<td>8.6</td>
<td>74</td>
<td>5.1</td>
<td>62.5</td>
</tr>
<tr>
<td>NPX100S1-99999</td>
<td>99.999%</td>
<td>4.5</td>
<td>76</td>
<td>5.1</td>
<td>55.3</td>
</tr>
</tbody>
</table>

Performance based on the following: 95°F Ambient & 104°F Feed Air Temperatures
Designed to meet ISO 8573 Cl. 1.2.1 quality NitrogenParticle: < 100 P, Pressure Dew Point: ≤ -40°C, Oil: < 0.01 mg/m³

BAUER NPX™ SYSTEM 2
Designed for High-Purity Nitrogen Flow
Stationary On-Demand Nitrogen Generation System
6.8-29.9 SCFM @99.5 - 99.999% N₂

SYSTEM FOOTPRINT
Approx. DIMENSIONS L X W X H inches
System 2: 136” x 90” x 96” (3454 mm x 2286 mm x 2438 mm). Approximate.

<table>
<thead>
<tr>
<th>Model</th>
<th>Nitrogen Purity</th>
<th>Nitrogen Flow From PSA</th>
<th>Discharge Pressure From PSA</th>
<th>Required Feed Air Pressure</th>
<th>Required Feed Air Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPX100S2-995</td>
<td>99.5%</td>
<td>29.9</td>
<td>50.8</td>
<td>4.9</td>
<td>100</td>
</tr>
<tr>
<td>NPX100S2-999</td>
<td>99.9%</td>
<td>20.9</td>
<td>35.5</td>
<td>4.9</td>
<td>69.1</td>
</tr>
<tr>
<td>NPX100S2-9999</td>
<td>99.99%</td>
<td>13</td>
<td>22.1</td>
<td>5.1</td>
<td>108</td>
</tr>
<tr>
<td>NPX100S2-99999</td>
<td>99.999%</td>
<td>6.8</td>
<td>11.6</td>
<td>5.1</td>
<td>96</td>
</tr>
</tbody>
</table>

Performance based on the following: 95°F Ambient & 104°F Feed Air Temperatures
Designed to meet ISO 8573 Cl. 1.2.1 quality NitrogenParticle: < 100 P, Pressure Dew Point: ≤ -40°C, Oil: < 0.01 mg/m³
BAUER NPX™ SYSTEM 3

Designed for High-Purity Nitrogen Flow
Stationary On-Demand Nitrogen Generation System
10.8-47.2 SCFM @99.5 - 99.99% N₂

SYSTEM FOOTPRINT

Approx. DIMENSIONS L X W X H inches
System 3: 126 x 90 x 96 (3200 mm x 2286 mm x 2438 mm). Approximate.

Table:

<table>
<thead>
<tr>
<th>Model</th>
<th>Nitrogen Purity</th>
<th>Nitrogen Flow From PSA SCFM</th>
<th>M3/HR</th>
<th>Discharge Pressure From PSA PSIG</th>
<th>BARG</th>
<th>Required Feed Air Pressure PSIG</th>
<th>BARG</th>
<th>Required Feed Air Flow SCFM</th>
<th>M3/HR</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPX100S3-995</td>
<td>99.5%</td>
<td>19.2</td>
<td>33</td>
<td>71</td>
<td>5.1</td>
<td>100</td>
<td>6.9</td>
<td>158.8</td>
<td>264.7</td>
</tr>
<tr>
<td>NPX100S3-999</td>
<td>99.9%</td>
<td>20.6</td>
<td>35</td>
<td>74</td>
<td>5.1</td>
<td>100</td>
<td>6.9</td>
<td>155.8</td>
<td>264.7</td>
</tr>
<tr>
<td>NPX100S3-9999</td>
<td>99.99%</td>
<td>10.8</td>
<td>18.3</td>
<td>74</td>
<td>5.1</td>
<td>100</td>
<td>6.9</td>
<td>138.5</td>
<td>235.3</td>
</tr>
</tbody>
</table>

Performance based on the following: Temperature: 98°F ambient temperature & 104°F feed air temperature

System 3 Shown: NPX100S3-995/99999

BAUER NPX™ SYSTEM 4

Designed for High-Purity Nitrogen Flow
Stationary On-Demand Nitrogen Generation System
24.8-108.6 SCFM @99.5 - 99.999% N₂

SYSTEM FOOTPRINT

Approx. DIMENSIONS L X W X H inches
System 4 (PSA): 126 x 90 x 85 (3200 mm x 2286 mm x 2159 mm). Approximate.
System 4 (Tank): 126 x 90 x 97 (3200 mm x 2286 mm x 2464 mm). Approximate.

