N_2 NITROGEN SERIES

O_2 OXYGEN SERIES

He Helisys HELIUM RECOVERY AND PURIFICATION

O_2 VSA OXYGENVSA

INDUSTRIAL

sysadvance®

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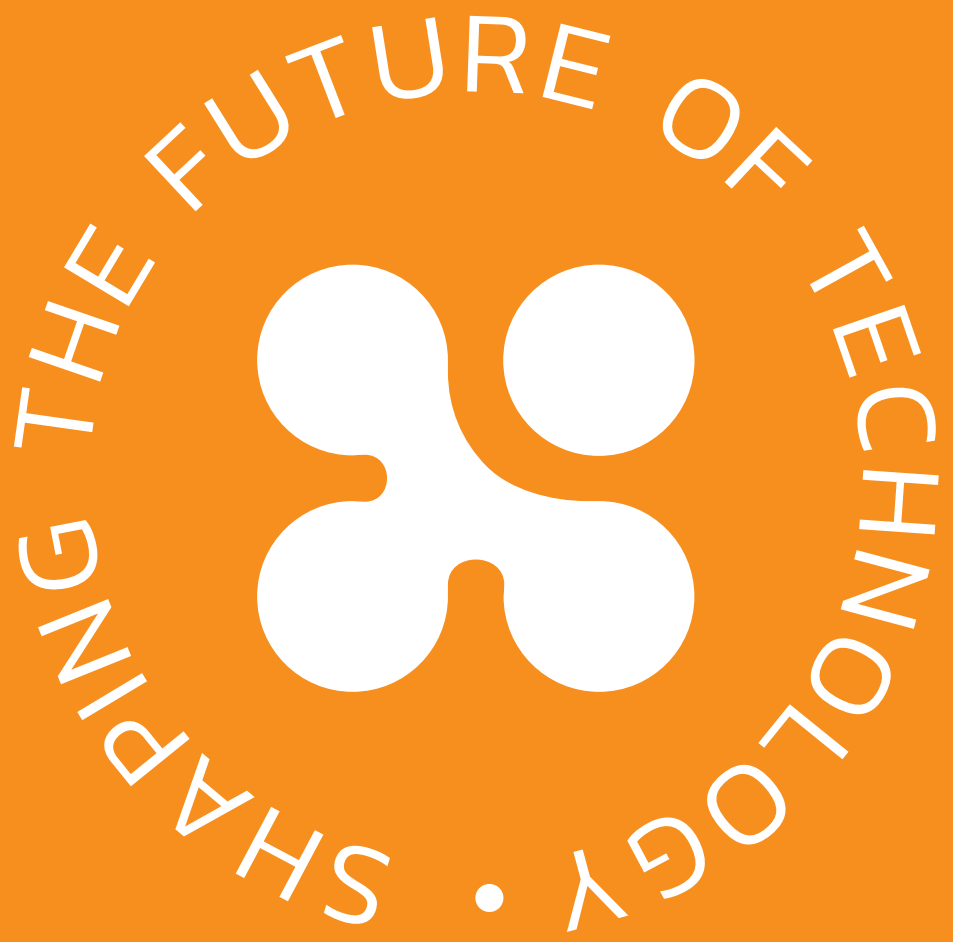

SHAPING THE FUTURE OF TECHNOLOGY

sysadvance®

INDEX

SYSADVANCE · Sistemas de Engenharia S.A.

Rua do Comendador Brandão, 461
4495-375 Póvoa do Varzim | Portugal
info@sysadvance | **www.sysadvance.com**

sysadvance®

THE COMPANY

SYSADVANCE develops and manufactures on-site gas generators and gas purifiers, as well as integrated solutions for compressed air and technical gases, developed into a large product portfolio such as Nitrogen Generators, Oxygen Generators, including Medical Oxygen 93 and VSA Oxygen Generators, solutions for purification of biogas, Helium, Hydrogen and SF6, as well as customized engineered products.

