Ultra-High Purity Nitrogen Generators

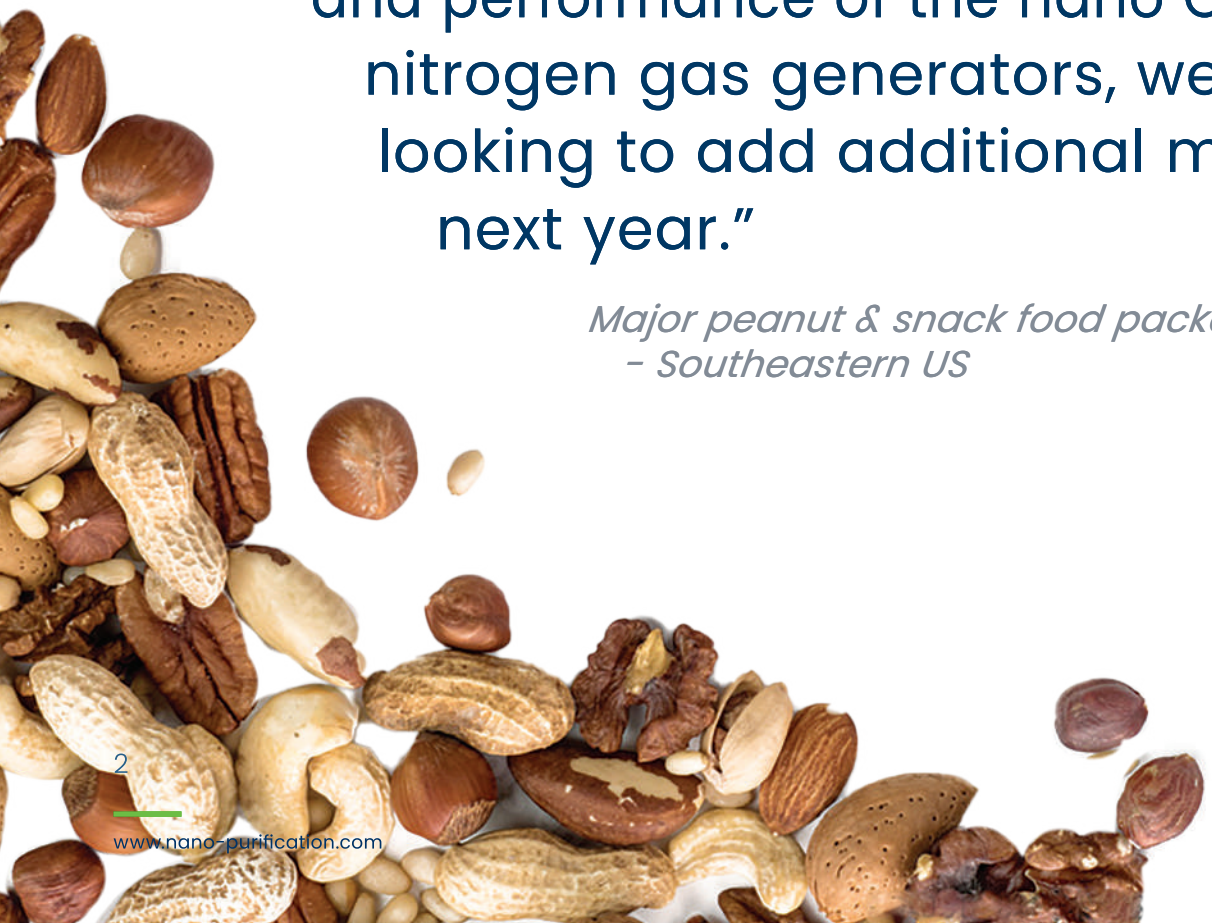
NITROGEN PURITY: 95% to 99.999%

Multi-Bank Design

The unique multi-bank design (GEN2 1110 to GEN2 12130) enables additional generators to be added in the future as demand increases and provides redundancy for ease of maintenance. Your GEN2 i4.0 nitrogen generator can grow with your company.

"We are so impressed with the operation and performance of the nano GEN2 i4.0 nitrogen gas generators, we are looking to add additional modules next year."

Major peanut & snack food packager - Southeastern US



Nitrogen is a dry and inert gas that has proven to be an essential component in various commercial and industrial processes where oxygen can have detrimental effects.

While traditional methods of gas supply, such as bottled or liquid nitrogen, come with hidden costs such as rental fees, refill and delivery surcharges, order processing charges, and environmental fees, nitrogen generators offer a reliable and cost-effective alternative.

