

OXYGEN & NITROGEN

ON-SITE NORDIC SOLUTIONS



OXYMAT®



OXYMAT

YOUR ON-SITE OXYGEN AND NITROGEN EXPERT

OXYMAT is a Denmark based company and the leading global supplier of advanced PSA generator systems since 1978.

OXYMAT has 40 years of experience in designing, engineering and manufacturing high quality oxygen and nitrogen gas generators to meet customers' specific needs and process specifications.

You can produce your own oxygen or nitrogen with OXYMAT PSA gas generators creating high quality nitrogen or oxygen gases on-site. There will be no need to order in, store and stock check your liquid oxygen tanks or nitrogen gas cylinders when you can produce your own supply on site.

Our generators are based on the well-known PSA (Pressure Swing Adsorption) technology, which is an air separation technique which will enable you to produce your own nitrogen or oxygen, using only electricity and atmospheric air. PSA technology can be used in all types of industries.

OXYMAT has produced more than 5,000 oxygen and nitrogen PSA generators for many types of applications including: aquaculture, gold mining, medical, ozone, marine, oil & gas, nuclear power plants, biogas, process industry, pharma, food and many more.

With our vast experience in the field of quality, innovation and excellence, we serve our customers to identify, design and provide the best possible solution.

We listen, we design, and we manufacture. Therefore, we have gained the worldwide reputation as the highest quality PSA system supplier.

MADE IN DENMARK

Our new system is made 100% in Denmark. This includes design, project management, manufacturing, R&D and quality.

MATERIAL QUALITY

Our standard product includes:

- stainless steel pipe sets and valves SS316L
- powder coating in C4 equivalent offshore specs – inside and outside pressure vessels
- pressure vessels designed for dynamic load

FACTORY AUTOMATIZATION

Our factory in Denmark started production in 2017. To simplify our production, we have modularized our design and automated our production. To achieve this, we have invested heavily in a state-of-the-art machinery including: welding robot, CNC pipe bending machines and CNC pipe saw.

ENERGY CONSUMPTION

Our Nordic generators have the best air factor on the market. This means less compressed air is required to produce oxygen/nitrogen. A smaller compressor translates directly into a lower OPEX. Smaller compressors require less power and service parts costs are lower.

SERVICE

The right service and correct spare parts are essential for a trouble-free operation of a generator system. The OXYMAT service hot line is available 24/7 and the staff work around the clock servicing every spot on the globe.

GREEN ENERGY

Our new factory in Denmark is running 100% on clean energy (wind and solar). Our factory is equipped with solar panels to help with our electrical needs during the 4-6 sunny months in Denmark.

UNIQUE DESIGN

The design of our Nordic generators is unique. To ensure fast and safe operation, the generators are equipped with LED-lights to give the operator a visual status on the operation of the generator. Thanks to an improved exhaust muffler, the noise level of the generators has been further reduced. The generator system is modular and can be expanded if capacity demands change.

QUALITY ASSURANCE

OXYMAT holds all relevant approvals for serving the numerous applications we supply. Our systems are designed and manufactured according to:

- ISO 9001:2015
- ISO 13485:2016
- MDD 93/42/EEC
- Free Sales Certificate
- PED Module B+D
- Comply with European/UK/US/Canadian pharmacopoeia
- Comply with IMO