SYSADVANCE gas generation and purification products offer professional solutions for several industries and sectors such as: chemical and pharmaceutical, electronic components, metal works, aquaculture, water treatment, engineering, automotive, food, wine, aviation, marine, energy, medical, oil and gas, among others.

The attention to client's needs, adapting the offer to these needs and always exceeding client's expectations, with a deep focus on bringing value-for money solutions to them, have been the paramount reasons for **SYSADVANCE** success.

Technology, Innovation and Quality are pillars that have driven growth in the past 20+ years and constitutes the company's motivation for the years to come.

And the future is here: The foundation of **SYSADVANCE**'s first international operation, with the launching of **SYSADVANCE** North America Technologies Inc., based out of Vancouver, British Columbia, marks the beginning of a new phase in **SYSADVANCE** global market presence, bringing its products and services closer to clients in different geographies.

A direct presence in key markets is today the driver to achieve growth, and continue to serve clients in key markets, bringing value and quality through our extensive line of products and excellence level service.

PSA TECHNOLOGY

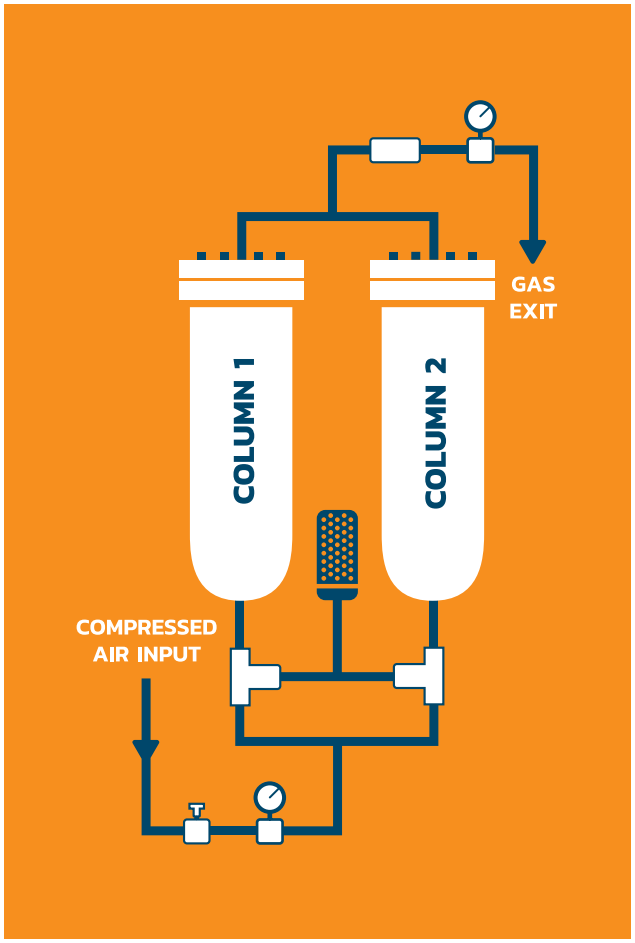
PRESSURE SWING ADSORPTION

Pressure Swing Adsorption can be used to produce Nitrogen or Oxygen from compressed air, which is fed to the unit that uses adsorption phenomena to remove the contaminants: N_2 when the desired pure gas is O_2, or O_2 when the desired pure gas is N_2. Also in both cases. H_2O and CO_2 are removed as other minor contaminants.

The PSA unit contains two columns packed with a selective adsorbent that has affinity towards the component to be removed: CMS is used to produced N_2 and zeolite is used to produce O_2.

Each column undergoes a cyclic sequence of high and low pressure steps that guarantees the production of a continuous flow of high purity gas. In the high pressure step, the adsorbent retains the contaminants present in the compressed air and the desired gas (N_2 or O_2) is obtained from the top of the columns.

The regeneration is accomplished in the low pressure step, with the release of contaminants retained by the adsorbent.

