



3D Printing Solutions

LSN2.com

The Most Reliable, Bullet-Proof High-Performance Systems in North America...PERIOD.

A big claim? Yes, but backed up and proved by more than 6 million hours of installed machine usage, with 99.9+% uptime, and further backstopped by Liberty Systems 24/7, customer-delighting field support...all made transparently real to you by our many "happy customer" references from tough-to-please general managers, engineers, maintenance techs, and business owners, and available to you in our proposals.

We like to make your inner bean-counter happy, with a laser focus on delivering you maximum cost savings versus purchased nitrogen gas to make your nitrogen generator or high-performance air system investment payback quickly to the bottom line, plus we fulfill on the inherent promise of always available, never run out of gas convenience and a much safer work environment versus the cost, hassle, and contract headaches associated with buying nitrogen via traditional tank and cylinder suppliers

Your typical desktop engineer hasn't lived the life of a maintenance and support mechanic, we have and you benefit from this know how. To top off our machine reliability crusade, our founders insisted that their machines be built under rigid ISO 9001 quality standards, in place and certified since 2008.

3D Additive Manufacturing

The better the atmosphere, the better quality parts produced. 3D additive manufacturing machines have been around for over twenty years, but their usage has soared in the last few. To meet the high-tolerance standards required in parts manufacturing, Nitrogen is commonly used to provide inert atmospheres for 3D product production.

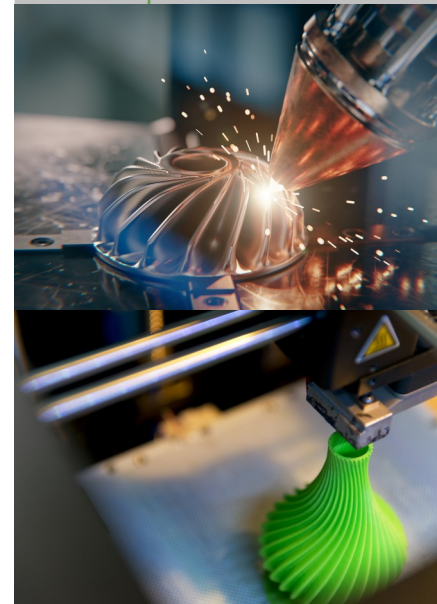
3D production can be a very long and delicate process which requires a dependable nitrogen generator and a Liberty Systems nitrogen generator is the perfect choice for this purge process due to its reliability and continuous output of high purity gas.

3D printing with products such as nylon powder can be expensive, sometimes upwards of \$300 per lb. When using nitrogen in the printing chamber, you are able to maintain an inert environment and reduce the rate of oxygen when nitrogen is added in the blanketing phase.

This prevents oxidization of the powder, meaning the excess unsintered powder can be blown off and recycled as it hasn't been exposed to the atmosphere (where it would be spoiled by oxygen).

Printing in an inert gas atmosphere allows users to recycle powder with a refresh rate of 30%, compared to 50% when printing in an uncontrolled environment (depending on the model of the printer). Less waste of raw materials saves costs for your business, as well as reduces plastic waste.

Liberty Systems Nitrogen Gas Generators will produce the gas on demand for a fraction of the cost of delivered or bulk nitrogen. The nitrogen generator can also feed post-processing equipment. Heat treating or sintering furnaces are commonly used to treat parts after being 3D printed. Nitrogen gas generators for sintering furnaces and heat treating are very common in Metal 3D printing facilities. One generator can feed the entire plant or individual pieces of equipment.



Optional 3 Year Warranty

Our after sales support group has had it pretty easy over the years. The systems are so strong and dependable we took our industry leading two year warranty and made it three years.

Silver, Gold, Platinum

Liberty offers three package tiers, Silver, Gold and Platinum. Each tier has it's benefits. Want to keep it simple? Choose the Silver package. Interested in a variable frequency drive compressor? Request a quote for our Gold package. Want a system with some of the best service technicians in the world? Choose our Platinum package.

Extended Warranty

Liberty Systems offers the best extended warranty in the industry. How can we do this, simple, build a package that is strong and dependable. It is in our best interest that the system we provide you is worry free and keeps producing. The last thing we want is our name, one of the most recognized in the industry, to get tarnished because the system your down.

Liberty Systems offers an optional “up to” three year warranty. For you to capitalize on this, all we ask is you perform the preventive maintenance as scheduled, document that the maintenance was performed and submit an oil sample to an independent lab for analysis. Why the oil sample, because, reading an analysis of your oil we can determine if condensation, metal fragments or possibly a high acid content is present. If there is a high acid content, which can damage the air compressor, we can find the source and eliminate it before something catastrophic happens.

