PneuTech®
NITROGEN

5 YEAR WARRANTY

UltraN$_2$ High-Purity Series PSA Nitrogen Generators

99.999% Purity

PneuTech.com

Features & Benefits

UltraN2 High-Purity Pressure Swing Adsorption PSA Nitrogen Generators

Design

Our experienced team of design engineers are always looking for new and unique technologies and products to bring you the highest level of performance and lowest overall operating cost.

Manufacture

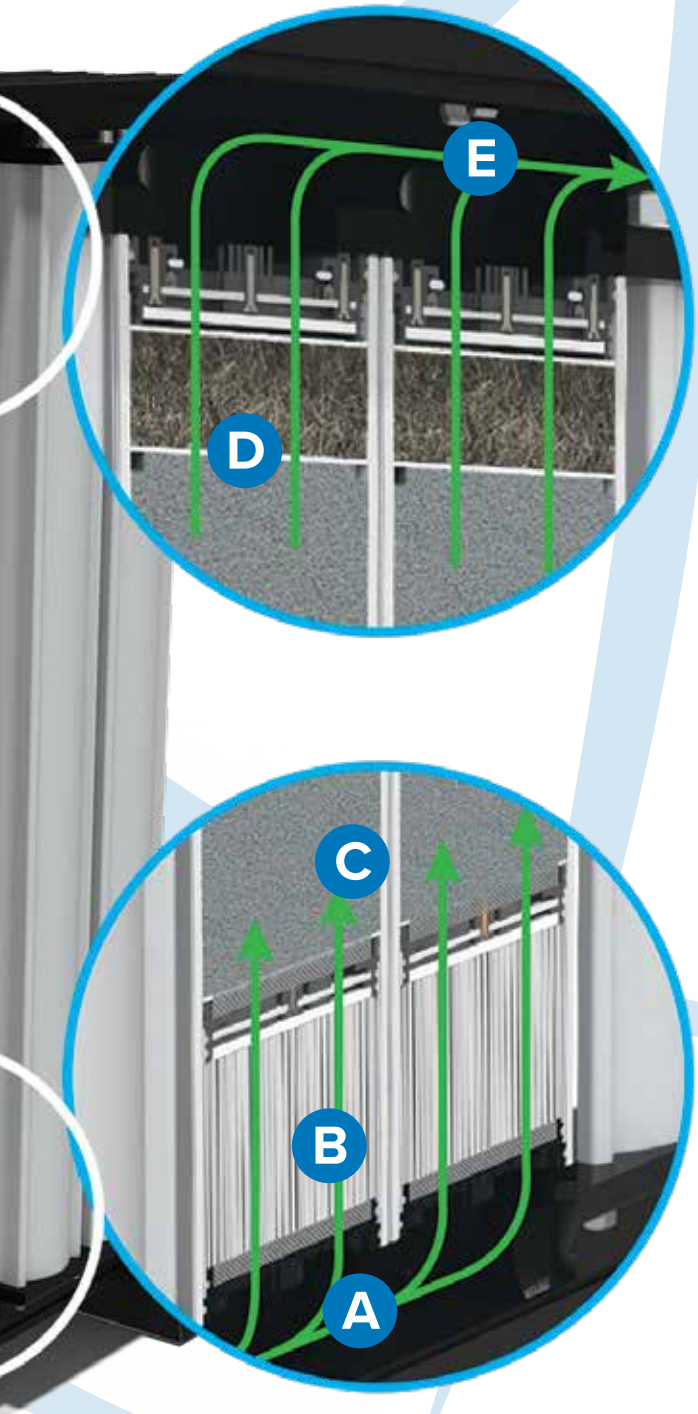
The reliable and energy saving UltraN2 range of nitrogen generators are manufactured in our state-of-the-art facility to the highest standards of build quality to ensure equipment reliability and high levels of performance.

Dry and Pure

Nitrogen is used in many commercial and industrial applications to improve the quality of a product or process or as a safety measure to prevent combustion. Liquid or bottled nitrogen delivery and storage can be expensive, unreliable and a safety concern. Nitrogen generators allow users to produce nitrogen in-house simply and inexpensively using an existing compressed air system. PneuTech recognizes the importance of having a safe, reliable and cost-effective supply of high-purity nitrogen. We have developed the UltraN2 nitrogen generator to meet the increasing demand for high quality, complete packaged solutions that save energy and time while fulfilling the needs of their intended application.

