SVIGG

Supply Vessel Inert Gas Generator

OXYMAT®

Worldwide Manufacturer of PSA Generators

Oxymat at a Glance

Oxymat is a Danish based company specialized in designing and manufacturing on-site Oxygen and Nitrogen solutions, using Pressure Swing Adsorption (PSA) Technology.

We have been designing, engineering and manufacturing Oxygen generator systems since 1978 and nitrogen systems since 2001. We posses first hand knowledge of the market, developments demands and possibilities the PSA technology holds.

It is our mission to be your preferred innovative, dynamic and environmentally responsible supplier of on-site oxygen and nitrogen solutions worldwide.

Our team of more than 60 skilled and dedicated employees, based in 3 different locations:

- Denmark: Administration, R&D and Sales
- Slovakia: Administration, Production, Project management and Sales
- China: Administration and Sales

With more than 20 engineers (project managers, 3D CAD designers, automation engineers and experienced sales engineers) making sure we offer the right solution for any demand.

Through an ever ongoing process we are always focused on developing Oxymat to be cost-effective and ahead of the competition in terms of quality, performance and price. This strategy has made it possible to grow to the size and position Oxymat has in the market today. Our 2010 turnover was 11 mil. € and our product range is the most energy efficient in the market and even at a competitive price.

Our team of specialists will always be able to serve any demand. From our extensive standard industrial or marine programme to highly specialized turnkey projects, Oxymat will provide the quality solution. We offer a wide range of standardized control systems, and remote access and can offer to taylor made automation solutions according to your requirement.

It is our priority to always deliver high quality products and services. Oxymat holds all relevant approvals for serving the numerous applications we supply.

ISO 9001:2008
ISO 13485:2004
ISO 14001:2004/2007
PED 97/23/EC Module B+D
MDD 97/42/EC (Medical Device Directive)
MARINE Class societies - we can deliver according to the rules of:

- American Bureau of shipping
- Bureau Veritas
- Det Norske Veritas
- Germanischer Lloyd
- Lloyd's Register
- Nippon Kaiji Kyokai
- RINA

Bringing Nitrogen Generator Systems to Your Business

Why is Oxymat PSA Supply Vessel Inert Gas Generator (or in short SVIGG) the wise choice?

At Oxymat, we only see challenges - not problems! And with more than 30 years of experience with PSA technology and over 2500 plants delivered and running around the world, we know what we are dealing with. And know how to utilize this know-how.

Unique Oxymat design features include:

- High performance top quality solutions
- Skid mounted with split functionality on large plants
- Low CO_2 emission
- Heavy duty construction designed for rough conditions and marine use
- High quality & durable components
- 3D design
- Design and customization, to meet any specification
- Trouble-free installation
- High quality Touch Screen Control Unit
- Remote Control Access
- Specialist support from planning , installation and operation of your project
- Oxymat is approved and recognized as a quality supplier by major gas companies

The essence of PSA

The PSA process is an extremely clean operation and the only 'raw material' is air.

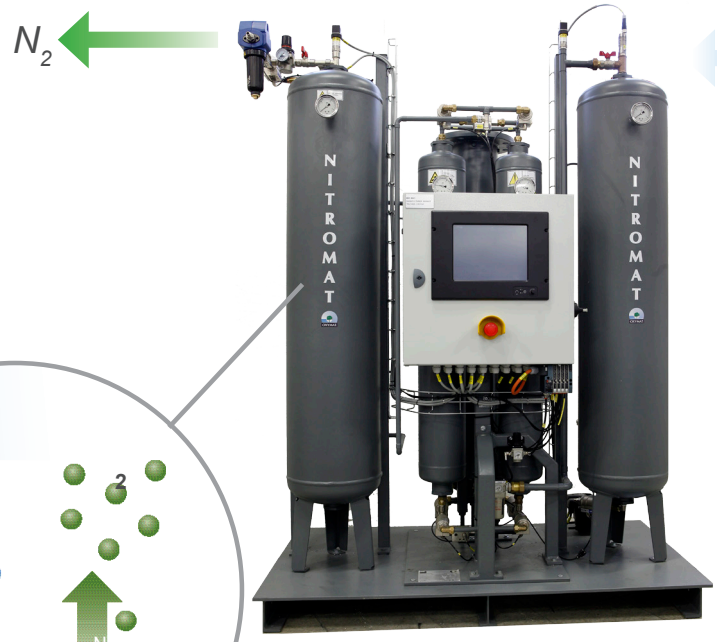
On-site generators allow for an uninterrupted supply of gas with a high purity output. This means that you can produce gas where and when you need it, and in the exact quantity and quality you need.