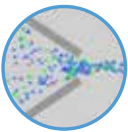
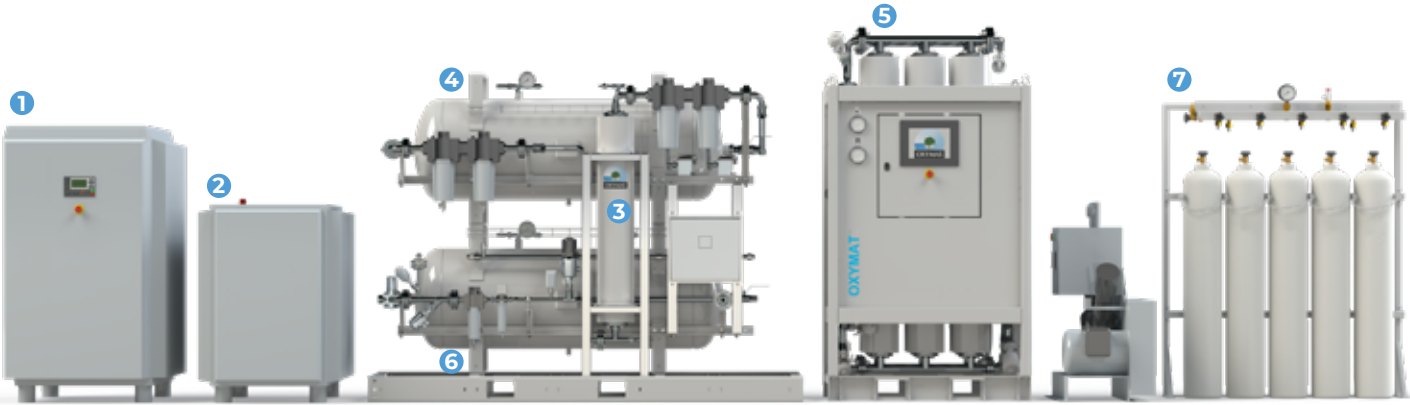
PSA TECHNOLOGY

PRESSURE SWING ADSORPTION



PSA TECHNOLOGY
 Our generators are based on PSA technology, Pressure Swing Adsorption.

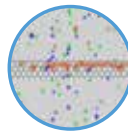
This process evolves around the principle of an adsorbent media under pressure, trapping either oxygen or nitrogen molecules, allowing the target molecules to pass. The only raw material needed is the ambient atmospheric air, which makes the PSA process an extremely clean operation.



1 COMPRESSOR
 provides air and adds the required level of pressure and flow



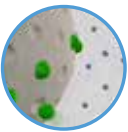
2 DRYER
 removes moisture from the compressed air by cooling



3 COAL TOWER
 adsorbs oil and fractional impurities



4 AIR TANK
 provides required volume of air for PSA generator



5 PSA GENERATOR
 filled with molecular sieve traps nitrogen/oxygen molecules and allow oxygen/nitrogen molecules to flow through



6 PRODUCT TANK
 high quality oxygen/nitrogen flows from the PSA generator to the product tank and is ready for use



7 STORAGE SYSTEM
 fill your own compressed gas cylinders for product backup



STANDARD SPECIFICATION

YOU CHOOSE THE SOLUTION

PSA GENERATOR

The OXYMAT Nordic PSA generator is designed for continuous and autonomous operation. The PSA generator will automatically start and stop based on actual gas consumption. The PSA generator will switch to stand-by mode, when no gas is consumed.

Pressure vessels

Pressure vessels are designed and manufactured for dynamic load. Vessels are surface treated, and powder coated – inside and outside.

Pipe sets

All pipes are stainless steel SS316

Process valves

Pneumatic operated. Stainless steel valve seats.

Molecular sieve

Proprietary molecular sieve supplied from leading adsorbent manufacturers.

CONTROL SYSTEM

Advanced control system with integrated PLC. Fast and easy operation is secured through premium user interface on color touch screen.

Measuring and logging column pressure, gas pressure and purity. Monitoring of pressure and temperature of air and gas.

Ethernet communication for remote control and monitoring.

Extended alarm list with indicative and critical levels.

Automatic start-up after outages in power supply. UPS can be supplied on request.

Zirconium based oxygen sensor for measurement of gas purity.

Flow control to regulate actual flow from control panel, and to avoid overflowing of generator by limiting the flow to generator specifications.

Purity control for securing correct gas purity. Gas outside of the specifications will be purged and not delivered to consumer.

AIR PACKAGE

The air package is tailor-made for each OXYMAT Nordic PSA generator, to ensure high quality compressed air while maintaining the most efficient power consumption.

Compressor

- Star-delta starting method, frequency control on request.
- Air or water cooling method, sea water on request.

Air dryer

- Refrigeration method (pressure dew point +3°C) – lower dew points possible with adsorption dryer.

Buffer vessels

- Air buffer vessel secures a steady delivery of compressed air to the PSA. Gas buffer vessel after the PSA secures an even gas flow to the consumer.

Compressed air filtration

- Ensuring correct compressed air quality class 1.4.1 according to ISO 8573.1:2010.

