Oreco NitroGen™

On-site nitrogen generators

Increase flexibility and cost-efficiency with the Oreco NitroGen solutions and produce your own nitrogen gas where and when you need it

introduction

On-site nitrogen generators for oil tank blanketing

Oreco A/S develops, manufactures and globally markets fully automated process systems for the oil and gas industry, and is industry leading developer of solutions for automated, no-man entry cleaning of aboveground oil storage tanks and systems for recovery of waste oil within the oil and petrochemical industries.

Oreco uses nitrogen as an inert gas to maximise safety during tank cleaning in connection with its proprietary tank cleaning systems BLABO®, MoClean® and MoClean® ATS. We know the value of having your own on-site, on-demand supply of inert gas. Therefore, Oreco has launched the NitroGen generators to supply customers with a reliable source of inert atmosphere. Oreco's NitroGen generators finds use across industries and has an inexhaustible field of application.

Become your own supplier

The Oreco NitroGen generators are designed with the specific objective of letting customers become their own nitrogen suppliers, but on a scale where the systems can still be flexible and user-friendly. The Oreco NitroGen generators will not replace e.g. tonnage distribution solutions. But for any task where you require flows of up to 1,100 Nm^3/h and a purity of up to 99.9%, the Oreco NitroGen offers a combination of convenience, quality, and cost-efficiency.

Nitrogen means greater safety

Safety is a top priority in both the oil and gas industry and other industries. Oreco's NitroGen Generators ensures safety during e.g. tank cleaning operations and other situations where an inert atmosphere is needed. However, getting hold of Nitrogen gas in the right form, quality and quantity is difficult and expensive to many refineries and tank farms.

Standard options or customised systems

Oreco can suit your specific needs and requirements, but a complete installation requires air intake filters, compressor, refrigeneration dryer, air buffer tank, PSA separation units and produced nitrogen buffer tank. Optional supply includes high pressure compressors for high pressure applications and or filling stations.

As nitrogen is used in situations where different conditions of space or system integration apply, Oreco also offers customised NitroGen generators that can be skid-mounted and trailer-mounted – as well as complete, stationary plants tailor-made to the customer's requirements. The range of options includes nitrogen purities of up to 99.9%, high ambient temperature tolerance, and much more.

All systems are based on PSA (Pressure Swing Adsorption) technology, which has been chosen over membrane technologies for its advantages in terms of reliability, system lifetime, purity, and cost-effectiveness.

benefits

Benefits at a glance

Using an Oreco NitroGen solution has many benefits for you. Just a few are listed below.

Flexibility

Be your own nitrogen supplier and ensure high flexibility by producing the nitrogen gas on-site and on-demand. You only produce the gas you need, where you need it and when you need it. And you never run out of nitrogen, thus avoiding costly down-time.

Cost-effectiveness

Being your own nitrogen supplier means that you are not dependent on suppliers. In this way you optimise your cost and avoid loss of production time due to running out of gas. Furthermore, no excess gas is produced.

Especially for remote areas, the pay-back period is very fast due to elimination of transportation costs. And as PSA separation media is more durable and less costly than membrane separation solutions, you benefit from lower operation and maintenance costs.

Durable and reliable systems, only using high-quality components from the best manufacturers, ensure a safe operation and minimise maintenance costs.

Increased safety

The Oreco NitroGen systems are built to comply with the highest industry standards and have a number of built-in safety features including gas sensors and PLC based warning features.

An on-site solution of gas-phase nitrogen means that there are no safety risks inherent to handling of liquid-phase nitrogen requiring high-pressure equipment and pressure cylinders.

Easy operation

Our fully-automated generators are plug-'n'-play and require minimum maintenance. Installation is easily done as only electricity is needed.