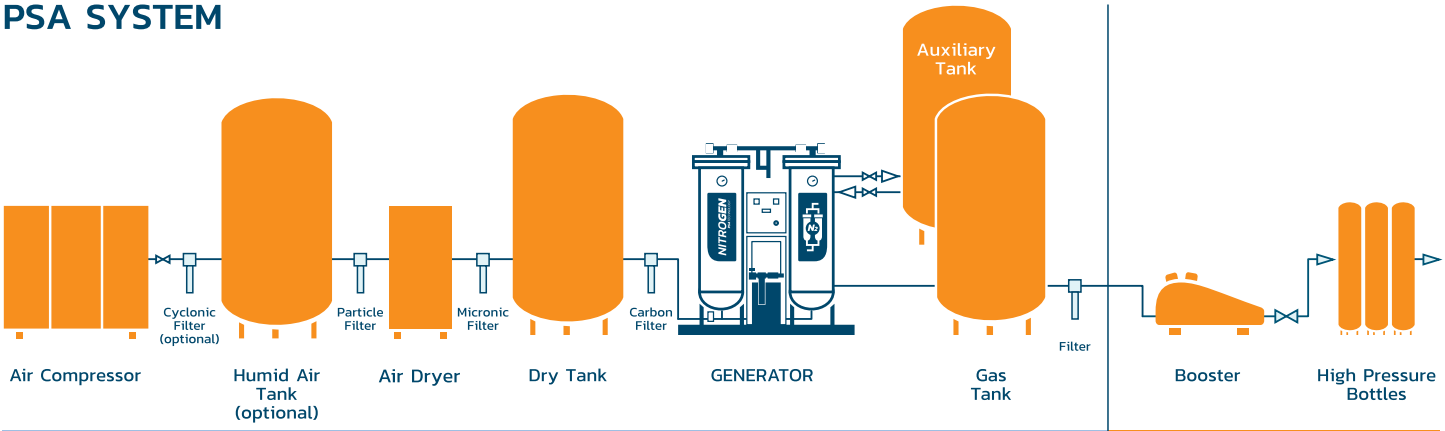


PSA TECHNOLOGY

PSA ADVANTAGES

- **Economy**
  – 90% reduction in the cost of Nitrogen or Oxygen
- **Convenience**
  – elimination of logistical and administrative operations
- **Continuous availability**
  – elimination of orders and deliveries
- **Modularity / Scalability**
  – your installation grows with you
- **Robustness, reliability and durability**
- **Reduced maintenance**
- **Security**
- **Ready-to-use engineering solutions**

PSA SYSTEM



NITROGEN GENERATORS

PSA TECHNOLOGY

NITROGEN SERIES

DESCRIPTION

NITROGEN – A line of robust, reliable and modular Nitrogen generators, based on Pressure Swing Adsorption (PSA) technology using state of the art Carbon Molecular Sieves adsorbents.

SYSADVANCE generators produce high purity Nitrogen from compressed air, allowing continuous availability at a very competitive cost, compared to alternative supply with cylinders or cryogenic tank.

Nitrogen generator eliminates all disadvantages associated to purchase and operation costs of high-pressure cylinder systems or cryogenic tanks, enabling a permanent source of Nitrogen, with minimum energy consumption and maintenance requirements.

Nitrogen generator is designed to be easily installed in any indoor facility, requiring only a compressed air line and a power connection.

With purities up to 99.999% of N_2, Nitrogen generator can be connected to an external buffer allowing a backup or a delay of production/consumption according to the needs of each application. The modular philosophy of **SYSADVANCE** Nitrogen generators allows the installation of multiple parallel units.

FEATURES

- Nitrogen pressure up to 9 bar (without Booster);
- LCD display;
- Oxygen analyzer;
- Purity up to 99.999%;
- VARIO PSA (optional).

ADVANTAGES

- Reduction of Nitrogen costs up to 95%;
- Independence from external gas suppliers and from fluctuation of the Nitrogen market prices;
- Suppression of logistic operations like handling of cylinders or liquid Nitrogen supplier management;
- Modular, flexible and low maintenance units.

