



NITROSource

On-site nitrogen gas generation for the
Brewing Industry



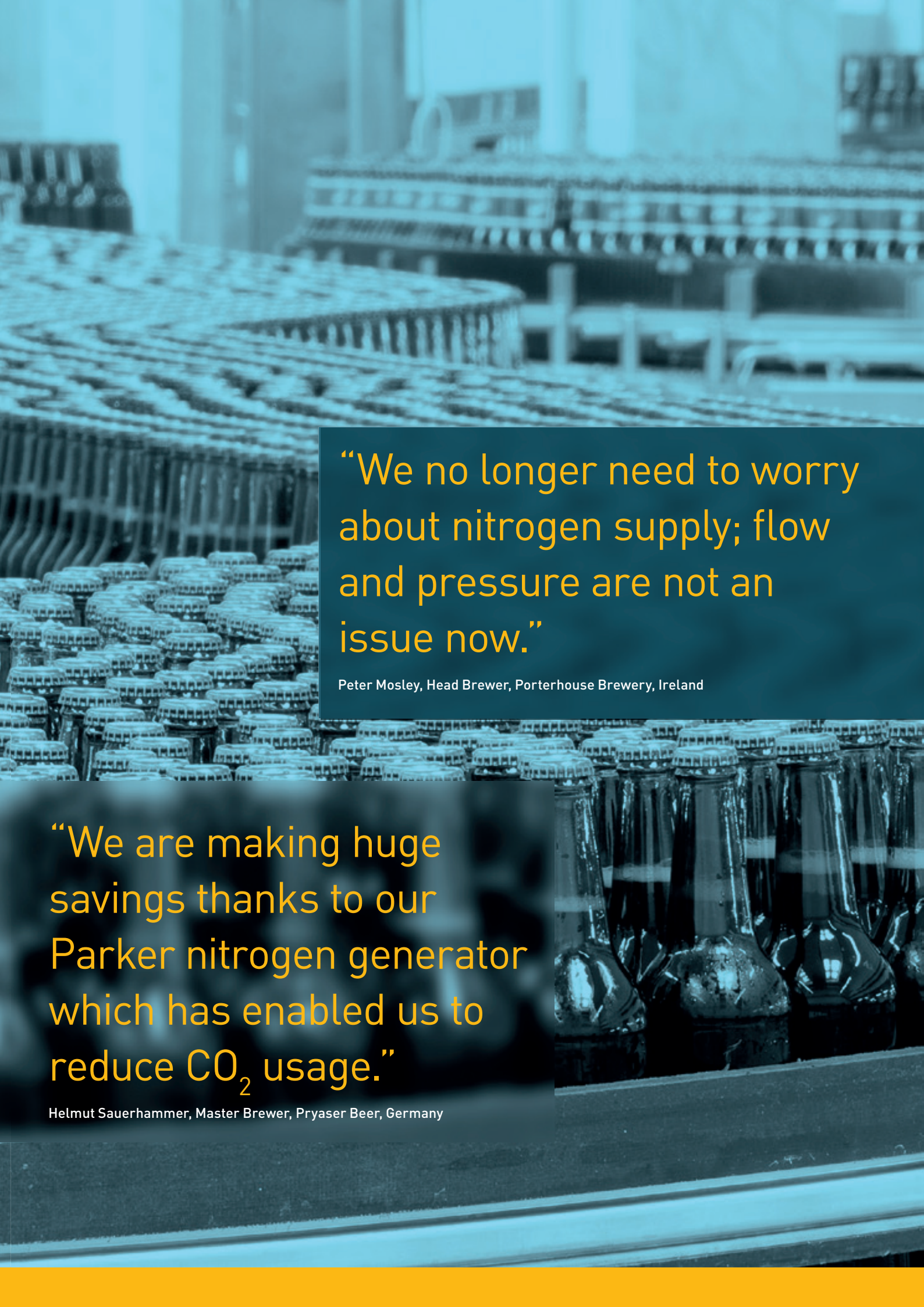
ENGINEERING YOUR SUCCESS.