Our new SVIGG generators are specifically designed to fit the needs and requirements of nitrogen generators for Supply Vessels, and by drawing on what we've learned from other industries, we been able to design a very compact and flexible system, where tight space and short high-rate discharge capability have been kept in mind.

Advanced Control System

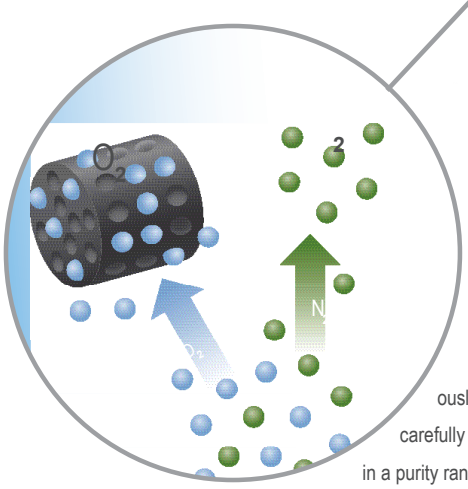
All models operate with our own developed Control Systems, spanning from the simplest Control System to the most Advanced System with Touch Control Screen, which makes day-to-day operation very simple for the user.

Technology / Process Description

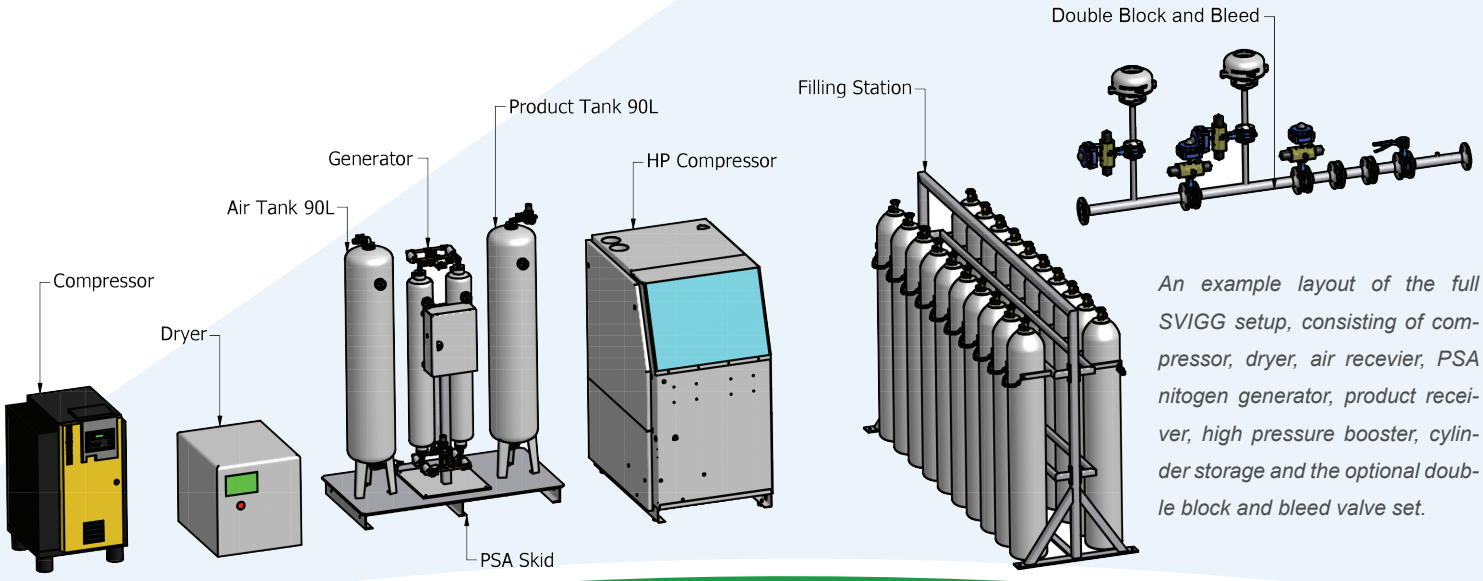


Inert Gas Generators according to class

DNV, LR, GL, BV, ABS, RINA, NK, CCS, etc.
All Oxymat X-series PSA generators are naturally delivered according to the Classification Society requirements, including Factory Acceptance Test.



