

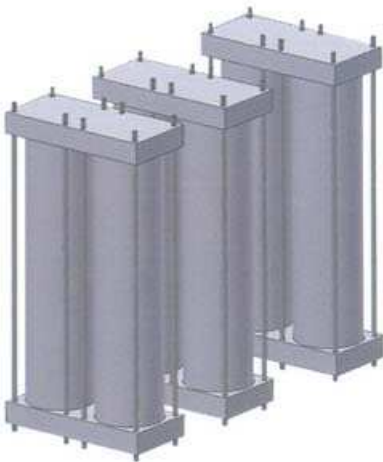


NITROSWING®
Nitrogen is yours

...with all the advantages...

The features of the NITROSWING® range are such as to provide the best advantages in terms of convenience and simplicity.

- Components from primary suppliers available throughout the world
- No adsorption dryer upstream of the generator to prevent wasting compressed air
- Minimum maintenance
- Zirconium cell based analyzer:
 - maximum reading reliability
 - inexhaustible
 - no yearly calibration required
- Electronic flow meter fitted inside the metal cabinet
- Telemetry for remote monitoring and control of the nitrogen generator



Simple, fast and safe extension

- Complete expandability without making any substantial changes to the system
- Pipes, valves and air treatment already sized for utmost extension

NITROSWING® allows adding modules without complete disassembly of the unit, avoiding the risk of molecular sieve contamination inside the towers.

Would you like to double or triplicate the flow rate? Choose the DUAL BANK system, just one control system for a double or triple machine.



...and as much as you want...

The **NITROSWING®** range caters for all requirements and thanks to the addition of modules and the DUAL BANK system option, no limits exist to the supply.

Flow (Nm ³ /h) with air inlet pressure at 7,5 bar(g)								
Purity % O ₂	NS-5	NS-10	NS-20	NS-25	NS-30	NS-35	NS-40	NS-45
0,005	2	4	5,8	7,6	9,3	10,9	12,4	13,9
0,01	2	4	6	9	11	13	15	17
0,1	4	7	11	15	19	22	26	29
0,5	6	12	18	24	30	36	42	48
1	7	14	22	30	38	45	52	60
2	9	18	28	38	48	57	66	75
3	11	21	32	44	55	66	77	87

Technical specifications

Nitrogen outlet pressure:	min. 3,6 bar(g) - max. 8,3 bar(g)
Air inlet pressure:	min. 6 bar(g) - max. 10 bar(g)
Nitrogen dew point:	< -40°C @ 1 bar(a)
Power supply:	230V/1ph/50Hz
Energy consumption:	0,3 kW
Ambient temperature range:	5° - 40°C

Maximum compactness, minimum space

MODEL	DIMENSIONS (mm)	WEIGHT (kg)
NS-5	520 x 700 x 1340	210
NS-10	520 x 930 x 1340	315
NS-20	520 x 1160 x 1340	420
NS-25	520 x 1390 x 1340	525
NS-30	520 x 1620 x 1340	630
NS-35	520 x 1850 x 1340	735
NS-40	520 x 2080 x 1340	840
NS-45	520 x 2310 x 1340	945



...because nitrogen is yours.



You can personalize your system supplied on a single skid or mounted inside ISO container.

All components of your packaged system will be selected according to the ambient conditions and to the area classification of the installation site.

Before shipment, each system undergoes stringent testing, which also can be performed with your presence for major transparency.

After-sales service is an integral part of our philosophy. Our technicians reach customers all over the world to check correct installation, system commissioning and customer personnel training.

We can also provide a scheduled maintenance package, complete with services and spare parts.



FREE SERVICE NUMBER

+39 800 411565



OPERATING ON THREE CONTINENTS

WORLD CLASS TECHNOLOGY

PRODUCT DEVELOPMENT SUPPORTED BY R&D FACILITIES IN US, EUROPE AND ASIA

PROFESSIONAL SERVICE

IGS GROUP

Innovative Gas Systems is one of the world's major suppliers of on-site air separation plants for the production of nitrogen and oxygen. IGS' technologies for the production of nitrogen by Hollow Fiber Membranes and for the production of nitrogen and oxygen by optimized Pressure Swing Adsorption processes set new market standards in terms of performance and efficiency. The IGS production facilities and numerous sales and service centers throughout the world provide the very same standards of quality and product consistency.