Reliable High Performance Valves

Inlet, outlet and exhaust are managed through unique integrated piston valves, which are designed for reliability, long service life and ease of maintenance. The generator also incorporates adjustable equalization valves, which smooth the column switch over, improve air/N2 ratios and extend CMS life. This highly durable valve system is backed by a two-year warranty.



A Inlet manifold
B Integrated dryer (optional)
C Carbon molecular sieve (CMS)
D Integrated bed support layer
E Outlet manifold

R WARRANTY

Econo-Mode Energy Saving Control

This unique control feature utilizes an outlet pressure monitor to reduce energy consumption during periods of low demand to ensure a continuous uninterrupted nitrogen supply while minimizing power consumption.

Multi-Bank Design

The unique multi-bank design (UltraN2 Models NGU-0200A to 4000A) enables additional generators to be added in the future as demand increases. Your UltraN2 nitrogen generation system can grow with your company.

Maximum Corrosion Protection

High tensile aluminum columns are first chromate treated and then powder coated to provide maximum protection for corrosive environments.

Oxygen Analyzer

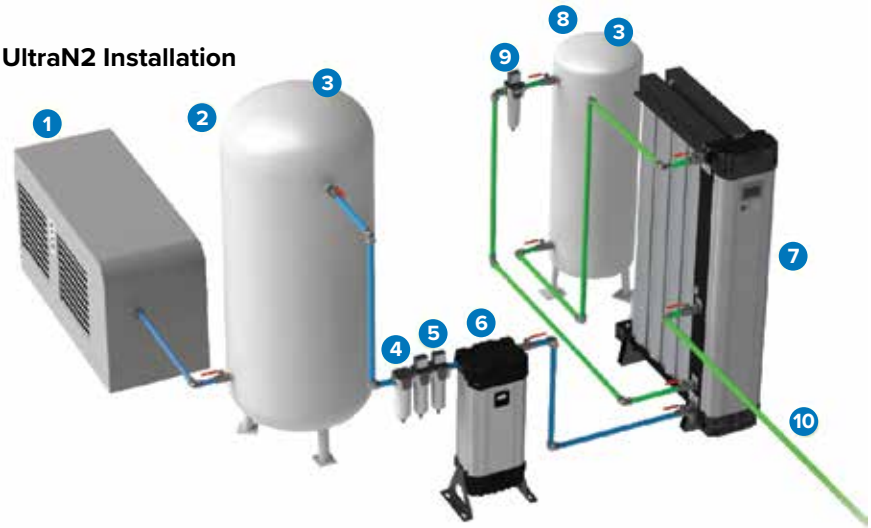
A built in oxygen analyzer continuously monitors the oxygen concentration in the nitrogen stream. Our analyzer utilizes Zirconia Sensor Technology to give a more reliable measurement, faster response time and longer life compared to traditional analyzers. Incorporated into the PLC controls, our oxygen analyzer guarantees downstream purity levels are consistently achieved and maintained.

PLC-Controlled Operation

Each UltraN2 nitrogen generator is operated by a reliable PLC control system with digital and optional analog outputs for remote monitoring and alarm capabilities. UltraN2 includes an easy-to-operate touch screen graphical interface which offers valuable features including ‘power on’, ‘hours run’, ‘oxygen purity’, ‘pressure’, ‘online column’ and ‘service required’ indicators. In addition, four pressure gauges provide the operator with continuous indication of column A, column B, air inlet and nitrogen outlet pressures.