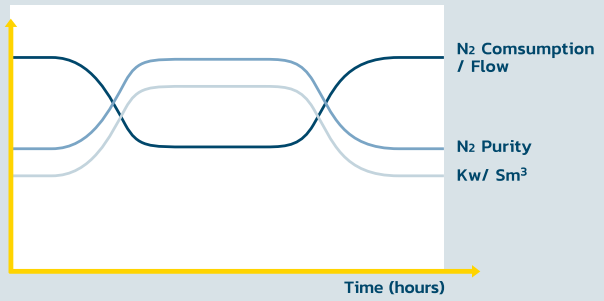
VARIABLE FLOW PSA TECHNOLOGY

Standard PSA cycles have fixed production and regeneration time cycles designed for optimum efficiency at a constant nominal production.

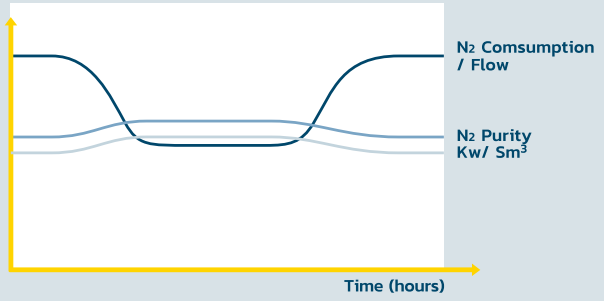
Some processes have a gas consumption demand that can vary along the production shifts or different production steps, thus requiring variable gas flows at a fixed purity. Standard PSA tend to be less efficient under these consumption scenarios. Lower than the nominal consumption rates will have an effect on the standard PSA which is purity increase, thus decreasing efficiency by higher than needed air consumption.

SYSADVANCE VARIO option allows for a smart control of the PSA cycle times by continuous monitoring of the outlet purity thus adapting the PSA production capacity to the fluctuating process demand keeping constant the specific air consumption, therefore maximizing efficiency on a variable consumption scenario, while maintaining a constant required purity.

