



COMPRESSED GAS TECHNOLOGIES INC.
The Gas Generation Specialists



**CGT Ultra-high Purity
Nitrogen Generators**

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Compressed Gas Technologies Inc. has been an industry leader of on-site nitrogen generators throughout North America since 2001. We can help you save money on your nitrogen gas costs.

Our line of generators allows you to produce nitrogen gas on-site, simply and cost effectively from a supply of compressed air. Eliminate rental charges, transportation expenses, labor costs, and evaporation losses of bulk systems.



High Purity Nitrogen

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.

CGT recognizes the importance of having a safe, reliable and cost effective supply of high-purity Nitrogen. We bring you this Nitrogen generator to meet the increasing demand for high quality complete packaged solutions which save energy and time, while fulfilling the needs of their intended application.



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.



Research & Development

Our team endeavors to provide solutions that go beyond developing an existing product. They are continually researching new technologies which can provide unique advantages over competitive offerings.



Manufacture

These advanced, reliable and energy saving Nitrogen generators are manufactured in a state of the art facility to the highest standards of build quality to ensure reliability and high levels of performance.

Nitrogen generators

Nitrogen is a dry, inert gas which is used in a wide range of applications where Oxygen may be harmful to the product or processes. 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.

Our advanced range of Nitrogen generators use integrated Adsorbent Media Tube (AMT) dryer cartridges to provide dehydration of the compressed air prior to separation. This innovative feature (patent pending) eliminates the need for a separate desiccant dryer - saving up to 20% purge loss, significantly reducing capital and installation costs and reducing overall pressure drop by 10 psig or more over traditional Nitrogen generation systems.

A few of the many industries making the switch to our Nitrogen generators include:

- Food (MAP)
- Beverage (bottling)
- Plastics (PET)
- Pharmaceutical (product transfer)
- Chemicals (blanketing)
- Laser Metal Cutting (burring reduction)
- Fire Prevention (eliminating combustion)
- Electronics (wave soldering)



Adsorbent Media Tubes (AMT)



Reliability is built in... and backed by a 2 year warranty.

Benefits - Get more for your money

Guaranteed Performance

- Reliable performance based on decades of experience with pressure swing adsorption technology
- 100% function and performance tested at the 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

Environmentally Friendly

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

Safe & Reliable

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

Easy to Install

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

Easy to Maintain

- Integrated Adsorbent Media Tube (AMT) dryer cartridges eliminate the need for an external dryer of any type
- Integrated exhaust silencers require no maintenance or replacement and ensure proper performance
- Advanced controls simplify operation and require minimal training
- Innovative valves significantly reduce maintenance schedules and minimize downtime

Fits Any Application

- Available in a wide range of flow rates and purities (Oxygen contents from 5% to less than 10 ppm)
- Can handle any power supply from 120 to 240 VAC in 50 or 60 Hz, or 24VDC - with just the flick of a switch

Features and benefits

Integrated AMT dryer cartridge

Traditional Nitrogen generators often require installing and operating an external desiccant dryer. Our innovative Nitrogen generators feature an integrated Adsorbent Media Tube (AMT) dryer cartridge which eliminates the need for a pre-treatment dryer of any type. The integrated drying system reduces purge loss by approximately 20% and reduces pressure drop by 10 psi or more, providing significant energy savings over a traditional generator system.

Ecomode 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.

PLC controlled operation

Each CGT Nitrogen generator is operated by a reliable PLC control system with digital and analog outputs for remote monitoring and alarm capabilities. 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.

Multi-bank design

The unique multi-bank design (GEN2 2110 to GEN2 12130) enables additional generators to be added in the future as demand increases. Your CGT Nitrogen generator can grow with your company.

Reliable high performance valves

Inlet, outlet and exhaust are managed through coaxial flow valves integrated into the upper and lower manifolds. These low maintenance valves provide unrestricted flow capacity. They are designed for durability, ease of maintenance and long service life and are backed by a comprehensive two year warranty.

Maximum corrosion protection

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

Optional Oxygen analyzer

A built in Oxygen Analyzer continuously monitors the Oxygen concentration in the Nitrogen stream. The analyzer is incorporated into the PLC controls to guarantee downstream purity levels are consistently achieved and maintained.