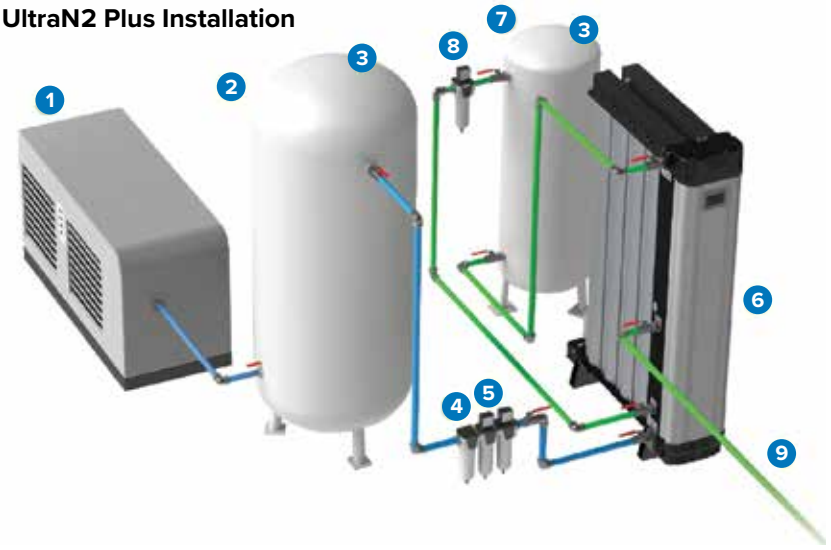
Installation Options

UltraN2 Installation



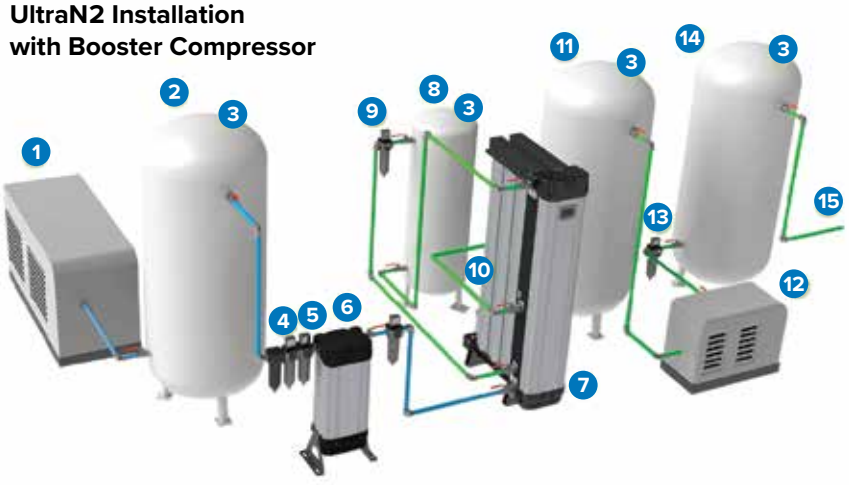
1 Compressor
2 Wet air receiver
3 Pressure relief valves
4 Water separator
5 Pre-filters
6 Dryer with integrated dust filter
7 Nitrogen generator
8 Receiver tank
9 Receiver tank filter
10 Nitrogen outlet

UltraN2 Plus Installation



1 Compressor
2 Wet air receiver
3 Pressure relief valves
4 Water separator
5 Pre-filters
6 Nitrogen generator with integrated dryer
7 Receiver tank
8 Receiver tank filter
9 Nitrogen outlet

UltraN2 Installation with Booster Compressor



1 Compressor
2 Wet air receiver
3 Pressure relief valves
4 Water separator
5 Pre-filters
6 Optional dryer with integrated dust filter
7 Nitrogen generator
8 Nitrogen receiver tank
9 Buffer receiver tank filter
10 Nitrogen outlet
11 Inlet receiver tank to booster compressor
12 Booster compressor
13 Mid- or high-pressure filters
14 Mid- or high-pressure nitrogen storage
15 High-pressure nitrogen outlet

Efficiently Produce Your Own Nitrogen

Nitrogen is a dry, inert gas which is used in many commercial and industrial applications to improve quality or where oxygen may be harmful to the product or processes.

With traditional methods of gas supply such as liquid or bottled nitrogen, users are liable for hidden costs such as rental, refill and delivery, order processing charges as well as an environmental levy charge. Nitrogen generators use regular compressed air to deliver a continuous supply of high-purity nitrogen – offering a cost effective and reliable alternative to the use of cylinder or liquid nitrogen across a wide range of applications. When you switch to an UltraN2 gas generator, you can expect payback typically within 6 to 24 months.

The compact UltraN2 system can be installed easily with minimal cost and disruption and requires only a pre-treated compressed air system to start production. An on-site generator enables users to fulfill their demand for nitrogen gas on their premises, under their complete control. As a result, companies can generate as much or as little nitrogen as needed at a fraction of the cost of having the gas delivered by an external supplier.