Table:

<table>
<thead>
<tr>
<th>Model</th>
<th>Nitrogen Purity</th>
<th>Nitrogen Flow From PSA SCFM</th>
<th>M3/HR</th>
<th>Discharge Pressure From PSA PSIG</th>
<th>BARG</th>
<th>Required Feed Air Pressure PSIG</th>
<th>BARG</th>
<th>Required Feed Air Flow SCFM</th>
<th>M3/HR</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPX100S4-995</td>
<td>99.5%</td>
<td>108.6</td>
<td>184.5</td>
<td>71</td>
<td>4.9</td>
<td>100</td>
<td>6.9</td>
<td>478</td>
<td>812.1</td>
</tr>
<tr>
<td>NPX100S4-999</td>
<td>99.9%</td>
<td>76</td>
<td>129.1</td>
<td>72</td>
<td>4.9</td>
<td>100</td>
<td>6.9</td>
<td>429.4</td>
<td>729.5</td>
</tr>
<tr>
<td>NPX100S4-9999</td>
<td>99.99%</td>
<td>47.4</td>
<td>80.5</td>
<td>74</td>
<td>5.1</td>
<td>100</td>
<td>6.9</td>
<td>390</td>
<td>662.6</td>
</tr>
<tr>
<td>NPX100S4-99999</td>
<td>99.999%</td>
<td>24.8</td>
<td>42.1</td>
<td>74</td>
<td>5.1</td>
<td>100</td>
<td>6.9</td>
<td>345.5</td>
<td>587</td>
</tr>
</tbody>
</table>

Performance based on the following: Temperature: 98°F ambient temperature & 104°F feed air temperature

System 4 Shown: NPX100S4-995/999999
QUALITY AND RELIABILITY
Our factory-original replacement parts assures you that when maintenance or repair is performed, you are restoring the unit to its original specifications and performance.

COMPATIBILITY
We configure our designs with interchangeability and our end user in mind. You can count on parts being available for all BAUER models.
PartsSales@BauerComp.com or +1 (844) 500-5822

TRAINING TOPICS
Basic mechanical theory, control system theory (electric and pneumatic) along with troubleshooting for all BAUER systems.
Class schedule and course registration at: www.BauerCustomerTraining.com

GLOBAL SERVICE
FROM THE SOURCE
BAUER COMPRESSORS INC., is certified with ISO 9001:2015 quality processes providing you with confidence that cannot be duplicated by sub-standard after-market parts and service.

SERVICE AND SUPPORT
Our compressors are designed with you in mind. Easy to use manuals guide you through clear, mechanically accessible repairs. Our worldwide distribution network was developed to assist in after-sales support, along with product and maintenance parts assistance.

MECHANICAL & ELECTRICAL
Total customer satisfaction is our top priority. BAUER provides 24-7 phone tech and troubleshooting support at our BAUER Helpdesk. Our support continues throughout our warranty period and beyond.

For BAUER Helpdesk please email: CustomerService@BauerComp.com or call at: +1 (844) 500-5822
BAUER CONNECT® REMOTE TELEMETRY AND CONTROL VIA MOBILE APP

BAUER CONNECT® is an app and Internet-based IoT solution which allows BAUER customers to remotely control and monitor the performance of the entire BAUER system, through any wireless mobile device or computer; anytime, anywhere. Key Features: allow customers to increase efficiency and productivity, save time, do more with fewer resources, enjoy lower operational costs, and have total flexibility with a solution tailored specifically for the end-user. BAUER CONNECT® - Connection that matters.

BAUER REMOTE HMI

The BAUER Remote HMI function allows factory-trained technical personnel to remotely control the BAUER system via the BAUER CONNECT® App with the same functionality as if one were standing in front of the actual unit.

- Live connection and control of all units no matter the location(s)
- Save time and money with remote monitoring
- Secure log-ins - Only approved team members can access and control your compressor system

MOBILE DASHBOARDS

BAUER CONNECT® App will also display a real-time graphical display of the entire system (SCADA view). The Mobile Dashboard feature provides information such as compressor system status, error log, critical pressures and temperatures, and volume of air dispensed in storage information, etc.

- Quick reference of all of your units at your fingertips
- Does not require password validation every time app is used
- Beneficial tool, that allows for monitoring without the ability to control the unit(s)
- Dashboards can be customized to specific customer needs

BAUER REPORTS

The BAUER Reports feature is a function that generates custom reports tailored to the specific needs of the customer. Customers can have access to historical data via a multitude of standard and customized reports.

NOTIFICATIONS

The BAUER CONNECT® Mobile App will send push notifications if certain critical parameters of the BAUER system fall outside of normal operating range or if triggered by a system alert. This assures that essential personnel is notified immediately, thus allowing for pro-active intervention in a situation that could potentially be detrimental to the BAUER system as well as the customer’s operation.

BAUER PREDICTIVE ANALYTICS

This feature of BAUER CONNECT® provides a new pro-active dimension to perpetually maintaining customers’ compressor systems at peak conditions with minimum downtime. BAUER’s predictive analytics algorithm uses artificial intelligence to analyze the collected system information on the BAUER Cloud to predict upcoming maintenance requirements and preventative actions to avoid unplanned shutdowns.

Available on

To sign up and register go to Signup.Bauer-Connect.com