OSCAR R. L. DE GROEN
Managing Director IGS
Italia

IGS ITALIA

IGS Italia is one of IGS' multifunctional centers. It is the group's production facility in Europe and it also comprises an Engineering Division, a Sales Department and a Technical After-Sales Service Team. We produce a broad range of nitrogen and oxygen generators and tailored, finely engineered plants for applications in the oil & gas, mining, health-care and industrial sectors. Each plant is carefully designed, built and commissioned according to the local regulations applicable in the countries of installation.

company

PHILOSOPHY

Behind all our activities lies trust: the trust our customers have in our ability to meet their specific needs in terms of both quality standards and agreed delivery terms. Our prime aim is to establish long-term professional relations based on transparency and reliability.

CONSULTANCY

Our team of highly skilled professionals provides all the flexibility required to develop and design our generators. Commitment towards understanding the needs of our customers drives us to constantly look for the best possible solution for each specific operating condition. But our advice is not restricted to our products alone. Wherever possible, we also suggest improvements regarding the use of the produced gas in order to increase efficiency and to cut costs.

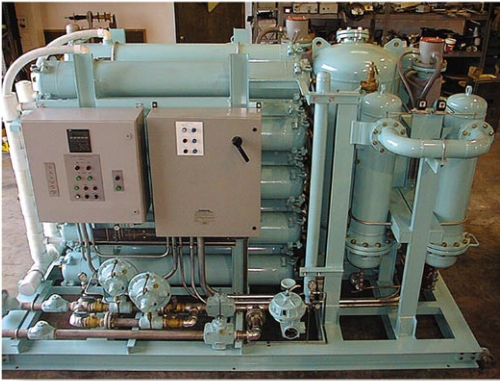
QUALITY

All activities within the company strictly comply with our quality management system procedures, which are regularly updated and optimized. Our welders are qualified according to the most stringent regulations and for different types of materials. Communication quality is ensured by our multi-lingual staff, who is able to interact directly with customers, thereby speeding up processes, insuring easier information exchange and increasing mutual trust.

ENVIRONMENT

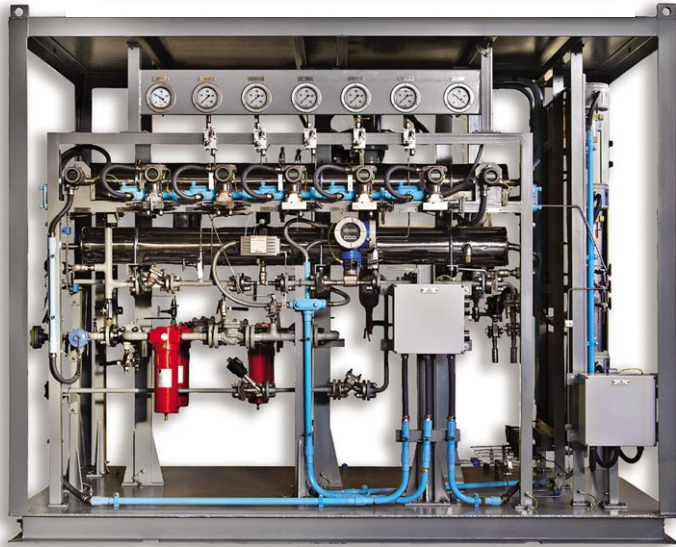
It is our policy to minimize and to continuously improve the environmental impact of all our activities. According to our environmental management system we constantly verify and correct our consumption of utilities and our waste disposal and we pay special attention to the material selection for our products and services.





To produce Nitrogen and Oxygen, IGS Italy uses the principles of air separation. Hollow Fiber Membrane technology is used to produce Nitrogen, PSA (Pressure Swing Adsorption) technology for the production of Oxygen or high-purity Nitrogen.

The IGS group is one of the world's major manufacturers of Hollow Fiber Membrane modules.