Guaranteed Performance

- Reliable performance based on decades of experience with pressure swing adsorption technology
- 100% function and performance tested at our factory
- 5 year warranty

Rapid Return on Investment

- Significant cost savings over cylinder or liquid supply provides a typical return on investment of less than 24 months

Easy to Install

- The compact design allows installation in spaces too small for twin tower generator systems

Safe & Reliable

- Eliminates the safety hazards of transporting and storing pressurized gas cylinders or liquid nitrogen

Environmentally Friendly

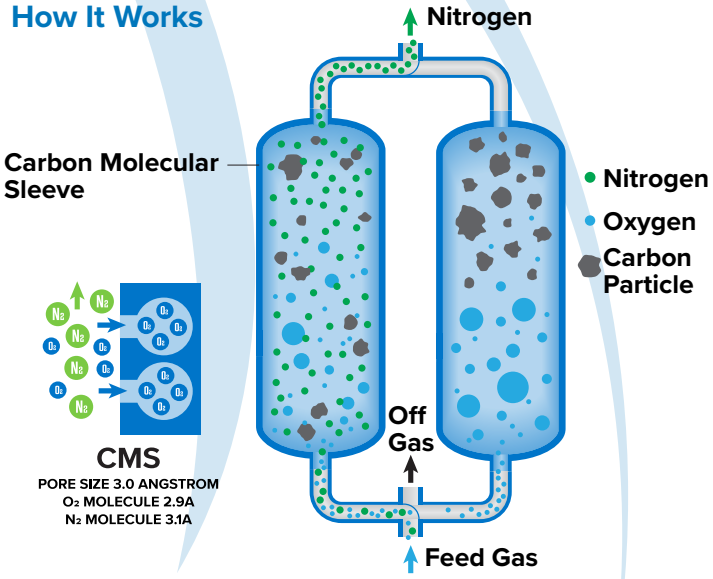
- Lower air consumption and refined controls provide greater energy efficiency
- Reduces carbon footprint by eliminating gas delivery to your facility

Nitrogen Purity: 95% to 99.999%

Leading edge technology and hundreds of years of experience... PneuTech purification solutions, your world-class manufacturer of state-of-the-art compressed air and nitrogen generation to industry.

Our commitment at PneuTech is to work alongside our customers and provide unique solutions with the highest quality products to solve your specific challenges. A wealth of experience and leading edge products are only part of the equation. We recognize that world-class customer service is the most important component to any successful business.

How It Works



Easy to Maintain

- Advanced PLC with HMI touchscreen controls simplify operation and require minimal training
- Innovative piston valves significantly reduce maintenance schedules and minimize downtime

Fits Any Application

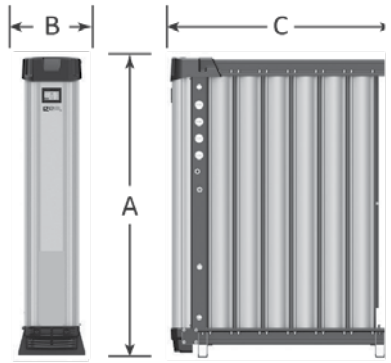
- Maximum design operating pressure of 232 psig available
- Available in a wide range of flow rates and purities from 95% - 99.999%
- Can handle any power supply from 100 to 240 VAC in 50 or 60 Hz, 24VDC optional

Design Quality

- Mass flow controller: ensures correct set pressure and flow
- Integral oxygen analyzer: continuously measures gas purity
- Purity guarantee valve: automatically vents off out-of-specification gas
- Remote monitoring: enables connection to proprietary remote management and generator control systems

Technical Specifications

UltraN2 High Purity PSA Nitrogen Generators



Specifications

Design Operating Pressure Range	80-200 PSIG (5.5 - 13 BARG) **(2)**
Design Operating Temperature Range	40 - 122°F (5.5 - 50°C)
Maximum Inlet Particulate	0.1 micron
Maximum Inlet Dew Point	80°F (27°C) PDP
Maximum Inlet Oil Content	0.01 ppm **(3)**
Maximum Outlet Dew Point	-40°F (-40°C) PDP **(4)**
Supply Voltage	100 - 240 VAC (50 or 60Hz) or 24VDC