For us, it is about being proactive, we have a team in our after sales support group that are in communication with your maintenance team so you can enjoy worry free operation of your equipment.

Below is a portion of the three year warranty agreement. The entire document is available upon request.

The Three Year Warranty program is contingent on the following provisions:

The optional “Three Year Warranty” program applies to Liberty Systems Series D5, D7, D9, M5, M7, M9, P5, P7, P9 and P11.

- Liberty Systems’ normal warranty policies and procedures concerning warrantable failures, credits for labor, travel and mileage and freight charges apply to the warranty period and are as follows:
 - Stage one: **Parts and labor.** *Months one (1) through (24) twenty-four from date of startup or (30) thirty months from date of shipment.*
 - Stage two: **Parts only.** *Months (25) twenty-five through (36) thirty-six from date of startup or (42) forty-two months from date of shipment.*
 - Stage two labor, lodging, travel expenses and meals will be billed as a direct pass through to the customer during the extended warranty period.

To qualify for the “Three Year Warranty”, a customer must purchase preventive maintenance items and perform preventive maintenance requirements. The customer must keep detailed records as to what and when preventive maintenance was performed.

To qualify for the “Three Year Warranty”, a customer must purchase the first 4000 hours of preventive maintenance items from Liberty Systems at the time of system purchase.

- Should the customer exceed 4000 hours of operation within any twelve (12) month period, additional preventive maintenance items shall be required.

To extend the warranty into subsequent years, the customer shall continue to purchase preventive maintenance items as required through the term of the “Three Year Warranty” agreement.

To further qualify for the Liberty Systems “Three Year Warranty” program, the customer must submit an oil sample for analysis every 2000 hours during the term of the warranty period.



Selection

Determining the proper size of a nitrogen generator is not as simple as it seems. We have been living nitrogen generation since 2001. We will help you size and select the proper system, explain the compressed air requirements and provide you with a solution and not simply a commodity.

We design, build and produce the most reliable nitrogen generators...Period.

Solutions

Typically, inerting and purging are accomplished with nitrogen levels at 99.9%. These applications are perfectly suited for a membrane based nitrogen generator. Applications requiring large flow rates, or nitrogen purities greater than 99.9%, PSA (pressure swing adsorption) technology nitrogen generators will be offered. Our nitrogen generators are all designed to run 24/7.

Series M1

Series M1 nitrogen generators work with your compressed air supply to produce nitrogen at -80°F pressure dew point producing very economical source of nitrogen gas. Series M are air separation membrane based. All systems include our proprietary pre filtration system. The systems have no moving parts and do not require electricity. With proper preventive maintenance, quality supply air and our proprietary media blend that is part of the pre-filtration system, series M1 nitrogen generators are expected to have a life of more than 10 years.

Series M1								
	99.9% Flow scfh Feed (scfm)	99.5% Flow scfh Feed (scfm)	99.0% Flow scfh Feed (scfm)	98.0% Flow scfh Feed (scfm)	97.0% Flow scfh Feed (scfm)	96.0% Flow scfh Feed (scfm)	95.0% Flow scfh Feed (scfm)	Annual Filter Maintenance Kit
M1-2	1 (0.2)	2 (0.2)	5 (0.3)	7 (0.4)	10 (0.5)	12 (0.5)	14 (0.5)	FMKND025
M1-15	8 (1)	15 (1)	23 (1)	29 (1)	38 (2)	49 (2)	56 (3)	FMKND025
M1-30	16 (3)	30 (3)	46 (3)	58 (3)	76 (3)	98 (4)	112 (4)	FMKND025
M1-63	32 (6)	63 (6)	84 (6)	130 (7)	165 (7)	204 (8)	243 (9)	FMKND070
M1-126	63 (8)	126 (10)	168 (11)	260 (13)	330 (15)	408 (16)	486 (18)	FMKND070
M1-317	159 (22)	317 (24)	423 (26)	600 (29)	777 (33)	953 (37)	1130 (40)	FMKND070
M1-634	317 (53)	634 (53)	846 (52)	1200 (57)	1554 (65)	1906 (72)	2260 (78)	FMKND175
M1-951	476 (79)	951 (79)	1269 (78)	1800 (86)	2331 (97)	2859 (108)	3390 (118)	FMKND175
Power Requirements			None					
*Larger Systems Available Upon Request								

Series M3

Series M3 nitrogen generators are skid units. The package includes a fixed speed or variable frequency drive rotary screw air compressor, a compressed air tank, our proprietary pre filtration system and a compressor condensate oil water separator. Series M3 nitrogen generators have a standard delivery pressure of 125 psig that can be regulated down to desired process application pressure using the pressure regulator that is included as part of the package.