INCREASE BREWING EFFICIENCY BY GENERATING NITROGEN GAS ON-SITE

NITROSource from Parker generates ultra pure food grade nitrogen gas from readily available compressed air. As well as delivering all the nitrogen gas your process requires, it can also deliver impressive cost savings. There are no on-going costs such as cylinder refills, order processing or delivery charges.

NITROSource gives brewers control over flowrates with production downtime being minimised due to the permanent availability of an on-demand nitrogen supply.





“We no longer need to worry about nitrogen supply; flow and pressure are not an issue now.”

Peter Mosley, Head Brewer, Porterhouse Brewery, Ireland

“We are making huge savings thanks to our Parker nitrogen generator which has enabled us to reduce CO₂ usage.”

Helmut Sauerhammer, Master Brewer, Pryaser Beer, Germany



Nitrogen gas can be used in a range of brewing applications

Traditionally, nitrogen has only been available in delivered form, in bulk or cylinder. Now, a more flexible, efficient and economic option is available. NITROSource is a modular range of nitrogen generators that produces nitrogen from compressed atmospheric air. NITROSource is able to produce food grade nitrogen independently certified to EU and FDA specifications and can provide the nitrogen requirements for a wide range of applications in the brewery.

Blanketing of ingredients

Nitrogen is used to prevent contact of ingredients with air, thereby reducing the potential for oxygen uptake. During bulk storage, the use of sealed tanks means that positive nitrogen pressure can be used, ensuring that volume changes due to temperature fluctuations do not lead to the ingress of air. Nitrogen blanketing of atmospheric tanks is also possible, a small continuous flow ensuring that air cannot diffuse into the headspace through vents and also compensating for volume changes. During emptying, the flow of nitrogen can be increased to fill the head-space and in sealed systems can be used to aid tank to tank transfer.

Clean in Place, (CIP), pipe-work and vessel purging

Caustic solutions containing sodium hydroxide are generally used in breweries to clean and sterilise pipe-work and vessels. It is beneficial to reuse the cleaning solution to reduce cost and wastage. If CO₂ is used to drive the solution through the equipment to be cleaned, it can react with the sodium hydroxide to form sodium carbonate and sodium bicarbonate, reducing the cleaning and sterilising characteristics. This renders the solution unlikely to be suitable for re-use. Nitrogen does not react with sodium hydroxide maintaining its cleansing properties, facilitating reuse.

Reduced oxidation

Beer is quickly oxidised when exposed to air. If the quality of the product is to be ensured, then it needs to be constantly protected from air. The headspace of tanks can be filled with a protective layer of nitrogen gas to prevent air ingress.

Purging and filling

Equipment and pipelines are susceptible to oxygen pick-up. Nitrogen is an effective purging gas that enables brewers to reduce water consumption. Nitrogen assisted filling increases process speed, protects the beer from oxidation, and results in substantially reduced beer losses.

Nitrogen gas, which has a very low solubility forms bubbles in liquid that provide effective mixing of beer in the brewing tank. The bubbles quickly rise to the surface and are dissipated without affecting taste, appearance or aroma. This form of mixing is also less production intensive than mechanical methods.

Nitrogen gas is fast replacing carbon dioxide as a method of providing motive force when discharging beer from storage tanks to filtration. Carbon dioxide can affect taste and increase product wastage due to fobbing. Nitrogen delivered at high pressure is less likely to affect carbonation.

Bottling

Purging bottles, cans and kegs with nitrogen gas helps to reduce oxidation and extends product shelf-life. Nitrogen can also be used to dry bottles after rinsing.

Why NITROSource?

With more than 30 years' experience of beverage applications, and over 50,000 gas generators installed globally, Parker is first choice for innovative and reliable gas generation technology.

The NITROSource range of generators can be equipped with our innovative Energy Saving Technology which reduces the amount of compressed air required to deliver nitrogen to your applications.

Lowest total cost of ownership

With NITROSource you can expect payback within 6 to 18 months. After the initial capital investment nitrogen supply costs fall dramatically while the cost of traditional gas supply methods continues to increase year on year.