DOCUMENTATION

Standard documentation consisting of manuals in English language. Conformity certificates for PSA, pressure vessels, valves and other relevant materials. Generic piping and instrumentation diagram. Project documentation package available on request.

PRODUCT RANGE

OXYGEN:

The capacity ranges from 2 to 355 m³/h at purities up to 95%.

Low power consumption: from 0.6 kW/m³

NITROGEN:

The capacity ranges from 1 to 5,415m³/h at purities up to 99.9999%

Low power consumption: from 0.18 kW/m³

COMMITTED TO INNOVATION ALWAYS ON THE FOREFRONT

At OXYMAT we focus on product development and bringing innovative solutions to market. Our key focus is energy consumption, footprint and IoT. It is our vision to offer modular plug-and-play units with full remote access, performance measurement and virtual service.

Our newest product innovation we have broadened our portfolio into the membrane technology. We have used our knowledge and the quality and characteristics of our Nordic series to develop the world's smallest nitrogen membrane solution with a footprint of only 2.04 m³. The perfect solution where a capacity of up to 64l m³/h is sufficient.

FLEXIBLE OPERATION

If a constant out-let flow is not required, it is not necessary to keep the generators powered up all the time. With practically no waiting time N₂ is produced on the fly and energy consumption is kept at a minimum.

IDEAL FOR RETROFIT

Our membrane solutions have a lightweight modular design enabling easy transport to any port. The compact and modular design ensures flexibility with respect to existing engine room lay-out.

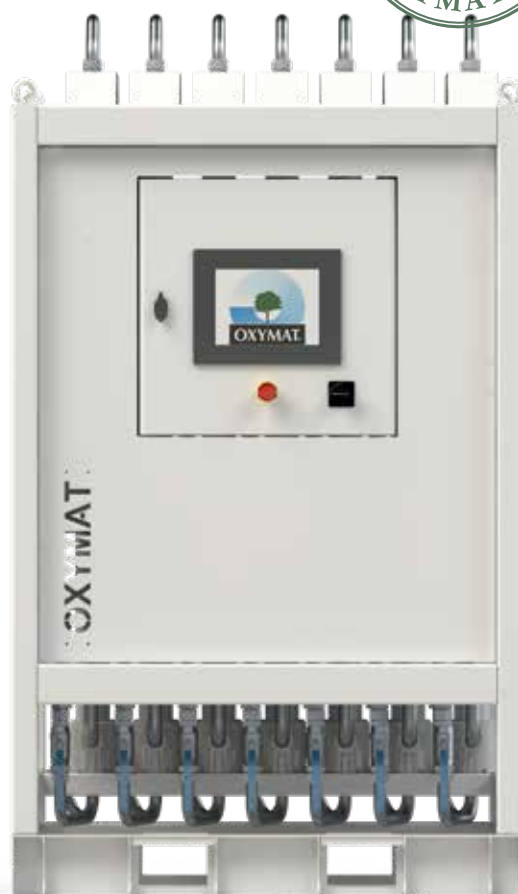
QUALITY AND RELIABLE PERFORMANCE

We have an extensive track record supplying equipment to the maritime industry, and our N₂ membrane generators can be supplied with all major marine class approvals, ensuring compliance to recognized standards when using N₂ for safety measures.



OXYMAT NORDIC DESIGN FEATURES

- Up to 40% less energy consumption on oxygen compared to other PSA manufacturers
- Noise emission down to 60 dB
- Sand blasting and powder coating for extended lifetime
- All pipes and valves are made of stainless steel 316L
- Low CO₂ emission
- Built-in high-quality touch screen control unit
- Remote control access
- Designed for durability in rough conditions and industrial environments
- Optional container or frame-built solution
- Optional OEM supply



INDUSTRIES WE SERVE

OUR SOLUTIONS FOR YOUR APPLICATIONS



GOLD MINES GAS COMPANY

Since 2010 we have installed several oxygen systems for gold mines worldwide. Heavy duty construction of PSA is designed for rough conditions of the mining environment. The system was delivered with a remote control in order to monitor all process parameters and alarms. The advanced control system makes the operation of PSA systems easier to handle, user-friendly and reliable. Onsite oxygen production made the mine independent of liquid oxygen deliveries from remote locations.