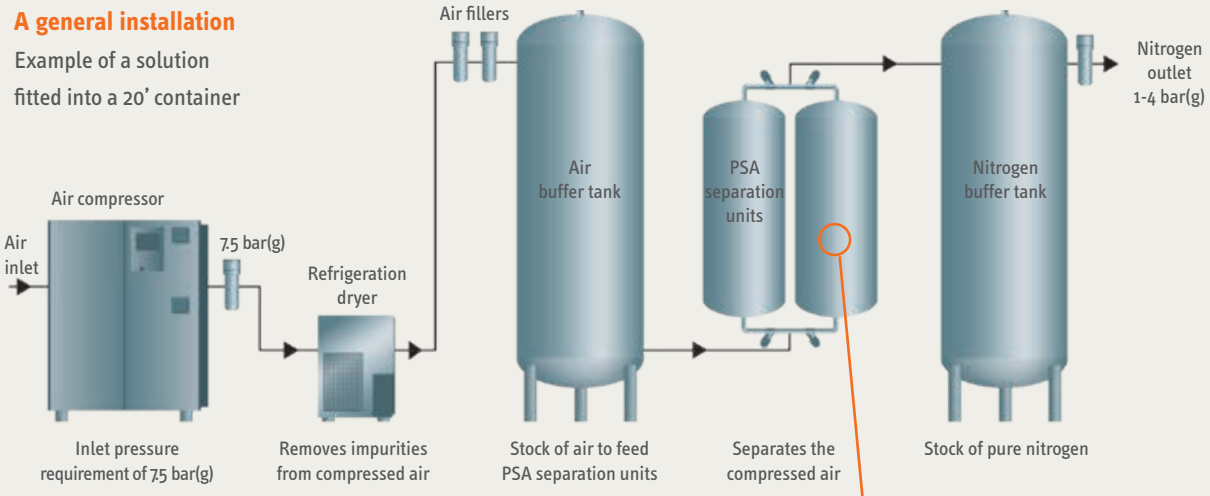
technical specifications

Delivery types	• Fully containerised, mobile solutions, fitted into High Cube (HC) containers • Skid-mounted solutions • Trailer-mounted solutions • Tailor-made complete stationary plants
Purity	• Matching your specific needs up to 99.9%
Capacity	• Containerised solutions: Up to 1,100 Nm³/hr with a purity of up to 99.9% • Tailor-made plants matching your capacity requirements
Electric power supply	• Voltage and frequency: Available in 400V/50Hz or 440/60 Hz. Other on request
Temperature	• Working environment: From -20° C to 40° C • Recommended working temperature above 0° C • High ambient temperature version up to 50° C on request
Separation technology	• Pressure Swing Adsorption (PSA) using Carbon Molecular Sieves (CMS) as separation medium
Safety features	• PLC based control, panel integrating warning signals • Constant monitoring of nitrogen quality • Gas sensors
Scope of supply	• A complete installation requires air intake filters, compressor, refrigeration dryer, air buffer tank, PSA separation units and produced nitrogen buffer tank. Optional supply includes high pressure compressors for high pressure applications and or filling stations.

installation

A general installation

Example of a solution
fitted into a 20' container



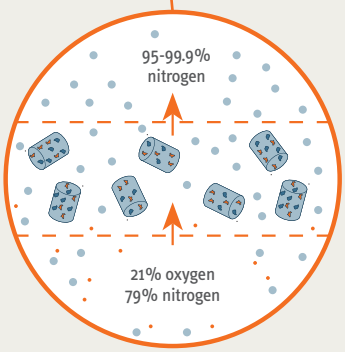
Optional

High pressure compressor

Up to 350 bar(g)

Filling station

Capacity to fill 1-6 cylinders
Requires up to 45 bar(g)



If you require an outlet pressure higher than 4 bar(g) you need a pressure booster. Filling stations or special applications may require high pressure compressors to deliver up to 350 bar(g).

The Pressure Swing Adsorption (PSA) process is the heart of the units as this is where the nitrogen is separated and concentrated. The PSA method makes use of parallel separation units filled with small Carbon Molecular Sieves (CMS) in the form of pellets. The pellets hold back oxygen and allow nitrogen to pass. When no more oxygen can be retained in the pellets contained in one vessel, the process switches to the second vessel and releases the pressure in the first line and thereby allowing the oxygen to escape.

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