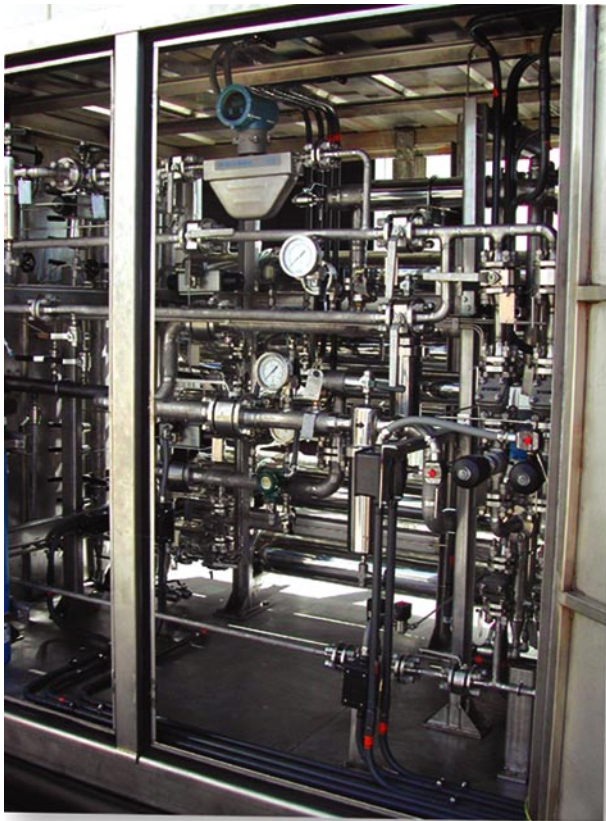


Our modules are the result of an extensive effort in R&D and set new market standards both in terms of performance and efficiency.

IGS Italy is able to provide customized solutions for any kind of application in various sectors and according to all required regulations.



engineering

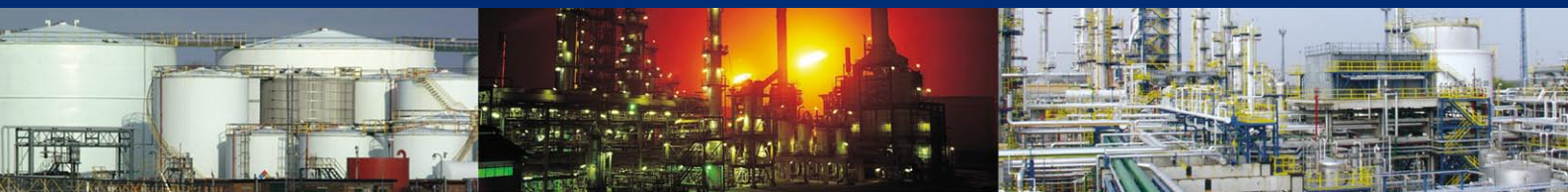
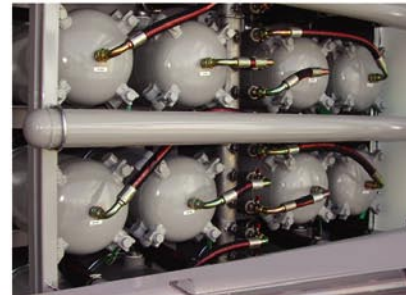


The plants can be supplied on skids or turnkey assembled inside ISO transport containers. All components are selected according to the environmental conditions and the installation site classification.

Where required, we can supply sophisticated control systems for our products which, besides the standard Local Control Panel (LCP), can transmit data to the customer's DCS, or provide plant control directly by the DCS eventually extended with a backup system.

On request local instrumentation can be supplied with either the HART® or the Foundation™ Fieldbus bi-directional communication protocol.

Before shipment, all our plants are carefully factory tested. If so required, tests can be performed together with customers to ensure product suitability.



TECHNOLOGY

Our PSA technology is the result of extensive R&D efforts and years of experience acquired by the entire IGS Group. By optimizing the various process stages to the utmost, our plants maintain a high degree of simplicity to insure greater robustness. The result is a range of extremely efficient products at very competitive pricing. Product safety is guaranteed by both the fatigue analysis for cyclic loads applied for our PSA tower design and the certification of our plants to the relevant European or US directives for pressure equipment and machineries.