A	Inlet Manifold
B	Adsorbent Media Tube (AMT) Dryer Cartridges
C	Carbon Molecular Sieve (CMS)
D	Integrated Bed Support Layer
E	Outlet Manifold

System performance

Our technologically advanced Nitrogen generator operates on the Pressure Swing Adsorption (PSA) principle to produce a continuous uninterrupted stream of Nitrogen gas from clean dry compressed air.

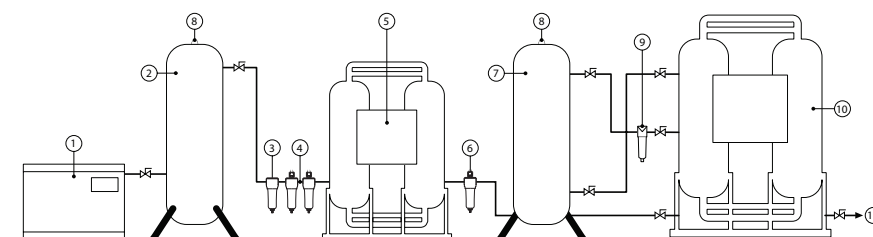
Pairs of dual chamber extruded aluminum columns are fitted with Adsorbent Media Tube (AMT) dryer cartridges and filled with Carbon Molecular Sieve (CMS). Joined via an upper and lower manifold, the high density filled columns produce a two bed system.

Compressed air enters through the Inlet Manifold (A) to the bottom of the 'online' bed and flows up through the AMT stage (B) drying the compressed air. The clean and dry air then flows up through the CMS stage (C) where Oxygen and other trace gases are preferentially adsorbed allowing the Nitrogen to pass through. The Nitrogen then passes through the supporting bed layer (D) and outlet manifold (E) to the buffer vessel and a nano F-Series¹ buffer vessel filter before re-entering the N₂ generator for purity monitoring.

After a pre-set time the control system automatically switches the beds. One bed is always online generating Nitrogen while the other is being regenerated.

During regeneration the Oxygen that has been collected in the CMS stage and the moisture that has been collected in the AMT stage are exhausted to atmosphere. A small portion of the outlet Nitrogen gas is expanded into the bed to accelerate the regeneration process.

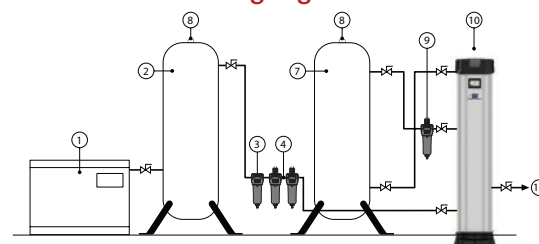
Typical Nitrogen generator installation



1	Compressor
2	Wet Air Receiver
3	Water Separator
4	Pre Filters
5	Dryer *
6	Dust Filter *
7	Buffer Vessel
8	Pressure Relief Valves
9	Buffer Vessel Filter
10	Nitrogen Generator
11	Nitrogen Outlet

* Not required with CGT generator

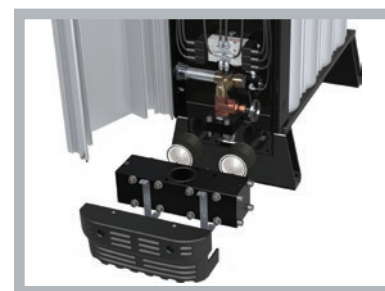
CGT Nitrogen generator installation



Adsorbent Media Tubes (AMT)



