



**OXYSWING®**  
*Oxygen is yours*



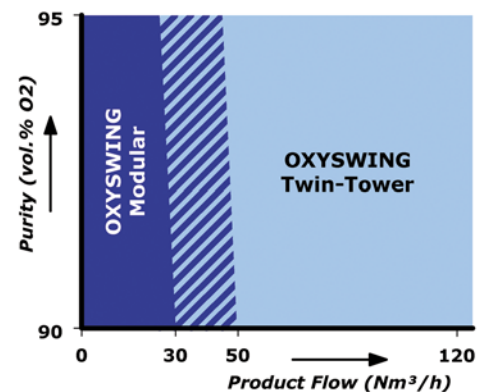
**OPERATING ON THREE CONTINENTS**  
**WORLD CLASS TECHNOLOGY**  
**PRODUCT DEVELOPMENT SUPPORTED BY R&D FACILITIES IN US, EUROPE AND ASIA**  
**PROFESSIONAL SERVICE**

## THE WORLD OF IGS

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, Europe and Asia, and the numerous sales and service 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 certified quality system, which is regularly updated and optimized.

Our oxygen generation systems provide the gas required for a variety of oxygen applications. Besides the conventional OXYSWING® PSA oxygen generators, IGS offers also its unique and innovative modular OXYSWING® PSA oxygen generators.



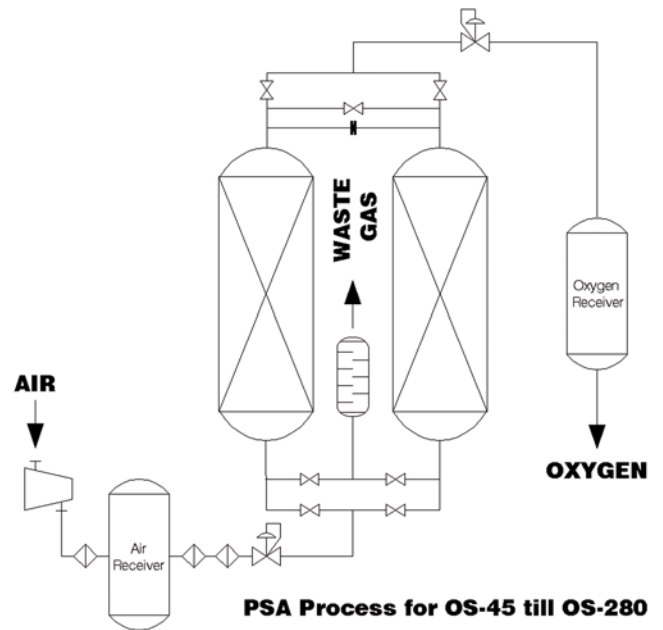
## OXYSWING® ADVANTAGES

The OXYSWING® Twin-Tower PSA Oxygen Generators from IGS are a perfect alternative solution for the traditional oxygen supply mode through liquid oxygen storage tanks with vaporizers. Especially in more remote areas with less developed infrastructures the OXYSWING® Twin-Tower PSA Oxygen Generators offer you the following important advantages:

- **UNLIMITED OXYGEN SUPPLY**  
Fully automatic operation, oxygen always available. No risk of running out of stock;
- **SAFE**  
Production of low-pressure, gaseous oxygen. No hazardous storage of cryogenic oxygen;
- **NO LOSSES**  
Oxygen will only be produced when you need it. No evaporation losses of liquid oxygen during stand-by periods;
- **BETTER COST CONTROL**  
By producing your own oxygen, you have full cost control. No more price increases or transport fees from external suppliers.

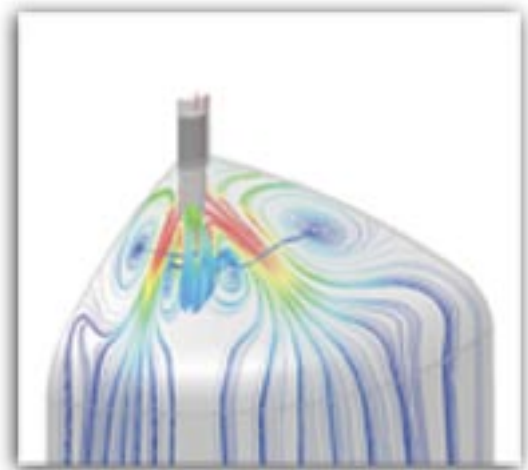
## HOW DOES IT WORK?

