



On-demand liquid nitrogen generators

For cryogenic applications



NOBLEGEN
cryogenics

A **PEAK** International Group Company

Features and Benefits

-  **Plug and play,** short start up time once connected to power
-  **Safety features,** built in as standard safe hose dispense system, vacuum protection system, automatic standby and emergency stop
-  **Cost effective,** eliminate boil off loss with no loss pressure system
-  **Sterile filtration,** high purity sterile liquid nitrogen with in-built O2 sensor for real-time purity monitoring
-  **Dedicated technologies,** including intelligent level sensor and Nitrogen pulse flow system™
-  **Sustainable,** low power consumption and no more repeated deliveries
-  **Boost function,** when you need that little bit more LN2, available only with certain models
-  **Ease of use,** colour touch screen with real time display

About Noblegen Cryogenics

Liquid nitrogen generators have been a proven technology for decades, yet many facilities are still unaware of the advantages that on-site generation offers. Originally developed for cryogenic applications in remote or hard-to-supply locations, Noblegen Cryogenics has been at the forefront of this field for over 30 years, designing and refining systems that now serve a wide range of industries worldwide.

As awareness grows around the inefficiencies of tanker-delivered LN₂, such as losses through pipework or during decanting, more organisations are turning to on-site generation. Noblegen's systems are now effectively used in laboratories, hospitals, food processing facilities, universities, industrial plants, and aboard research vessels, helping to reduce reliance on less efficient and reliable methods of LN₂ supply.

Since joining the PEAK International Group in 2024, Noblegen customers also benefit from PEAK's globally recognised service infrastructure. PEAK Scientific's reputation as a market leader in laboratory gas generation offers both specialised experience and world-class support across the globe, positioning Noblegen as a trusted partner for LN₂ supply.



How does it work?

Noblegen liquid nitrogen generators combine advanced technologies in nitrogen generation, liquefaction, and cryogenic storage to deliver a reliable, efficient, and on-demand LN₂ supply - right at the point of use.

1

Air Compression

A high-performance integrated compressor (Triton and Callisto systems) draws in ambient air and delivers it at pressure to the nitrogen generation system. This ensures a reliable and consistent air supply for optimal output and high purity.

2

Nitrogen Generation

The compressed air enters the Pressure Swing Adsorption (PSA) unit, where it passes through molecular sieves. Oxygen, moisture, and other gases are selectively removed, isolating high-purity nitrogen gas.

3

Gas Liquefaction

The purified nitrogen is fed into a specialised cryocooler, which cools it to -196°C. This enables the gas to transition into liquid nitrogen in a highly energy-efficient process.

4

Cryogenic Storage

The liquid nitrogen is collected and stored in a vacuum-insulated cryogenic tank designed to minimise boil-off and maintain product stability. These custom-engineered vessels ensure efficient, safe storage and reliable dispensing.

5

Dispense

The stored liquid nitrogen can be dispensed in a variety of ways from flasks (small-batch usage), hose (vacuum-insulated or non-insulated for controlled transfer) and piped network (for integration with existing network).

What are the **benefits of using on-site generation?**



Elimination of unnecessary waste

Avoid the significant losses associated with traditional supply –transportation, decanting, storage, distribution, boil off, phase separation, and hot gas bypass losses. On-site, point of use generation has been a step forward for progressive users.



Enhanced on-site safety

By generating only the required quantities on demand, the need for bulk storage is significantly minimized. This approach reduces the potential for hazardous incidents, including boil-off gas release, and enhances overall site safety.



Infrastructure cost reduction

Installation, maintenance, compliance checks, space demands, and eventual decommissioning contribute to the high cost of conventional liquid nitrogen systems. On-site generation greatly reduces (or entirely removes) many of these expenses.



Convenience

Peace of mind from generating your own high purity, high quality liquid nitrogen, ready for use when you need it. On-site production can offer greater supply consistency and reduce reliance on third-party delivery schedules and availability, which are subject to disruption.