STANDARD PRODUCTS

IGS Italia's NITROSWING® and OXYSWING® PSA generators are based on a modular tower design (*) and offer the customer an unmatched flexibility for the on-site generation of nitrogen and oxygen. These unique products can easily be upgraded at any time simply by adding modules or by installing a so-called dual-bank in parallel without additional modifications. A dual-bank is a set of modules with all necessary piping and valves, which is controlled directly by the PLC of the master plant. Reduced system dimensions and a small footprint in combination with a maximum PSA process efficiency are guaranteed by the application of our innovative **FlatFlow**® gas distribution system (*). Besides our modular systems, we also offer medium-sized and large twin-tower PSA nitrogen and oxygen generators. All our standard models can be enhanced by a series of optional features to allow the user to have a custom-built solution that meets his specific requirements.



MAIN APPLICATIONS

NITROSWING®

*CPI
Electronics
Foaming
Food & Beverage
Heat Treatment
Laser Cutting
Oil & Gas*

OXYSWING®

*Aquaculture
Brazing/Welding
Ceramics/Glass
Healthcare
Mining
Water Treatment
Wellness*

The medical version of our OXYSWING® modular PSA oxygen generators is certified as Class IIB medical device according to the directive 93/42/EEC.



(*) International patents pending

N₂ & O₂

SPECIAL PRODUCTS

IGS Italia has a range of high-pressure cylinder filling systems available, which can be easily connected to any of our nitrogen and oxygen generators. Optionally we can supply turn-key installed plants inside ISO transport containers for outdoor installations. On request IGS Italia can also design completely custom-built plants.



AFTER-SALES SERVICE

After-sales service is an integral part of our philosophy. Consumables and spare parts for our products will be supplied directly from our warehouse in Italy or through our local distributor. Our technicians will travel to customers all over the world to insure a correct plant installation, for commissioning and start-up and for training of customer's personnel. We can also provide programmed maintenance packages, complete with services and spare parts.

REFERENCES

The IGS Group / IGS Italia have delivered thousands of plants to all levels of the industry. We supply to small local companies as well as to the largest customers in the Oil and Gas, Marine and Industrial Markets.

FREE SERVICE NUMBER
+39 800 411565

IGS ITALIA s.r.l.

Via Giordania, 48 - 58100 Grosseto - Italy

Tel +39 (0564) 458041 / 42 Fax +39 (0564) 458043



IGS Generon®
16250 Tomball Parkway
Houston, TX 77086 USA
Tel.: +1.713.937.5200 Fax: +1.713.937.5250

IGS Generon® Europe
c/o Office Center KÖ66 Königsallee 66
D-40212 Düsseldorf, Germany
Tel.: +49.211.86.69.15.55 Fax: +49.211.86.69.15.50

IGS Generon GUS
Entuziastov, 55-58 Balashikha
Moscow Region - 143900 Russia
Tel.: +7.495.525.6744 Mobile Phone: +7.903.689.8067

IGS Generon Middle East
c/o Esnaad / Adnoc Group P.O.Box 46121
Abu Dhabi, United Arab Emirates
Tel.: +971.2.6029.312 Fax: +971.2.6029.132

IGS SMC Asia Gas System
Shungfeng Rd., Shuangliu Aviation Harbor
Chengdu, Sichuan, P.R. China 610225
Tel.: +86.28.8588.2034 Fax: +86.28.8588.2037

IGS Asia
2/3 Moo 14 Bangna Tower A 17th Floor, Bangna-Trad Rd.,
Bangplee Samutprakarn 10540 Thailand
Tel.: +66.2751.9495 Fax: +66.2751.9497

IGS Generon Korea
1st Floor, 561-14, Gajwa-dong,
Jinju-city, Gyeongsangnam-do, South Korea 660-300
Tel.: +82.55.761.8415 Fax: +82.55.761.8435

www.igs-italia.com - info@igs-italia.com
www.igs-global.com - info@igs-global.com

Oxygen is in the air... and it is yours...