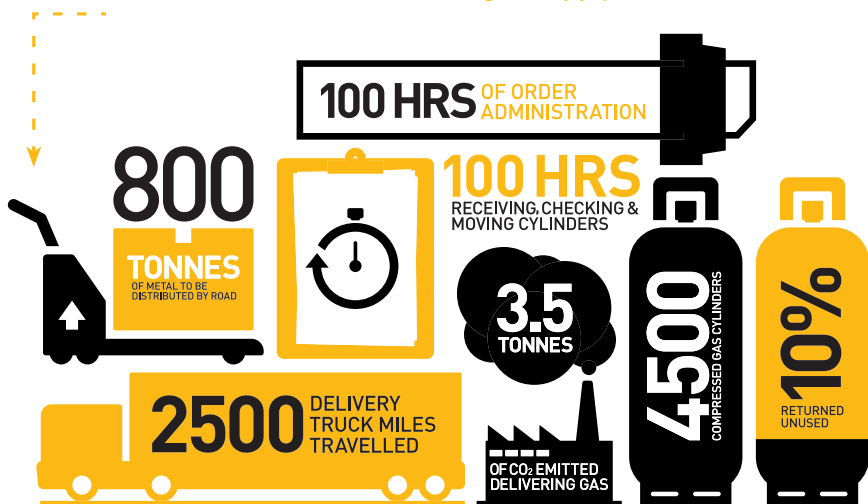
Built around Parker's high efficiency and very long life Carbon Molecular Sieve, the NITROSource requires minimal maintenance representing impressive costs savings over the lifetime of the device.

Inherent efficiency

Developed through extensive research and design, the NITROSource's unique Energy Saving Technology (EST) ensures that the volume of compressed air the NITROSource utilises, closely matches the nitrogen flow demand of the application from 0% to 100% load. This dramatically reduces the amount of compressed air consumption and energy required by the system.

In addition to EST, the NITROSource is equipped with an Economy function which constantly monitors the outlet pressure of nitrogen gas being delivered to your application. If the device detects a drop in demand the generator will stop delivering nitrogen to the application, reducing energy consumption to virtually zero.

The true cost of traditional gas supply



based on approximately 10m³/hour for 4000 hours/year using cylinders or manifolded cylinder packs

NITROSource has many advantages over traditional nitrogen supplies including:

- Independently certified food grade nitrogen gas to EU statute as a food additive E941
- Complete control over gas supply and costs with savings often exceeding 70%
- No unexpected price rises
- No more expense incurred monitoring gas levels, managing supplies, running out and waiting for deliveries
- No gas wasted through boil-off or part full cylinders sent back to supplier.
- Constant flow and pressure delivered 24/7 ensuring maximum up-time.
- Operates from standard factory air compressor
- Fully automatic operation and control.
- Energy efficient – matches minimum compressed air consumption to meet nitrogen output.
- Sustainable long-life technology, environmentally friendly, reducing CO₂ emissions.
- Very low total cost of ownership with minimal servicing required only once per annum.
- Remote monitoring capability for data logging and traceability.
- MODBUS connection as standard enabling easy BMS integration
- Compact space saving design, fits through a standard doorway
- Increased safety without the need to store or handle high-pressure cylinders.
- Unlike bulk liquid vessels there are no large stored volumes of potentially asphyxiating gas.
- Reduced site vehicle traffic and safety concerns over cryogenic tanker movements
- No manual handling and personnel competence training for very high-pressure cylinder connection.
- Large installed base and extensive experience within brewing



The Parker extended warranty

- 1 year standard warranty +4 years in addition, free of charge.
- Maximum production uptime, optimum operating efficiency.
- Parker approved service and parts, delivering performance you can rely on.