Sustainability

Eliminating tanker deliveries cuts down on emissions. On-site systems enable sustainable access to LN₂ in locations that are off-grid, mobile, or difficult to reach, such as rural labs, field-based research teams, or mobile medical units, without relying on diesel-fuelled deliveries.

What's **inside** your generator?

-  **Compact, Quiet Compressor** - Built-in compressors are quiet, reliable, and space-saving.
-  **Intelligent Level Sensors** - Monitor liquid levels automatically: production starts and stops as needed to prevent overfilling.
-  **Live System Display** - Clear, full-colour touch screen shows key info like pressure, liquid level, purity, and cooling rates in real time
-  **Nitrogen Pulse Flow System™** - Uses short bursts of cooled nitrogen gas to help speed up and improve the cooling process
-  **Efficient Storage** - High-grade insulation keeps your liquid nitrogen cold and ready, with minimal loss over time.
-  **Boost Mode** - Need more output? Slightly higher pressure increases cooling speed and flow, without using more power.
-  **High-Purity Liquid Nitrogen** - Clean, medical-grade nitrogen from top-quality compressors, filtration, and nitrogen generation.
-  **No Boil-Off Loss** - Any nitrogen gas that naturally forms is re-cooled and returned to the tank—so nothing is wasted.
-  **Low Noise Operation** - Built for quiet operation, making it ideal for labs and shared workspaces.