The two column vessels are filled with CMS that adsorbs the O_2 molecules when pressurized. By continuously applying pressure and depressurize the vessels under carefully calculated and tested sequences, Oxymat can deliver N2 in a purity range from 95% and up to 99,999%.

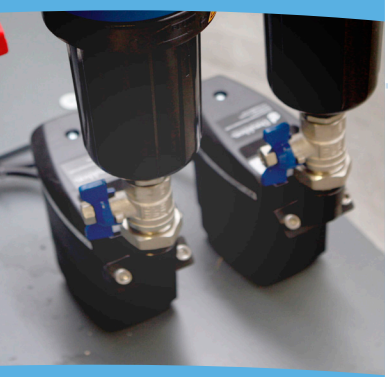


An example layout of the full SVIGG setup, consisting of compressor, dryer, air recevier, PSA nitogen generator, product receiver, high pressure booster, cylinder storage and the optional double block and bleed valve set.

Technical Parameters

Efficient Use of Space

The PSA nitrogen generator part of the complete SVIGG setup does not take up much space and can be placed almost anywhere where there is a square meter not used, as the footprint of it is actually just 1m^3. And all installations and cabling has been taken care of when it leaves the factory.



Optional Nitrogen padding down to 20 ppm

- When choosing our SVIGG solution, it not necessary to equip vessels with high purity nitrogen on bottles for padding - the system can be set up to do high purity production when the cylinder bank is full or on request.
- We can offer as pure as 20 ppm O_2 content, and the best thing is that changeover from 5 % production to 20 ppm takes less than 20 minutes.

Central drain system

- The PSA skid has central pipes for sludge, so it has only one connection point to the PSA.

Skid mounted

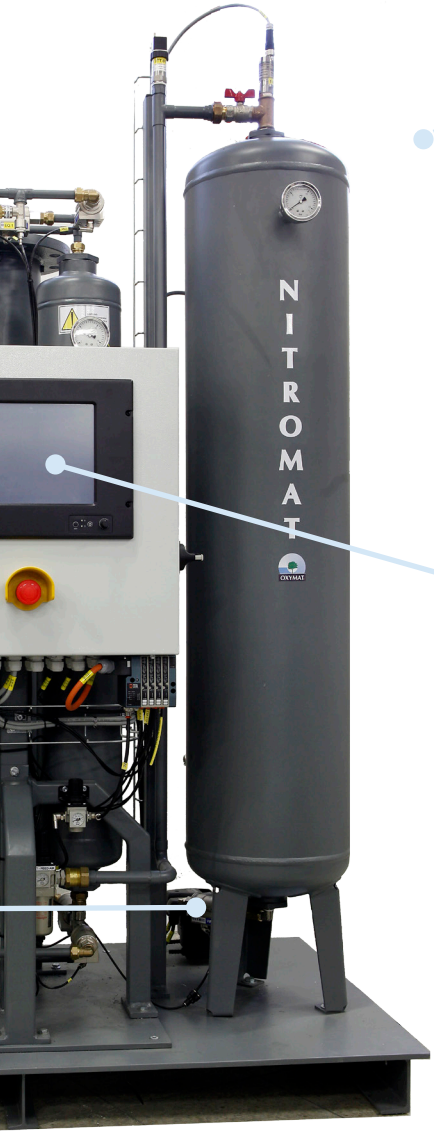
- The SVIGG PSA generator is mounted on a skid, where all wiring and cabling for control and operation have been made when it leaves the factory - all that is required once it is placed on board, is connection to power, feed air and to outlet to IG main line.

"Even though PSA plants have initial higher cost than traditional membrane systems, the advantages of PSA plants far out beat the cost with longer life-span and easy tank regulation of O2 flow. Choosing a N2 plant from Oxymat gave us a system that covered our N2 needs for chemical tankers in a real simple manner."