Series M3								
	99.9% Flow scfh	99.5% Flow scfh	99.0% Flow scfh	98.0% Flow scfh	97.0% Flow scfh	96.0% Flow scfh	95.0% Flow scfh	Annual Filter Maintenance Kit
M3-F100	50	100	134	197	257	314	388	FMKND070
M3-F200	100	200	268	394	514	628	776	FMKND070
M3-F300	150	300	402	591	771	942	1164	FMKND070
M3-F500	238	476	635	918	1200	1447	1730	FMKND175
M3-F1000	476	952	1270	1836	2400	2894	3460	FMKND175
Power Requirements			460 / 3 / 60					
*Larger Systems Available Upon Request								

Series P

Series P are PSA (pressure swing adsorption) nitrogen generators. As with our series M, all systems include our proprietary pre filtration system. They may include an air compressor and compressed air tank along with the nitrogen generator and associated tanks. To get elevated pressures for storage capabilities, a booster compressor can be offered. We will work with you to determine the purity level desired for your application, up to 99.999%.

Series P1

Series P1 nitrogen generators are PSA based and work with your compressed air supply. As with our series M, all systems include our proprietary pre filtration system. The quality of that compressed air supply is vital to the longevity of your nitrogen generator so we include our proprietary Advanced Media Tube (AMT) to ensure a -40°F compressed air dew point to help ensure the life of the carbon molecular sieve (CMS). Series P1 nitrogen generators can produce gas containing as little as 10 ppm O₂ (99.999%).

Series P1								
	99.999% Flow scfh Feed (scfm)	99.95% Flow scfh Feed (scfm)	99.90% Flow scfh Feed (scfm)	99.50% Flow scfh Feed (scfm)	99.00% Flow scfh Feed (scfm)	97.00% Flow scfh Feed (scfm)	95.00% Flow scfh Feed (scfm)	Annual Filter Maintenance Kit
P1-F200	54 (7)	120 (7)	140 (9)	202 (10)	225 (11)	322 (13)	400 (15)	FMKND070
P1-F400	109 (14)	241 (15)	280 (17)	404 (21)	451 (22)	645 (26)	800 (29)	FMKND070
P1-F600	163 (20)	361 (22)	420 (26)	606 (31)	676 (33)	967 (39)	1200 (44)	FMKND070
P1-F700	198 (25)	443 (26)	513 (32)	734 (38)	816 (40)	1177 (47)	1457 (53)	FMKND070
P1-F1100	297 (37)	664 (39)	769 (48)	1101 (57)	1224 (61)	1766 (71)	2185 (80)	FMNND175
P1-F1500	396 (49)	886 (52)	1026 (64)	1468 (75)	1632 (81)	2354 (95)	2913 (107)	FMNND175
P1-F2200	594 (74)	1329 (78)	1538 (96)	2203 (113)	2447 (121)	3531 (142)	4370 (160)	FMNND175
Power Requirements:			115 / 1 / 60					
Minimum Supply Air Pressure:			116 psig					
*Larger Systems Available Upon Request								

Series P3

P3 Nitrogen gas generators are PSA based and include a fixed speed or variable frequency drive rotary screw compressor. To create a P3 we simply add a source of compressed air to a series P1. We also include a compressed air tank, our proprietary pre filtration system and a compressor condensate oil water separator. Series P3 nitrogen generators have a standard delivery pressure of 90 psig that can be regulated down to desired process application pressure using the pressure regulator that is included as part of the package.

Series P1								
	99.999% Flow scfh Feed (scfm)	99.95% Flow scfh Feed (scfm)	99.90% Flow scfh Feed (scfm)	99.50% Flow scfh Feed (scfm)	99.00% Flow scfh Feed (scfm)	97.00% Flow scfh Feed (scfm)	95.00% Flow scfh Feed (scfm)	Annual Filter Maintenance Kit
P1-F200	54 (7)	120 (7)	140 (9)	202 (10)	225 (11)	322 (13)	400 (15)	FMKND070
P1-F400	109 (14)	241 (15)	280 (17)	404 (21)	451 (22)	645 (26)	800 (29)	FMKND070
P1-F600	163 (20)	361 (22)	420 (26)	606 (31)	676 (33)	967 (39)	1200 (44)	FMKND070
P1-F700	198 (25)	443 (26)	513 (32)	734 (38)	816 (40)	1177 (47)	1457 (53)	FMKND070
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P1-F2200	594 (74)	1329 (78)	1538 (96)	2203 (113)	2447 (121)	3531 (142)	4370 (160)	FMNND175
Power Requirements:			460 / 3 / 60 and 115 / 1 / 60					
*Larger Systems Available Upon Request								

For more information about opportunities regarding your application, please contact us or visit our website.

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