Air separation has always been a specialization of the IGS group. Our nitrogen and oxygen generation systems, installed in every corner of the world, testify to the forty years of experience behind our group. With its three production facilities in the United States, Asia and Europe, and the numerous sales and after-sales centers in the world, Innovative Gas Systems sets top-quality standards everywhere.

Each system is designed, manufactured and commissioned according to the procedures of our quality system, which is regularly updated and optimized.



Our oxygen generation systems provide the gas required for aquaculture, for welding and brazing, for ceramics/glass production processes, or neon manufacturing, for feeding of ozone generators and for wellness applications. Moreover, OXYSWING® generators are certified as Class IIB Medical Devices to the directive 93/42/CE, which makes them fully suitable for any healthcare application.



...don't buy what you already have. Now...

The solution exists to all problems tied to the supply of oxygen. No longer you have to deal with supply difficulties, handling of high-pressure cylinders, evaporation of liquid gas, hazards of storage, unused gas still in returned cylinders, financial costs for rental and stock management .



The OXYSWING[®] oxygen generators provide the most simple and economic solution for producing oxygen according to your needs and with desired purity. Press the start button and your OXYSWING[®] will work for you automatically.

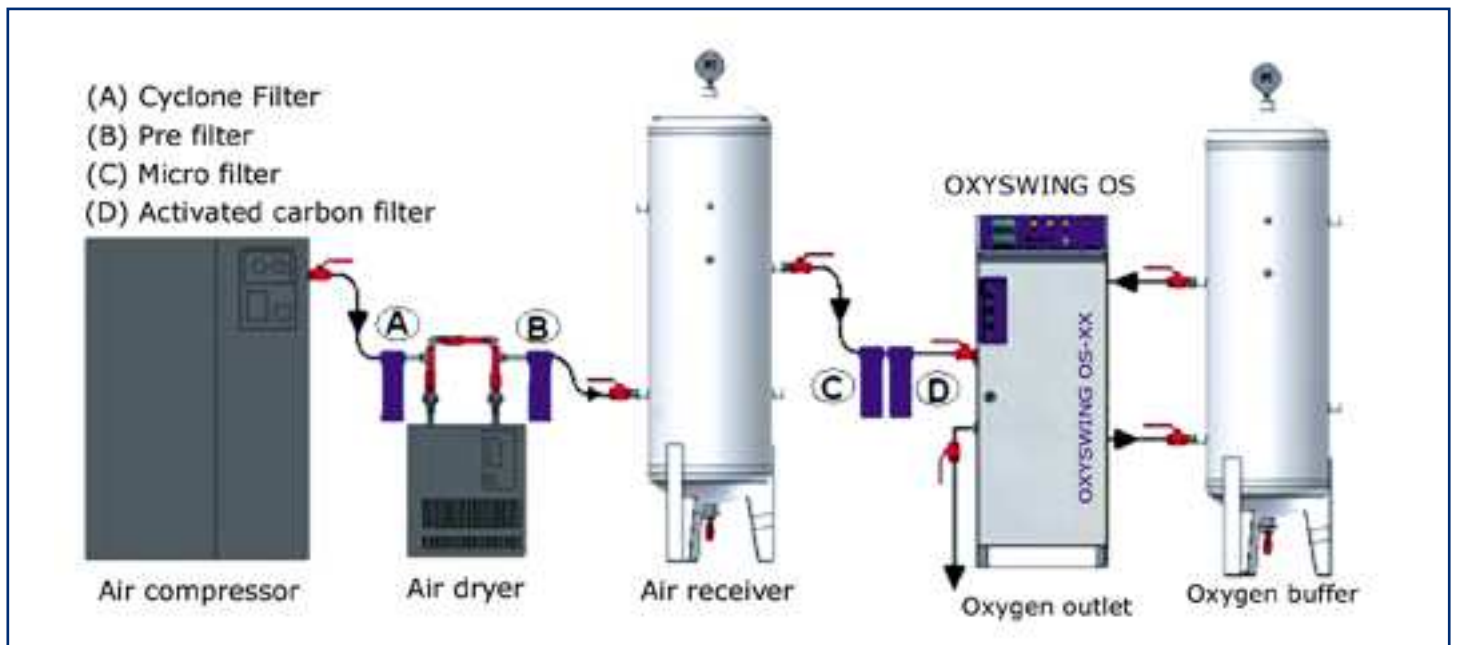
Discover the advantages:

- **INEXPENSIVENESS**
You are no longer subject to supplier price increases;
- **SAVINGS**
No rental, filling, delivery or order management costs;
- **UNLIMITED SUPPLY**
Oxygen always available, without any risk of running out of stock;
- **PERSONALIZED PURITY**
You can choose between 90% and 95% oxygen purities;
- **CONSTANT AND SAFE PURITY**
The oxygen purity is constantly checked through a high accuracy analyzer;
- **COMPACT DESIGN AND REDUCED DIMENSIONS**
Small overall dimensions, easy transport and simple handling;
- **SAFETY**
No more high-pressure cylinders storage, handling and changeover risks;
- **EXPANDABILITY**
You can increase the supply of oxygen whenever you want by simply adding modules or banks.



...you can make it by yourself...

Using your own air compressor or by installing a new one, your supply of oxygen is always on hand, safely and conveniently.



PSA (Pressure Swing Adsorption) technology permits producing oxygen by pressurization with compressed air of two towers filled with zeolite in cyclic alternation. While one of the towers is in the adsorption phase, the other one is regenerated by reducing the pressure.

The OXYSWING® oxygen generators combine cycling times and zeolite characteristics in the best possible way, achieving maximum productivity and efficiency.

The result is oxygen at the desired purity level, in total safety, without any waste, with low energy consumption and utmost environment friendliness.



...with all the advantages...

The features of the OXYSWING® range are such as to provide the best advantages in terms of convenience and simplicity.

- Components from primary suppliers available throughout the world
- Minimum maintenance
- Zirconium oxide cell based analyzer:
 - maximum reading reliability
 - inexhaustible
 - no yearly calibration required
- Electronic flow meter fitted inside the metal cabinet
- Telemetry for remote monitoring and control of the oxygen generator



Simple, fast and safe extension



- Complete expandability without making any substantial changes to the system
- Pipes, valves and air treatment already sized for utmost extension

OXYSWING® allows adding modules without complete disassembly of the unit, avoiding the risk of zeolite contamination inside the towers.

Would you like to double or triplicate the flow rate?

Choose the DUAL BANK system, just one control system for a double or triple machine.



...and as much as you want...

The OXYSWING®

range caters for all requirements and thanks to the addition of modules and the DUAL BANK system option, no limits exist to the supply.

Performance table

Flow Nm ³ /h (scfh) with air inlet pressure at 7 bar(g) / 100 psig						
Purity Vol. % O ₂	OS-8	OS-16	OS-24	OS-32	OS-40	OS-48
90	2,62 (101)	5,3 (204)	8,0 (308)	10,6 (409)	13,1 (505)	15,6 (601)
93	2,54 (98)	5,2 (200)	7,8 (301)	10,3 (397)	12,8 (493)	15,1 (582)
95	2,49 (96)	5,1 (197)	7,6 (293)	10,1 (389)	12,5 (482)	14,9 (574)
Oxygen discharge pressure: 5 to 6 bar(g) / 72 to 87 psig						

The use of the Dual Bank System will double or triple the above mentioned flow rates

Maximum compactness, minimum space

MODEL	DIMENSIONS mm (inches)	WEIGHT Kg (lbs)
OS-8	550 x 769 x 1672 (22 x 31 x 66)	306 (674)
OS-16	550 x 1039 x 1672 (22 x 41 x 66)	457 (1008)
OS-24	550 x 1309 x 1672 (22 x 52 x 66)	609 (1342)
OS-32	550 x 1579 x 1672 (22 x 62 x 66)	760 (1676)
OS-40	550 x 1849 x 1672 (22 x 73 x 66)	912 (2010)
OS-48	550 x 2119 x 1672 (22 x 83 x 66)	1063 (2344)



Main applications

Aquaculture • Brazing/Welding • Ceramics/Glass • Healthcare • Wellness