NO VARIO



WITH VARIO



APPLICATIONS

PREPARED AND CATERED FOODS

WINERIES

PHARMACEUTICALS

LABORATORIES

CHEMICAL INDUSTRY

OIL & GAS

MARINE & OFF-SHORE

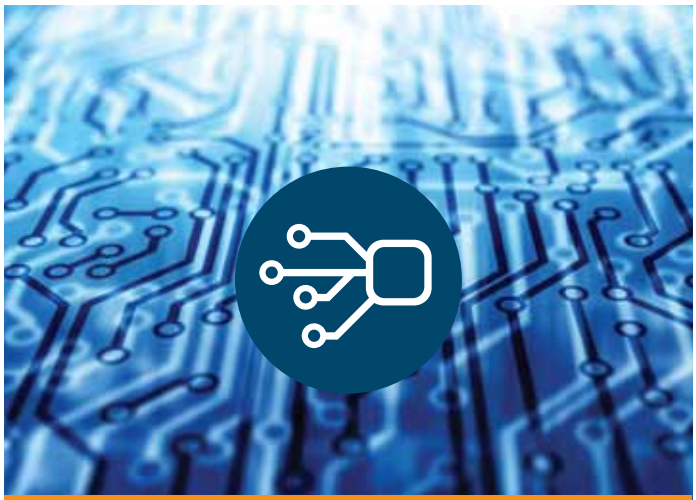
FIRE SUPRESSION

APPLICATIONS

FOUNDRY (IRON / COPPER / ALUMINIUM / ALLOYS) / ALUMINIUM EXTRUSION

LASER AND PLASMA CUTTING

HEAT TREATMENT



ELECTRONICS

TYRE INFLATION

PERFORMANCE

PSA TECHNOLOGY NITROGEN SERIES

MODEL	95% Flow N_2 (Sm^3/h)	99% Flow N_2 (Sm^3/h)	99,9% Flow N_2 (Sm^3/h)	99,999% Flow N_2 (Sm^3/h)
NITROGEN 5C	1,99	1,20	0,75	0,23
NITROGEN 10C	4,14	2,48	1,56	0,43
NITROGEN 15C	7,03	4,22	2,65	0,71
NITROGEN 30/C	13,61	8,17	5,13	1,63
NITROGEN 50/C	18,84	11,32	7,10	2,24
NITROGEN 70/C	29,62	17,79	11,16	3,31
NITROGEN 90/C	40,39	24,25	15,22	4,53
NITROGEN 120/C	60,27	36,19	22,72	6,49
NITROGEN 150	80,78	48,50	30,45	8,52
NITROGEN 250	109,81	65,94	41,39	11,49
NITROGEN 325	125,02	75,07	47,13	13,32
NITROGEN 400	164,58	98,82	64,04	18,37
NITROGEN 600	227,50	136,60	85,76	25,70
NITROGEN 800	347,42	208,61	130,96	38,76
NITROGEN 1000LP	430,35	258,40	–	–
NITROGEN 1000HP	–	–	162,22	49,86
NITROGEN 1200LP	492,13	295,50	–	–
NITROGEN 1200HP	–	–	185,51	57,32
NITROGEN 1800LP	649,26	389,85	–	–
NITROGEN 1800HP	–	–	244,74	76,77
NITROGEN 2400LP	806,38	484,19	–	–
NITROGEN 2400HP	–	–	303,97	98,02
NITROGEN 3000LP	1035,17	621,57	–	–
NITROGEN 3000HP	–	–	390,21	125,44
NITROGEN 3600LP	1263,96	758,94	–	–
NITROGEN 3600HP	–	–	476,45	153,51
NITROGEN 4000LP	1447,61	869,21	–	–
NITROGEN 4000HP	–	–	545,68	176,19

NITROGEN PRODUCTION WITH COMPRESSED AIR INPUT AT 10 barg

Performance stated at standard conditions: 15°C /1013,25 mbar

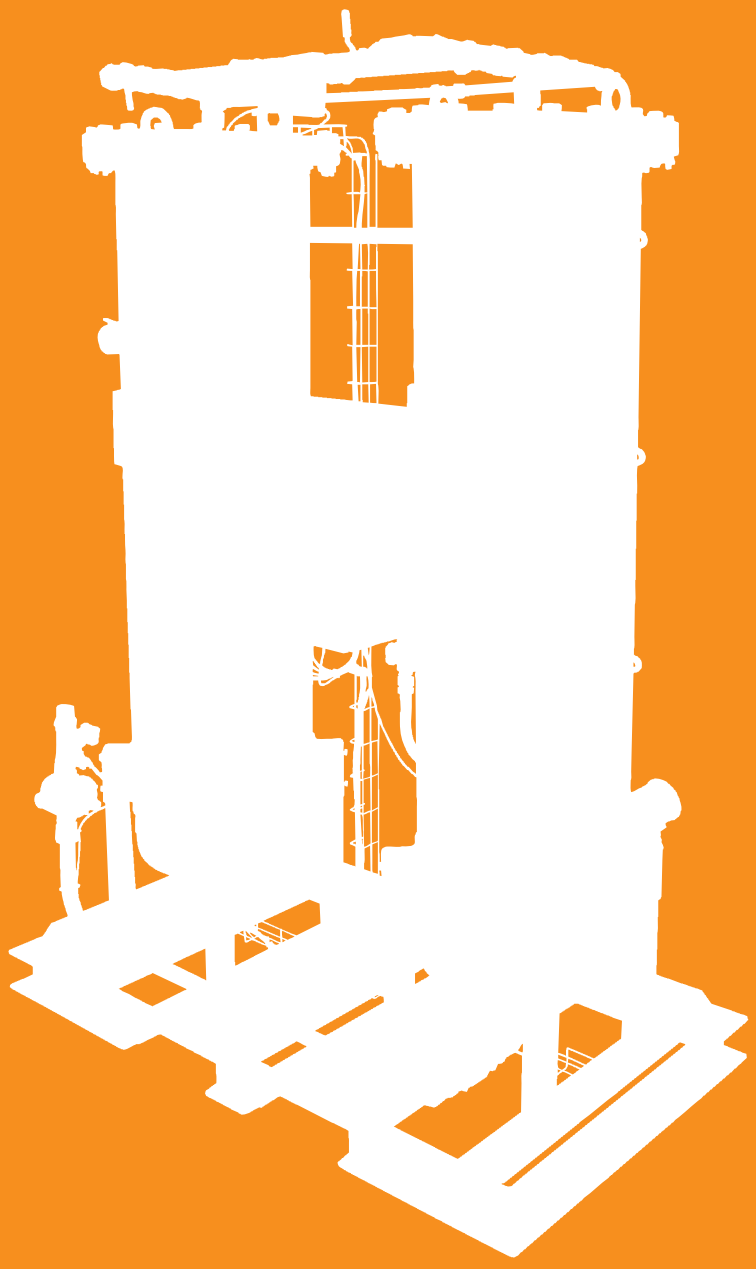
PURITY
Purity values are measured in Oxygen content. Other purities are available on request. For choosing the appropriate purity for the process please refer to applications purity list or contact SYSADVANCE.