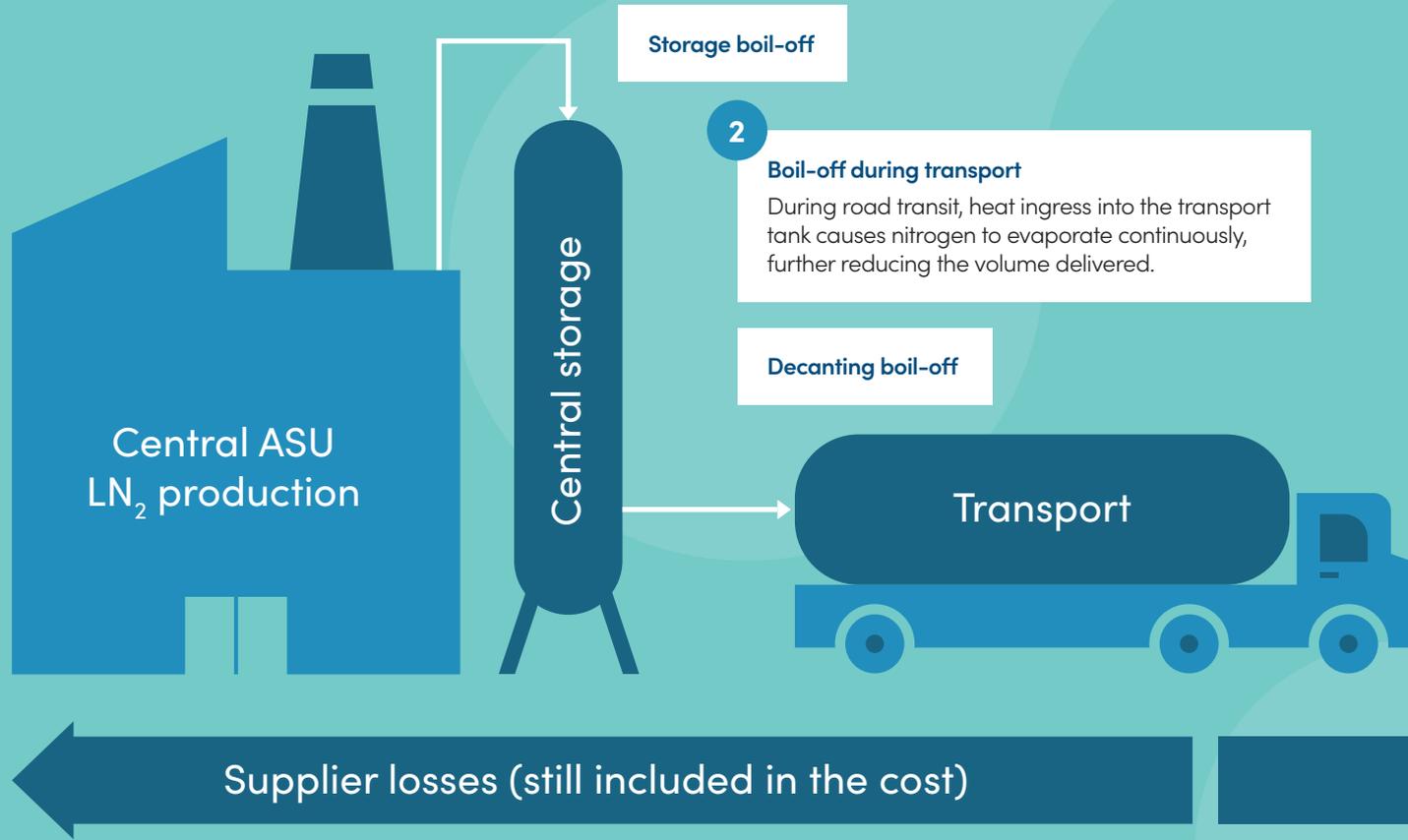
**High purity liquid
nitrogen, >99%**

The Hidden Costs of Bulk Liquid Nitrogen Supply

1

Distribution & storage boil-off at central facility

Boil-off begins at the supplier's central storage as ambient heat causes the ultra-cold liquid to evaporate. Even though these losses happen at the supplier's facility, they're built into the cost.



Storage boil-off

2

Boil-off during transport

During road transit, heat ingress into the transport tank causes nitrogen to evaporate continuously, further reducing the volume delivered.

Decanting boil-off

Transport

Supplier losses (still included in the cost)

4

On-site storage boil-off

Once stored on-site, the liquid continues to evaporate, especially if tanks are not optimised or insulated properly.

5

Pressure build-up & site distribution losses

Piping and pressure regulation introduce more losses as LN₂ is distributed to points of use.

6

Phase separation losses at point of use

Rapid changes in pressure or temperature can cause phase separation (where gas separates from liquid), resulting in poor efficiency and product loss.

3

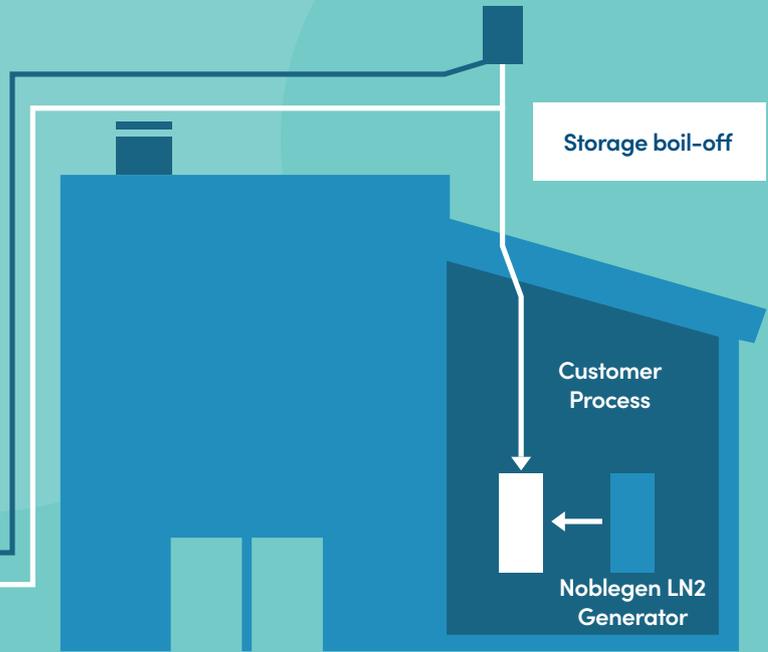
Losses during decanting

Transferring LN₂ into your on-site storage tanks causes evaporation due to pressure equalisation and handling.