LASER CUTTING KGZ / DOBREPOLJE / SLOVENIA

Laser cutting will normally require high flow rates combined with relatively high purity and pressure, to ensure a clean and smooth cut. Our tailor-made solutions with nitrogen booster just need to be connected to power supply and start filling cylinders. The cost of own produced nitrogen reduced costs by more than 50% in comparison with inconvenient external gas supply.



MEDICAL KING FAISAL HOSPITAL / KIGALI / RWANDA

Complete line including air package, filtration, PSA generator, O₂ receiver, HP booster, vacuum pump and filling line for 20 HP cylinders has been successfully installed and commissioned at King Faisal Hospital, Kigali, Rwanda. Such a solution makes the hospital fully independent from external gas supply and even provides O₂ delivery at the event of primary source failure thanks to special back up system.



FOOD AND BEVERAGE SAN CLEMENTE / SANTIAGO DE CHILE / CHILE

The system is used for a controlled atmosphere (CA storage systems applied for a long-term fruit and vegetable storage in a remote area in Chile. Since high-pressure technology was applied PSA technology was the best solution. The system has been delivered on the skids as a plug-and-play solution.



MARINE AND OFFSHORE ODDFJELL

During 2006-2009 OXYMAT developed our marine versions, and we have so far sold more than 35 units to chemical carriers, LNG carriers and supply vessels. The unique design eliminates the need for air- and product vessels. Together with a very low power consumption of 0.2 kW/m³, we have launched the smallest foot print world wide. OXYMAT offers marine nitrogen PSA from 100 to 10,000 m³/h delivered with certificate by all major class associations like DNV, ABS, GL, Lloyds, BV etc.



PETROCHEMICAL VAOS / AUSTRIA

Two unique sets, both containerized, designed for outdoor placement and suitable for transport to different locations. Each of the lines were split into two containers, with an air package in one, and in the second PSA with complete control. The PSA units were designed for the use in EX environment close to the point of use and capable of remote controlling of the air compressors and dryers located in a safe area. This solution enables the customer to cut down the costs for EX air treatment units to standard ones while keeping the PSA unit capable to perform in the EX environment.



AQUACULTURE AND OZONE DAMAS ZIVJU AUDZETAVA / LATVIA

A customer was looking for a supplier of oxygen to their new fish farm in Latvia. Looking through different ways of supplying the oxygen to their fish farm, they choose a solution, thinking „Why buy it - when we can, make it on-site“. This will help the customer to obtain a fast return on their investment. Adding oxygen into the fish tank and enclosures by diffusers keeps the fish healthy and allow them to grow bigger. Protecting the environment Damas Zivju Audzetava also uses the OXYMAT oxygen generator to their ozone production for their water recirculating and water treatment program.