Ove Normann
Technical Manager
Odfjell SE

On-site Inert Gas Generators

The Oxymat SVIGG PSA nitrogen generators combines cost and space efficiency in one unit, and the versatile design allows use for a wide array of cargo volumes. Further possibilities can be added when using the nitrogen generator as a filling station in case of required nitrogen, whether it be on board or elsewhere. With the SVIGG the result is not just get a nitrogen generator for inerting cargo holds, but a small versatile gaseous nitrogen plant.



Optional double block and bleed system

- This class approved safety system can be delivered as an integrated part of the PSA system for on deck placement, where components for on deck installation are naturally chosen.
- The DBB system maintains pressure in cargo tanks at 0.2 bar or after customized specification and of course fulfill every other safety requirements from IMO and class societies.

The most simple and advanced control

- With simple and easy to use touch screen, self diagnosting, only one wire from instrument to PLC, easy internet access, there can be screens whereever needed, e.g. CCR, in ECR and on bridge - in fully compliance with class rules.

Performance Chart

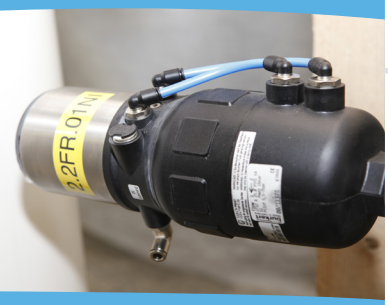
The stated flows below are based on 95% nitrogen production and describes the flow at which the high pressure product is delivered to the cylinder bank. Filling time of the total cylinder bank must be calculated individually.

	Sm3 /hour	Pressure
SVIGG	14	200bar - 350bar
SVIGG+	20	
SVIGG++	25	

Technical Parameters

Flexible Volume Solutions

The SVIGG generator is designed to comply with class requirements by having a stored nitrogen capacity equivalent to 125% of total cargo hold volume. The size is not



Flow control

- All SWIGG generators can be equipped with flow control system. The flow can be set from the touch screen and all settings from 0 to maximum capacity are available.

Storage volume

- The amount of stored N_2 is based on the total cargo volume of that which requires N_2, and according to class stored amount must be by factor 1.25. This is easily scaled by applying correct no. of cylinders containing a certain pressure.

Wall mount fixation

- Simple mounts to install on board will ensure that the cylinders are stays firmly in place during voyage.

"We chose a PSA system because it gave us several advantages to a membrane system. The system is more reliable with both higher quantity and purity output. At the same time, maintenance is simpler with reduced cost for replacing parts, especially membrane filters."

Horst Baumann
Ahrenkiel Consulting Services GmbH & Co. KG
Suisse Outremer Ahrenkiel & Co.

Air Consumption Chart

	Air Consumption	Air to Product Ratio
5% O_2 Content	28 - 50	2.0
0.5% O_2 Content	42 - 75	3.0
20ppm O_2 Content	98 - 175	7.0

Cylinder bank

- The cylinders are interconnected, and the pressure is measured on a common line, this results in a cylinder bank operating as one single storage unit.

Flow meter

- We do always equip our marine systems with flow meters which gives full control of cargo operations. The flow from SVIGG can even be determined by actual discharge flow.

Purity monitoring

- The purity of the N_2 outlet is continuously monitored and logged in the control.

Expandable and flexible

- Should a need to fill cylinders for other use than on the IG main, then a filling station can easily be fitted to the system, taking full advantage of the capabilities of the system.

OXYMAT®

OXYMAT A/S

Headquarter
Oxymat A/S
Fasanvej 18-20
DK-3200 Helsinge
Denmark
T: +45 48 79 78 11
F: +45 48 79 78 13
M: marine@oxymat.com
W: www.oxymat.com

Highest level of international approval

Oxymat Nitrogen systems are designed and manufactured according to :

- PED(97/23/EC)

Oxymat has long experience in design, engineering and delivery of hundreds of Nitrogen systems all over the world, in accordance with international and national authorities.

Oxymat operates management systems in accordance with international standards

- ISO 9001(Quality Management Systems)
- ISO 14001 (Environmental Management Systems)

certified by Apragaz.

APRAGAZ