Model	Rated Outlet Flow **(1)**	Nitrogen purity at the outlet (maximum oxygen content)*												Dimensions (in)			Approx. Weight
		100.00%	**100.00%**	**99.99%**	**99.98%**	**99.95%**	**99.90%**	**99.50%**	**99%**	**98%**	**97%**	**96%**	**95%**				
		(10 ppm)	(50 ppm)	(100 ppm)	(250 ppm)	(500 ppm)	-0.10%	-0.50%	1%	2%	3%	4%	5%	Height	Width	Length	lbs
NGU0200	scfh	49	71	81	95	109	127	184	205	258	293	335	364	47.8	15.7	23	375
NGU0400	scfh	99	141	162	191	219	254	367	410	516	586	671	727	47.8	15.7	29.6	437
NGU0600	scfh	148	212	244	286	328	381	551	614	773	879	1006	1091	47.8	15.7	36.2	560
NGU0800	scfh	180	254	297	353	403	466	667	742	932	1070	1218	1324	71.3	15.7	29.6	589
NGU1200	scfh	270	381	445	529	604	699	1001	1112	1398	1605	1828	1986	71.3	15.7	36.2	780
NGU1500	scfh	360	509	593	706	805	932	1335	1483	1865	2140	2437	2649	71.3	15.7	42.8	972
NGU2200	scfh	540	763	890	1058	1208	1398	2002	2225	2797	3210	3655	3973	71.3	15.7	55.9	1356
NGU3000	scfh	720	1017	1187	1411	1610	1865	2670	2966	3729	4280	4873	5297	71.3	15.7	69.3	1739
NGU3500	scfh	828	1170	1365	1623	1852	2144	3070	3411	4289	4922	5604	6092	71.3	15.7	82.5	2123
NGU4000	scfh	962	1358	1584	1884	2150	2489	3564	3960	4979	5714	6506	7072	71.3	15.7	95.6	2507

Temperature correction factors (5)

Inlet temperature °F	41	50	59	68	77	86	95	104	113	122
Inlet temperature °C	5	10	15	20	25	30	35	40	45	50
Correction factor	0.8	0.9	0.94	1	1	0.98	0.95	0.9	0.85	0.72

Pressure Correction Factors (5)

Operating pressure (psig)	90	100	115	130	145
Operating pressure (barg)	6	7	8	9	10
Correction factor	0.9	1	1.1	1.2	1.25

(1) at 100 psig (7 barg) inlet pressure and 68 - 77°F (20 - 25°C) inlet temperature.
For outlet flow at all other conditions, refer to the correction factors above or contact support@pneutech.com
(2) 232 psig (16 barg) is available upon request. Consult factory.
(3) including oil vapor
(4) outlet gas dew point is < -76°F (-60°C) in high-purity applications
(5) to be used as a rough guide only. All applications should be confirmed by PneuTech. Contact us for sizing assistance.

Other PneuTech Products

RK Fixed Speed Rotary Screw
5HP-50HP

RK Variable Speed Rotary Screw
5HP-75HP

RSP VSD & Fixed Speed Rotary Screw
75HP-450HP

RKHD VSD & Fixed Speed Rotary Screw
50HP-420HP

FHO Inline Filtration

RDA Refrigerated Air Dryers
Non-Cycling - 13-550 CFM

CSO Oil Water Separators

RDA Refrigerated Air Dryers
Variable Speed - 800-6,000 CFM

5-Year Pneu-Assure Warranty

Industry-Leading Peace-of-Mind

- **5-Year Warranty on Pressure Vessels**
- **2-Year Warranty on the Entire Unit**
  Regular maintenance NOT included
- **Guaranteed Support**
  From PneuTech and your local dealer
- **Technical Expertise**
  Industry-leading knowledge & experience

Warranty subject to change based on region and dealer agreement.

5-Year Warranty on Pressure Vessels requires the use of Genuine PneuTech Parts

Cost Comparison

Outsourced Nitrogen vs. In-House Production

The typical range in cost of various types of conventional sources of N2 supply in the North American marketplace:

Cylinder
$8.00 - $40.00 per 100 ft³

Liquid Dewar
$1.80 - $4.50 per 100 ft³

Bulk Liquid
$0.40 - $2.50 per 100 ft³

Depending on nitrogen purity required, geographic location and associated electricity costs, typical operating costs (energy and maintenance) for generating nitrogen on site:

Low Purity 95-97%
$0.06 - $0.10 per 100 ft³

Medium Purity 99.%
$0.10 - $0.18 per 100 ft³

High Purity 99.99%
$0.17 - $0.30 per 100 ft³

Ultra-High Purity 99.999 %
$0.26 - $0.45 per 100 ft³

Generate Your Own Nitrogen

Use the PneuTech Nitrogen Generation Worksheet to better understand your nitrogen requirements, applications and expenses.

Simply provide your current or future system demands and one of our highly qualified nitrogen generation system engineers will get back to you promptly.

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