ELECTRONICS NOTE / TORSBY / SWEDEN

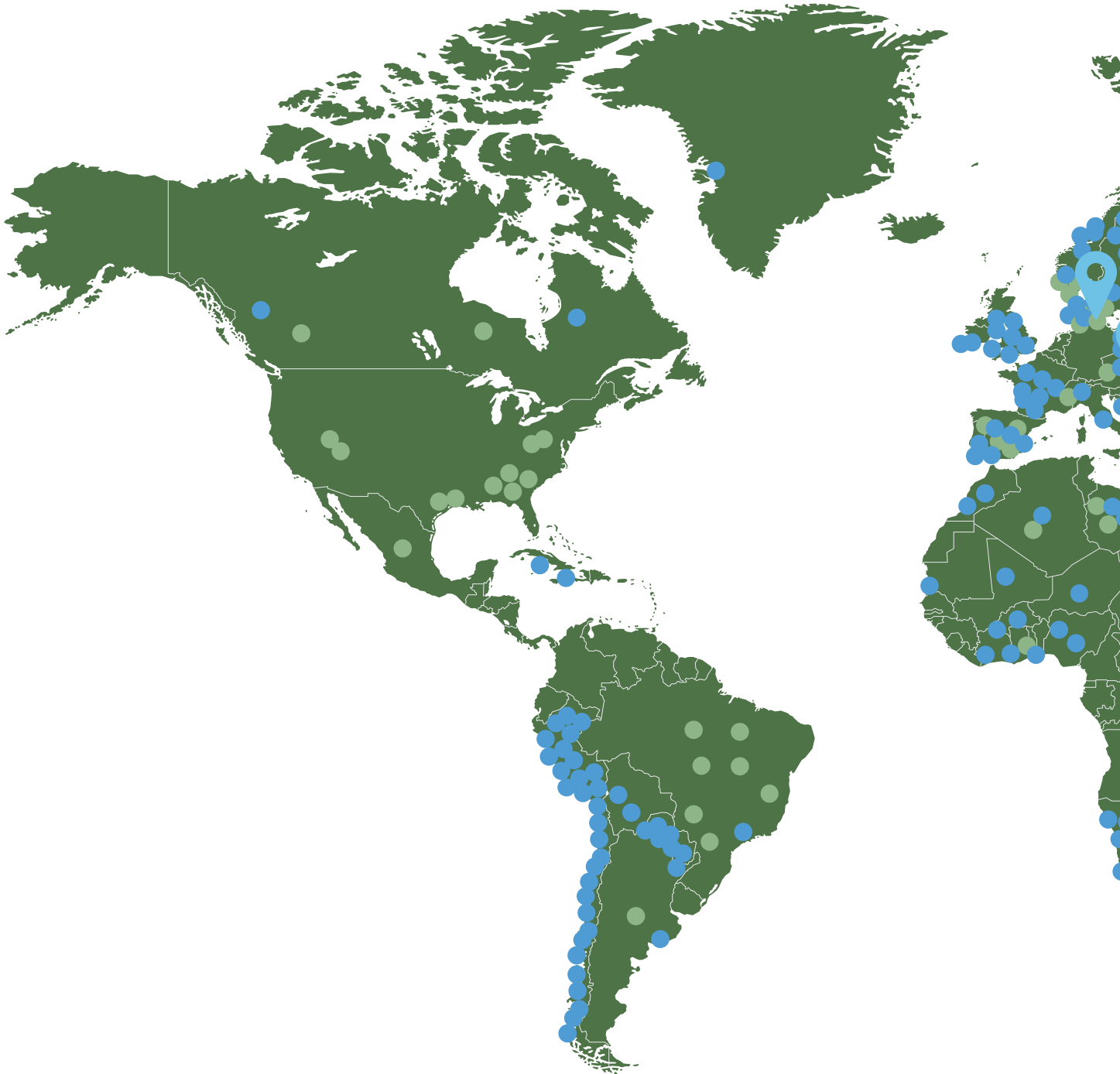
The customer uses 10 ppm nitrogen in order to protect the soldering processes from oxidation and leaves a clean solder point resulting in increased products quality. After the comparison the end user found the OXYMAT nitrogen PSA solution to be the most economical and effective source of nitrogen (constant delivery, competitive pricing and top performance in air/gas relation).

A WORLD OF REFERENCES

SELECTED GLOBAL FOOTPRINT

For more than 40 years, OXYMAT has delivered PSA solutions globally. No matter the size or conditions of your project, we are sure, we have a similar reference. We have delivered units for small remote locations, large governmental projects with multiple sites and modular units for field hospitals to name a few.

Please contact us for specific references.