By using clean, dry compressed air, nitrogen generators produce a constant supply of high-purity nitrogen, making in-house nitrogen generation a highly efficient and dependable solution for wide-ranging applications.

nano GEN2 i4.0 Nitrogen Gas Generators

- Payback typically between 6 to 24 months
- Easy installation with minimal cost and disruption
- User has complete control fulfilling nitrogen gas demand.
- Generate as little or as much nitrogen gas as needed at a fraction of delivered gas cost.

Features

PLC/HMI Controlled Operation i4.0

- Operated by a reliable PLC control system with digital and optional analog outputs for remote monitoring and alarm capabilities.
- Provides the operator with continuous indication of column A, column B, inlet air & Nitrogen outlet pressures and features an easy-to-operate touch screen graphical human-machine interface (HMI) which offers valuable information including:
  - Power On Off
  - Oxygen Purity
  - Inlet & Outlet Pressure
  - Online Column
  - Service Required
  - Run Hours

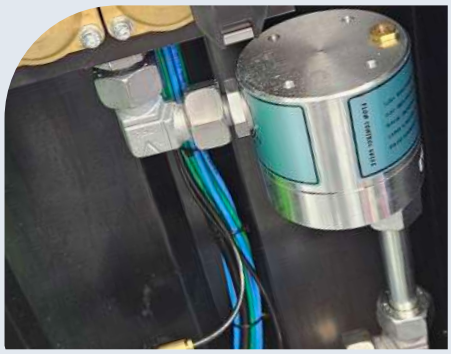
Communication

- Standard communication protocols include modbus TCP communications via RJ45 ethernet port and 4-20 mA signal to monitor nitrogen purity.
- An upgradable SD card records the performance of the generator and data that can be downloaded to any PC for analysis.

Purity Dependent Energy Saving (PDES)

- With the optional employment of 2 oxygen analyzers, the PDES option allows additional energy saving to be attained by keeping the purity within a narrow band of the required value.
- Achieved by elongating the adsorption cycle and consequently saving valuable compressed air.

Benefits



Mass Flow Controller (MFC)

Purity Guarantee Valves

Integral Oxygen Analyzer

Guaranteed Performance

- 100% function and performance tested at our factory
- 2 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.
- *ecomode* energy savings control reduces energy consumption during periods of low demand.

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.

Easy to Maintain

- Innovative piston valves significantly reduce maintenance schedules and minimize downtime.

Environmentally Friendly

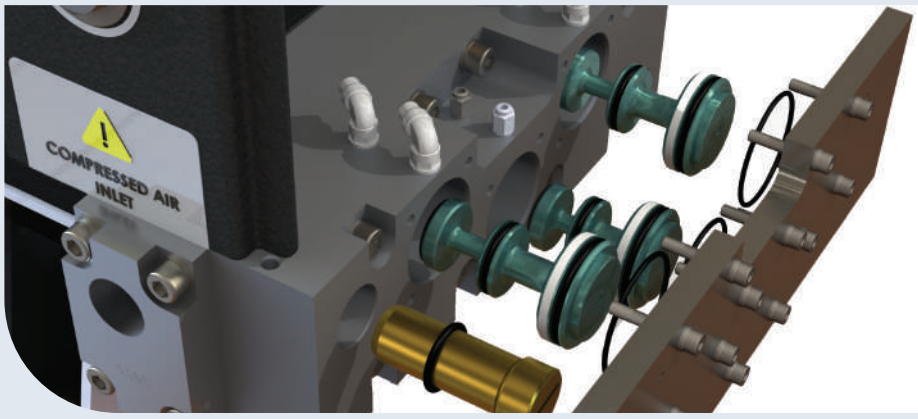
- Reduces carbon footprint by eliminating gas delivery to your facility.

Fits any Application

- Maximum design operating pressure of 232 psig available

Design Quality

- Mass flow controller - ensures correct application pressure and flow.
- Integral oxygen analyzer - continuously measures and guarantees gas quality.
- Purity guarantee valve - automatically ensures gas meets desired specifications.
- Remote monitoring - enables connection to proprietary remote management and generator control systems.



Reliable High Performance Valves

- Inlet, outlet and exhaust are managed through unique integrated nano piston valves, which are designed for reliability, long service life and ease of maintenance.
- Incorporates adjustable equalization valves which smooth the column switch over, improve air/ nitrogen ratios and extend CMS life.