The OXYSWING® Twin-Tower PSA Oxygen Generators extract the available oxygen in the ambient air from the other gases through the Pressure Swing Adsorption (PSA) process. During the PSA process compressed, cleaned ambient air is led to a molecular sieve bed, which allows the oxygen to pass through as a product gas, but adsorbs other gases. The sieve releases the adsorbed gases to the atmosphere, when the outlet valve is closed and the bed pressure returns to ambient pressure. Subsequently the bed will be purged with oxygen before fresh compressed air will enter for a new production cycle. In order to guarantee a constant product flow, IGS' oxygen generators use two molecular sieve beds, which alternatively switch between the adsorption and the regeneration phase.



## OUR PSA COMPETENCE

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, the OXYSWING® Twin-Tower PSA Oxygen Generators maintain a high degree of simplicity to insure greater robustness. For example, extensive CFD flow simulations have resulted in a perfect flow distribution over the entire section of the molecular sieve bed, whilst keeping gas velocities through the bed far below the fluidization limit. Our design optimization of the PSA adsorber towers by means of detailed FEM mechanical stress and fatigue analyses have set markets standards for safety and durability.

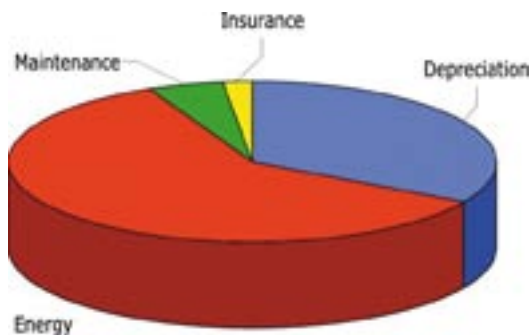


## KEY FEATURES

The OXYSWING® Twin-Tower PSA Oxygen Generators are designed for heavy-duty operation, where system availability in combination with low running costs are primary objectives. The key features of the OXYSWING® Twin-Tower PSA Oxygen Generators are:

- **HIGH RELIABILITY**

Low gas speeds through the adsorber beds, first-class components, stainless steel valve bodies and instrument air tubing, heavy-duty industrial PLC. It should work. Always.



- **LOWEST ENERGY CONSUMPTION**

Energy cost is your major expense, not investment depreciation. Short pay-back period assured. Let OXYSWING® really make you save money;

- **EASY INTEGRATION**

All system tie-in points on one side in order to facilitate the installation of the plant and the integration with your existing equipment;

- **SAFETY FIRST**

Heavy-duty adsorber vessels, designed with extensive fatigue analysis and certified for an unlimited number of cyclic loads;

- **CUSTOMIZATION**

An extended list of options allow you to define your specific OXYSWING® Twin-Tower PSA Oxygen Generator adjusted to your individual need;

- **CERTIFIED**

The OXYSWING® Twin-Tower PSA Oxygen Generators are fully certified to the relevant European or North-American directives for pressure equipment and machineries (e.g. Category IV, Module B + F according to PED 97/23/EC).



# specifications

OXYSWING PSA Generator	Oxygen Production Flow Nm <sup>3</sup> /h (scfh)			Length mm (inch)	Width mm (inch)	Height mm (inch)	Weight kg (lbs)
	90 vol.%	93 vol.%	95 vol.%				
OS-70	28,5 (1,085)	27,5 (1,045)	27,0 (1,025)	1.660 (65)	1.550 (61)	3.270 (129)	3.100 (6,835)
OS-85	35,2 (1,340)	31,6 (1,200)	28,3 (1,075)	2.000 (79)	1.600 (63)	3.900 (154)	4.010 (8,840)
OS-100	42,4 (1.615)	38,4 (1,460)	34,1 (1,295)	2.100 (83)	1.800 (71)	3.200 (126)	4.515 (9,955)
OS-110	50,0 (1,900)	44,5 (1,695)	40,2 (1,530)	2.320 (91)	2.000 (79)	3.600 (141)	5.300 (11,685)
OS-160	67,8 (2,580)	59,6 (2,265)	53,4 (2,030)	2.375 (94)	2.000 (79)	3.600 (141)	6.000 (13,230)
OS-180	77,6 (2,950)	68,0 (2,585)	61,3 (2,330)	2.660 (105)	2.150 (85)	3.750 (148)	9.000 (19,840)
OS-220	95,0 (3,615)	83,0 (3,160)	75,8 (2,885)	2.900 (114)	2.400 (95)	4.650 (183)	10.785 (23,775)
OS-280	120,8 (4,595)	105,7 (4,020)	98,0 (3,730)	3.200 (126)	2.450 (97)	4.400 (173)	14.000 (40,865)

Feed Air Pressure = 7,0 bar(g) / 100 psig  
 Oxygen Discharge Pressure = 3,0 - 4,5 bar(g) / 45 - 65 psig  
 Oxygen Dew Point = - 60 °C / -76 F at atmospheric pressure  
 Feed Air Consumption = Oxygen Production Flow x 11 / 12 / 13