Storage boil-off



Storage boil-off



Customer losses (metered)



Liquid Nitrogen Generator Product series

Noblegen produces three distinct product series of liquid nitrogen generator from the smallest Triton systems producing up to 20 litres of liquid nitrogen per day, to the Titan skid based liquid nitrogen generators which produce as much as 800 litres of liquid nitrogen per day.

Triton

The Triton Series is a range of reliable, compact and highly efficient on-site plug and play liquid nitrogen generators.

Supporting a wide range of applications in research institutes, laboratories, universities, hospitals, IVF clinics, and more, the Triton offers a compact footprint, low power consumption, and a quiet operating system, making it one of the most user-friendly on-demand liquid nitrogen generators available today.

Triton liquid nitrogen generators come with numerous safety features as standard, giving you complete peace of mind and a far safer, more dependable and more convenient alternative to liquid nitrogen deliveries. Simply connect the power and press 'start' for the machine to automatically produce liquid nitrogen for use when ready.



Triton LN10 F
(flask dispense)



Triton LN10
(hose dispense)

Model	Cryogenic storage	Generator Dimensions	Production rate (L/day)
Triton LN10 F	35	0.68m x 0.89m x 1.71m	10
Triton LN10	35	0.68m x 0.89m x 1.71m	10
Triton LN20	35	0.89m x 0.72m x 1.91m	20

Callisto

The Callisto Series is a range of reliable, and highly efficient on-site liquid nitrogen generators with a dual cabinet design allowing for larger liquid production and storage.

Supporting numerous applications in laboratories, research institutes, universities, hospitals, dermatology clinics, and more, the Callisto features a small footprint, low power consumption, and a low-noise system, making it one of the most user-friendly on-demand liquid nitrogen generators available on the market today.

Callisto liquid nitrogen generators come with various safety features as standard, giving you peace of mind and a far safer, dependable and more convenient alternative to liquid nitrogen deliveries.



Model	Cryogenic storage	Generator Dimensions	Production rate (L/day)
Callisto LN20	50	1.48m x 0.66m x 1.86m	20
Callisto LN40	100	1.48m x 0.66m x 1.86m	40
Callisto LN60	210	1.72m x 0.82m x 1.87m	60

**“Robust, works great.
Got the job done
when nothing else
would have worked
at the location.”**

Pavel Romashkin

University of Atmospheric Research



“Such an easy system to use, and **we save about \$35k a year** from using it.”

Wayne England
IVF Michigan

Titan

The Titan series is a range of reliable, highly adaptable, skid configured, on-site liquid nitrogen generators. The open skid design allows for larger production and storage of LN₂.

Titan supports numerous applications in laboratories, research institutes, universities, hospitals, dermatology clinics and many more. The low power consumption and low-noise system makes the Titan one of the most user-friendly on-demand liquid nitrogen generators available on the market today.

Titan liquid nitrogen generators come with various safety features as standard, giving you peace of mind and a far safer, more dependable and convenient alternative to liquid nitrogen deliveries.



Model	Cryogenic storage	Generator Dimensions	Production rate (L/day)
Titan LN120	300	2m x 2m x 1.8m	120
Titan LN240	500	3m x 2m x 2.5m	200
Titan LN480	1000	3m x 2m x 2.5m	400
Titan LN720	1000	3m x 2m x 2.5m	600
Titan LN960	2000	3m x 2m x 2.5m	800

Service

Utilising the PEAK International Group's Field Service coverage with service centres in over 20 countries, direct operations in over 25 countries and online technical support, your productivity is in safe hands.

Noblegen generators include many moving parts that naturally deteriorate over time. Rather than waiting for issues to arise, our service visits include thorough inspections, replacement of wear-prone parts, and maintenance tailored to your specific operating environment. This helps extend the life of your generator and reduces the risk of unexpected breakdowns and downtime.

In the unlikely event of a fault, our dedicated engineers provide rapid on-site response, ensuring minimal disruption and giving you peace of mind.