How it works

Generating nitrogen gas from compressed air

The nano GEN2 i4.0 nitrogen generator represents the latest in cutting-edge technology, providing a continuous and uninterrupted stream of nitrogen gas from clean and dry compressed air. Operating on the Pressure Swing Adsorption (PSA) principle, this advanced system utilizes dual chamber extruded aluminum columns that are filled with Carbon Molecular Sieve (CMS). These high-density filled columns produce a dual bed system that is connected via an upper and lower manifold, and our control system automatically switches the beds after a preset time. One bed is always online, generating nitrogen while the other is being regenerated. During the regeneration process, the CMS collects oxygen, which is then exhausted to the atmosphere, and a small portion of the outlet nitrogen gas is expanded into the bed to speed up the regeneration process.

A Clean compressed air enters the inlet into GEN2 i4.0 unit where the inlet valves direct the flow to either the left or right column sets.

B After passing through the inlet valve, the compressed air enters one side of the manifold under the extruded columns.

C The compressed air then flows up through the carbon molecular sieve (CMS) beds where oxygen and other trace gases are preferentially adsorbed and allows the nitrogen to pass through.

D The nitrogen gas then passes through the supporting bed layer into the outlet manifold before exiting through the outlet valves.

E The nitrogen gas continues to the buffer vessel and the nano GFN buffer vessel filter before returning to the GEN2 i4.0 unit for purity monitoring, flow & purity regulation.

Product Specifications

		Nitrogen Purity* at the Outlet (Maximum Oxygen Content)												DIMENSIONS (INCHES)			WEIGHT
MODEL	RATED OUTLET FLOW [1]	99.999 (10 ppm)	99.995 (50 ppm)	99.99 (100 ppm)	99.975 (250 ppm)	99.95 (500 ppm)	99.9 (0.10)	99.5 (0.50)	99 (1)	98 (2)	97 (3)	96 (4)	95 (5)	A	B	C	LBS
GEN2 4.0-1110	scfh	32	60	71	88	106	127	184	205	258	293	335	364	48	16	24	348
GEN2 4.0-2110	scfh	64	120	141	177	212	254	367	410	516	586	671	727	48	16	30	461
GEN2 4.0-3110	scfh	95	180	212	265	318	381	551	614	773	879	1006	1091	48	16	37	573
GEN2 4.0-2130	scfh	180	254	297	353	403	466	667	742	932	1070	1218	1324	72	16	30	578
GEN2 4.0-3130	scfh	270	381	445	529	604	699	1001	1112	1398	1605	1828	1986	72	16	37	750
GEN2 4.0-4130	scfh	360	509	593	706	805	932	1335	1483	1865	2140	2437	2649	72	16	44	922
GEN2 4.0-6130	scfh	540	763	890	1058	1208	1398	2002	2225	2797	3210	3655	3973	72	16	57	1309
GEN2 4.0-8130	scfh	720	1017	1187	1411	1610	1865	2670	2966	3729	4280	4873	5297	72	16	70	1609
GEN2 4.0-10130	scfh	828	1170	1365	1623	1852	2144	3070	3411	4289	4922	5604	6092	72	16	83	1953
GEN2 4.0-12130	scfh	962	1358	1584	1884	2150	2489	3564	3960	4979	5714	6506	7072	72	16	96	2284

*Nitrogen purity relative to oxygen content

SPECIFICATIONS	
Design operating pressure range (psig) [2]	87 to 174
Design operating temperature range (°F)	41 to 122
Recommended operating temperature range (°F)	41 to 86
Maximum inlet particulate (micron)	0.1
Maximum inlet dew point (°F PDP) [3]	+38
Recommended inlet dew point (°F PDP)	-40
Maximum inlet oil content (ppm) [4]	0.01
Supply voltage (Hz)	50 or 60

(1) At 100 psig inlet pressure and 68 - 77°F inlet temperature. For outlet flow at all other conditions refer to the correction factors above or contact support@nano-purification.com.

(2) 232 psig option available in USA. 210 psig option available in Canada. Consult factory.

(3) For low purity applications only

(4) Including oil vapor.

(5) To be used as a rough guide only. All applications should be confirmed by nano. Contact nano for sizing assistance.

(6) Technical specifications subject to change without notice. Direct inquiries to support@nano-purification.com.

PRESSURE CORRECTION FACTORS [5]								
Operating pressure (psig)	90	100	115	130	145	160	174	>174
Correction factor	0.88	1.00	1.10	1.20	1.30	1.40	1.50	CF

TEMPERATURE CORRECTION FACTORS [5]										
Inlet temp (°F)	41	50	59	68	77	86	95	104	113	122
Correction factor	0.8	0.9	0.94	1.00	1.00	0.98	0.95	0.90	0.85	0.72

GEN2 1110 to GEN2 12130

Experience.
Customer.
Service.

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