STANDARD COMPONENTS	OPTIONS
<ul style="list-style-type: none"> <li>• Feed Air Filters</li> <li>• Adsorber Vessels to 97/23/EC or ASME VIII Div. 2</li> <li>• Process Valves with SS316L Bodies</li> <li>• Process Piping of Painted Carbon Steel</li> <li>• Instrument Tubing in SS316L</li> <li>• Exhaust Silencer</li> <li>• Air and Oxygen Pressure Regulation</li> <li>• Local Instrumentation</li> <li>• Control System with Allen-Bradley PLC</li> <li>• Pressure Switch for Automated Idle-Mode</li> </ul>	<ul style="list-style-type: none"> <li>• Oxygen Analyzer with Zirconium Oxide Cell</li> <li>• Oxygen Dew Point Analyzer</li> <li>• Electronic Product Flow Meter</li> <li>• Feed Air/Oxygen Pressure Transmitter</li> <li>• Feed Air/Oxygen Temperature Transmitter</li> <li>• Product Flow Totalizer</li> <li>• Allen-Bradley PanelView™ Graphical Display</li> <li>• Telemetry (GSM / Modem / Ethernet)</li> <li>• Oil-free Oxygen High Pressure Booster</li> <li>• Oxygen Cylinder Filling System</li> <li>• Medical Upgrade</li> </ul>

On request IGS can supply you a correctly dimensioned feed air system for your OXYSWING® Twin-Tower PSA Oxygen Generator as well.

## ENGINEERING SERVICES & SPECIAL PROJECTS

On request IGS can assist you with the detailed engineering, planning and installation of your entire OXYSWING® PSA oxygen generation system. The small and medium-sized OXYSWING® Twin-Tower PSA Oxygen Generators can also be supplied as complete turn-key systems mounted on a single carbon steel skid.

Eventual oxygen requirements beyond our standard range (up to capacities of 5 TPD) will be treated as special projects, where IGS' engineers will develop a customized solution for your specific oxygen demand. Of course we will apply the same tough standards to our engineered products as for our standard plants and, if required, apply your specific design standards as well.

## OUR APPROACH

IGS has a reputation for quality products and excellent service. That's why we always put a lot of attention to the specific site conditions and the details of your oxygen consumption profile right from the beginning. As the performance of any PSA gas generator strongly depends on the incoming feed air temperature, our systems will be selected and designed to guarantee you the minimum requested oxygen mass flow even at the toughest ambient site conditions. That makes IGS the reliable choice. No confusing performance data, just straightforward as it is.

Once we will be awarded with your order, we are fully committed to meet the agreed conditions in every aspect. We are proud of our record of 100% on-time deliveries during the last three years.



Our technicians will travel to any site location in the world to insure a correct installation of your OXYSWING® Twin-Tower PSA Oxygen Generation System and to assist you with its commissioning and start-up as well as the training of your personnel.

## WARRANTY & MAINTENANCE

We stand for our products. That's why IGS offers the best warranty terms of the market and independent from the number of running hours of your OXYSWING® Twin-Tower PSA Oxygen Generator. On top of that we also provide programmed maintenance packages, complete with services and spare parts.

# applications

## MAIN OXYGEN APPLICATIONS



### AQUACULTURE & WATER TREATMENT

Together with our high efficiency water oxygenation system with average oxygen bubble sizes of only 10 – 20  $\mu\text{m}$ , the OXYSWING<sup>®</sup> Twin-Tower PSA Oxygen Generators will offer you an efficient solution for the on-site production of oxygen.



### GLASS & CERAMICS

The OXYSWING<sup>®</sup> Twin-Tower PSA Oxygen Generators have proven to be a reliable oxygen source for furnaces and flame polishing, even when operated around the clock. We also can supply you special automatic oxygen distribution systems for a monitored and controlled oxygen supply to your furnaces and burners.



### MEDICAL

The OXYSWING<sup>®</sup> Twin-Tower PSA Oxygen Generators are most suitable for any kind of hospital with more than one thousand beds. Oxygen sterile filtration will ensure a perfect medical grade quality of the produced oxygen.



### MINING

IGS has important references in the mining industry. We can supply you a reliable OXYSWING<sup>®</sup> Twin-Tower PSA Oxygen Generation System for any leaching or lancing application. Our dual unit solution guarantees you an oxygen supply under any circumstance.



# 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](http://www.igs-italia.com) - [info@igs-italia.com](mailto:info@igs-italia.com)**  
**[www.igs-global.com](http://www.igs-global.com) - [info@igs-global.com](mailto:info@igs-global.com)**