Certified engineers

Over 100 dedicated, fully certified direct Service Engineers globally, with expert knowledge in troubleshooting and fixing any generator problem.

Manufacturer approved parts

All components in Noblegen products are precision engineered and tested to ensure optimal performance in your generator.

95% first time fix

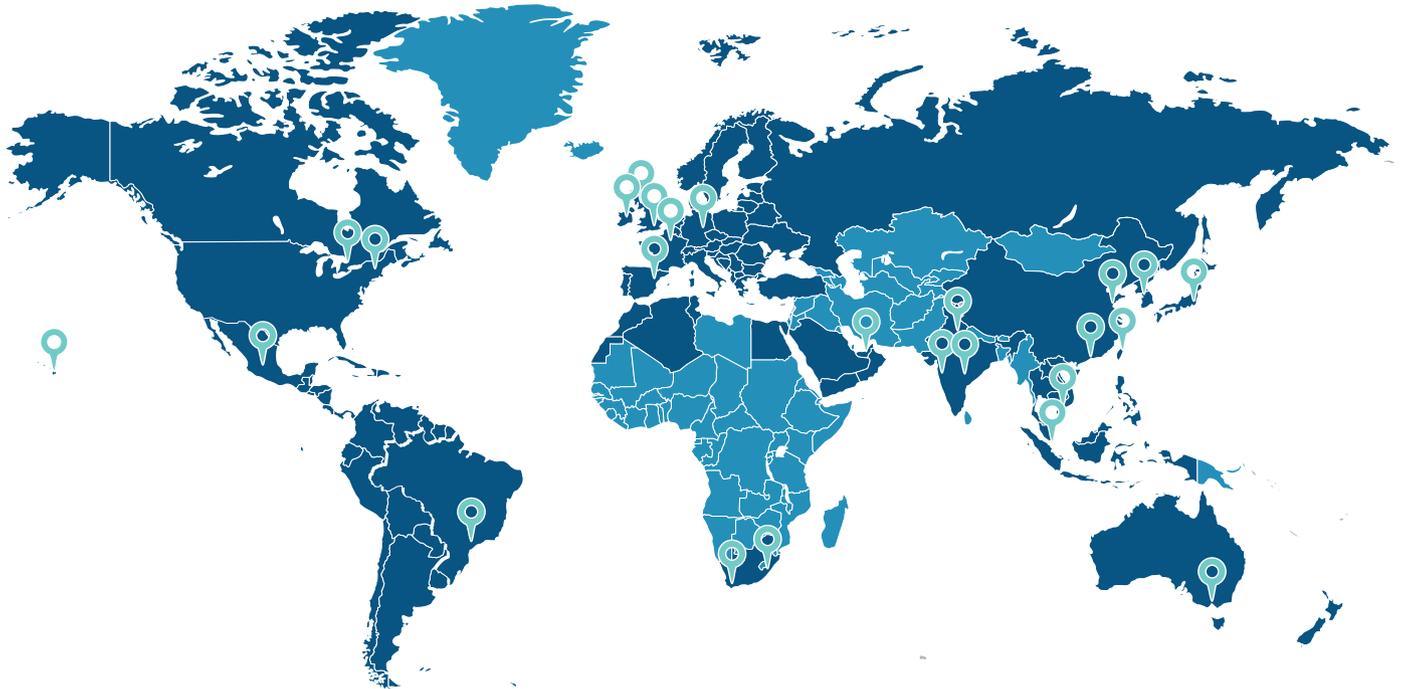
Having dedicated engineers around the world means most issues are resolved on first visit – 95% of the time in fact. No other generator brand gives you this peace of mind.

Global 24hr technical support

With regional service centres around the world, and fast-response online support, you can be sure of quick resolution to any question or problem you may have with your generator.



With offices in over 20 countries, direct operations in more than 25 countries and a certified distributor network in territories outside of those with a direct presence, Noblegen Cryogenics brings a trusted, local service support you can rely on for maximum uptime for your processes and workflows, with the global expertise and scale of a multi-national on-demand nitrogen expert.





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