To activate the 4 years' extended warranty customers must register their purchase online, within 180 days of the invoice, at www.polewr.com

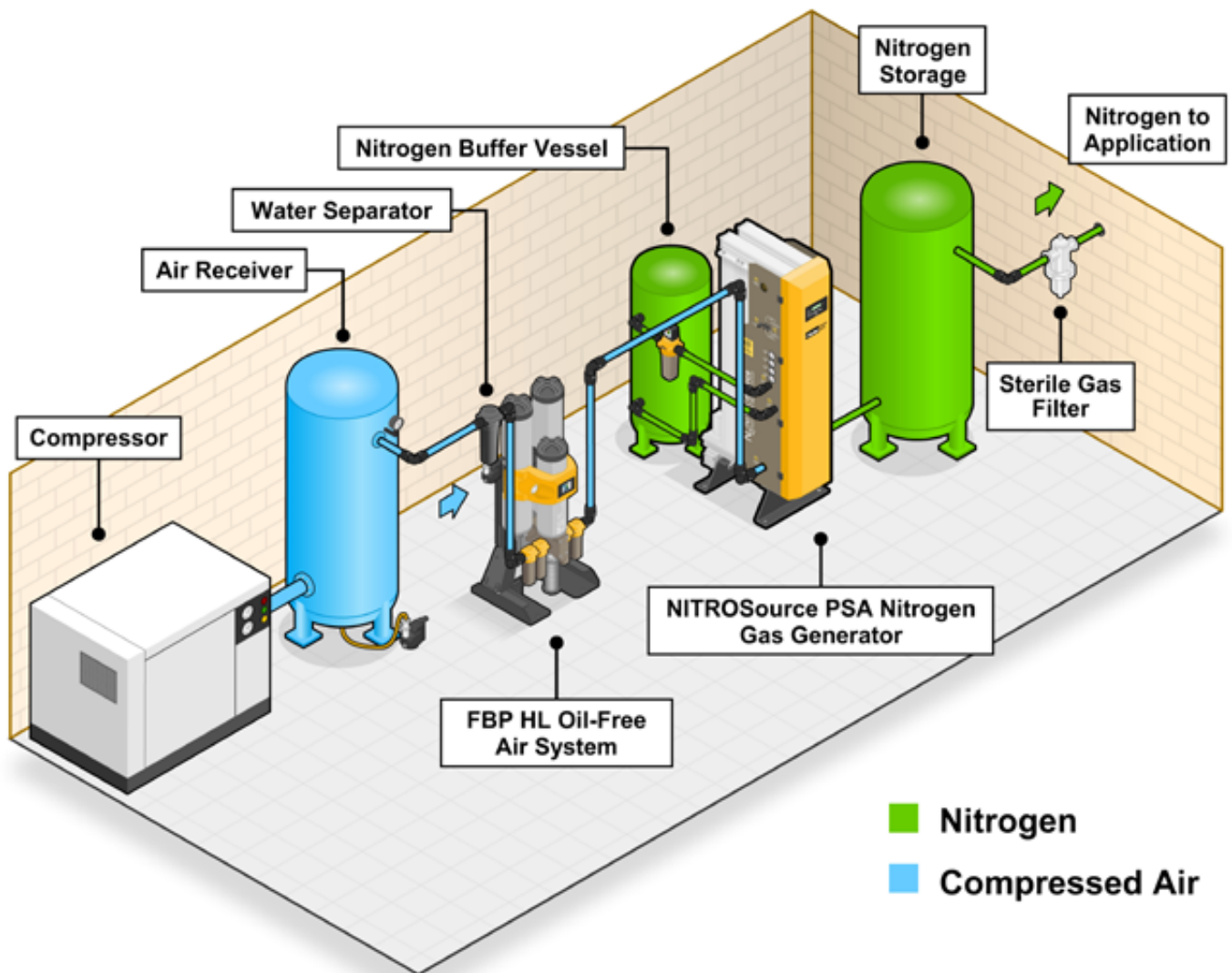
Typical Parker on-site nitrogen gas generator configuration

Compressed air between 6-13 barg from a standard oil lubricated compressor is fed to a Parker "food, beverage and pharmaceutical grade" compressed air pretreatment drying and filtration package.

The food grade compressed air then enters the Parker nitrogen gas generator where oxygen and nitrogen are separated by molecular size using carbon molecular sieve. The waste oxygen and other unwanted trace gases are removed and nitrogen gas is output to the application.

The carbon molecular sieve, (CMS), is continuously adsorbing and regenerating via a process called pressure swing adsorption, (PSA).

CMS is not a consumable item and is installed for the service life of the generator which is in excess of 10 years continuous use.



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