5,000+

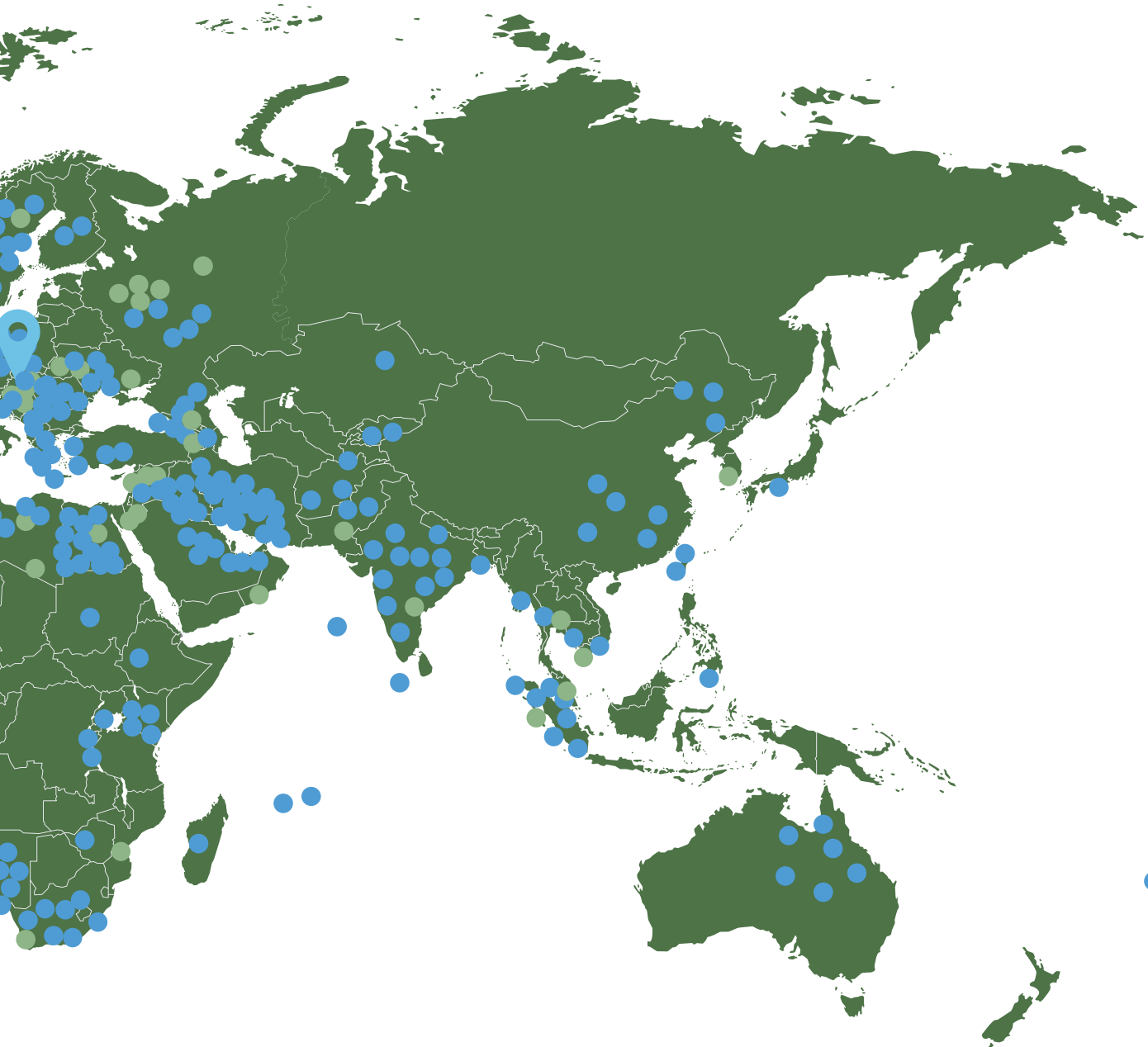
INSTALLATIONS
WORLDWIDE

130+

COUNTRIES OF
INSTALLATION

35+

BILLION M³ OF
GAS PRODUCED



OXYMAT

AT A GLANCE

- Headquarters in Denmark
- Production in Denmark and Slovakia
- Turnover € 40 million in 2021
- More than 150 employees worldwide
- Part of Atlas Copco Group
- Wide network of distributors and agents
- Manufacturer of custom designed oxygen and nitrogen systems
- Oxygen generator systems since 1978
- Nitrogen generator systems since 2001
- More than 5,000 generator systems installed in more than 140 countries





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NORDIC SERIES SOLUTIONS

HIGHEST LEVEL OF INTERNATIONAL APPROVAL

OXYMAT oxygen and nitrogen solutions are designed and manufactured with highest quality standards.

Our medical oxygen solutions are certified according to European directives:

MDD (1993/42/EEC)
PED (2014/68/EU)

Our marine solutions all comply with IMO. We have delivered units approved by the major classification societies.

We have a long experience in designing, engineering and delivering thousands of oxygen and nitrogen systems all over the world.

OXYMAT is certified in accordance with international standards:

- ISO 9001:2015
- ISO 3834:2005

Certified by DNV, Kiwa and Apragaz.