PLC controls with touch screen interface



Reliable & durable coaxial flow valves

Technical data

Model	Outlet Flow (1)	Nitrogen Purity at the Outlet (Maximum Oxygen Content)												Dimensions in (mm)			Weight lbs (kg)
		99.999% (10 ppm)	99.995% (50 ppm)	99.99% (100 ppm)	99.75% (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	
GEN2 1110	scfh	49	71	81	95	110	127	184	205	258	293	336	364	48 (1220)	16 (400)	23 (580)	176 (50)
	m ³ /hr	1.4	2.0	2.3	2.7	3.1	3.6	5.2	5.8	7.3	8.3	9.5	10.3				
GEN2 2110	scfh	99	141	162	191	219	254	367	410	516	586	671	728	48 (1220)	16 (400)	30 (760)	242 (110)
	m ³ /hr	2.8	4.0	4.6	5.4	6.2	7.2	10.4	11.6	14.6	16.6	19.0	20.6				
GEN2 3110	scfh	148	212	244	286	328	381	551	615	773	879	1007	1091	48 (1220)	16 (400)	36 (910)	374 (170)
	m ³ /hr	4.2	6.0	6.9	8.1	9.3	10.8	15.6	17.4	21.9	24.9	28.5	30.9				
GEN2 2130	scfh	180	254	297	353	403	466	667	742	932	1070	1218	1324	71 (1800)	16 (400)	30 (760)	365 (166)
	m ³ /hr	5.1	7.2	8.4	10.0	11.4	13.2	18.9	21.0	26.4	30.3	34.5	37.5				
GEN2 3130	scfh	270	381	445	529	604	699	1001	1112	1398	1605	1828	1986	71 (1800)	16 (400)	36 (910)	490 (222)
	m ³ /hr	7.6	10.8	12.6	15.0	17.1	19.8	28.3	31.5	39.6	45.4	51.8	56.2				
GEN2 4130	scfh	360	509	593	706	805	932	1335	1483	1865	2140	2437	2649	71 (1800)	16 (400)	43 (1090)	610 (277)
	m ³ /hr	10.2	14.4	16.8	20.0	22.8	26.4	37.8	42.0	52.8	60.6	69.0	75.0				
GEN2 6130	scfh	540	763	890	1058	1208	1398	2002	2225	2797	3210	3655	3973	71 (1800)	16 (400)	56 (1420)	852 (387)
	m ³ /hr	15.3	21.6	25.2	30.0	34.2	39.6	56.7	63.0	79.2	90.9	103.5	112.5				
GEN2 8130	scfh	720	1017	1187	1411	1610	1865	2670	2966	3729	4280	4873	5297	71 (1800)	16 (400)	69 (1750)	1100 (550)
	m ³ /hr	20.4	28.8	33.6	40.0	45.6	52.8	75.6	84.0	105.6	121.2	138.0	150.0				
GEN2 10130	scfh	828	1170	1365	1623	1852	2144	3070	3411	4289	4922	5604	6092	71 (1800)	16 (400)	83 (2110)	1350 (610)
	m ³ /hr	23.4	33.1	38.7	46.0	52.4	60.7	86.9	96.6	121.4	139.4	158.7	172.5				
GEN2 12130	scfh	962	1358	1584	1884	2150	2489	3564	3960	4979	5714	6506	7072	71 (1800)	16 (400)	96 (2440)	1600 (722)
	m ³ /hr	27.2	38.5	44.9	53.3	60.9	70.5	100.9	112.1	141.0	161.8	184.2	200.3				

Inlet Air Purity Requirements			Inlet Temperature		Working Pressure		Outlet Gas Dewpoint	Supply Voltage
Particulate	Dewpoint	Oil Content	Minimum	Maximum	Minimum	Maximum		
< 0.1 micron	< 80°F (27°C) PDP	< 0.01 ppm ⁽²⁾	50°F (10°C)	104°F (40°C)	87 psig (6 barg)	232 psig (16 barg)	< -40°F (-40°C) PDP ⁽³⁾	120-240 VAC 50 or 60 Hz or 24 VDC

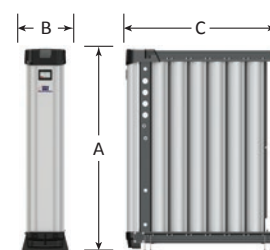
Correction Factors		To calculate the outlet flow for any model at operating conditions other than those above: Outlet Flow (from table above) x K1 x K2 (from tables below) = Outlet Flow at new conditions ⁽⁴⁾							
Inlet Temperature - °F (°C)		50 - 75°F (10 - 24°C)		85°F (30°C)		95°F (35°C)		105°F (41°C)	
K1	10 ppm	1		0.90		0.81		0.66	
	50 to 500 ppm	1		0.98		0.86		0.75	
	0.1 to 5.0%	1		0.98		0.95		0.90	
Inlet Pressure - psig (barg)		90 (6)	100 (7)	115 (8)	130 (9)	145 (10)	160 (11)	174 - 232 (12 - 16)	
K2		0.90	1.00	1.10	1.20	1.25	1.30	1.35	

(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 us.

(2) Including oil vapor.

(3) Outlet gas dewpoint is < -76°F (-60°C) in high purity applications.

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



GEN2 1110 to 12130



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