COMPRESSED AIR
Required inlet compressed air quality is 1:4:1 as in ISO DIN 8573-1.

DEW-POINT
Dew-point: an refrigerated air dryer (3° dew-point) is required.
The produced Nitrogen flow will have a dew-point aprox. -40°C.

Other capacities available on request.
Models and specifications are subject to change without notice.

OXYGEN GENERATORS



PSA TECHNOLOGY

OXYGEN SERIES

DESCRIPTION

OXYGEN – A line of robust, reliable and modular Oxygen generators based on Pressure Swing Adsorption (PSA) technology using state of the art Zeolite Molecular Sieves adsorbents.

SYSADVANCE generators produce high purity Oxygen from compressed air, allowing continuous availability at a very competitive cost, compared to alternative supply with cylinders or cryogenic tank.

Oxygen generator eliminates all disadvantages associated to purchase and operation costs of high-pressure cylinder systems or cryogenic tanks, enabling a permanent source of Oxygen, with minimum energy consumption and maintenance requirements.

Oxygen generator is designed to be easily installed in any indoor facility, requiring only a compressed air line and a power connection.

With purities up to 95% of O_2, Oxygen generator can be connected to an external buffer allowing a backup or a delay of production/consumption according to the needs of each application. The modular philosophy of **SYSADVANCE** Oxygen generators allows the installation of multiple parallel units.

FEATURES

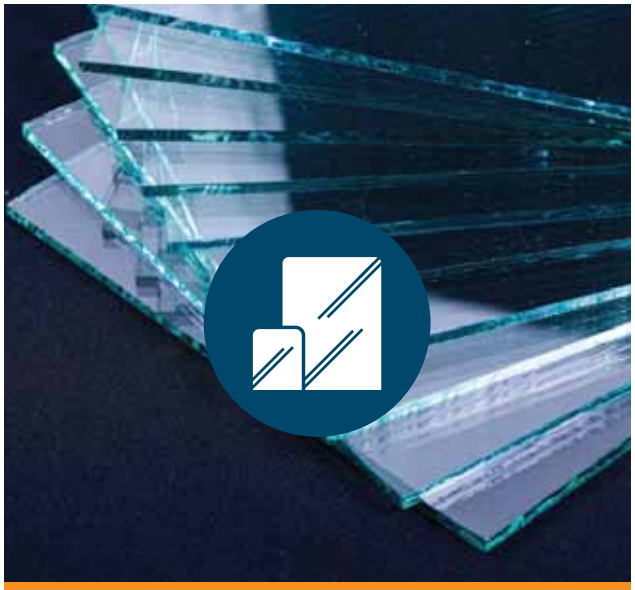
- Oxygen pressure up to 5 bar (without Booster);
- LCD display;
- Oxygen analyzer;

ADVANTAGES

- Reduction of Oxygen costs up to 90%;
- Safe delivery and independence from external gas suppliers and from fluctuation of the Oxygen market price;
- Suppression of logistic operations like handling of cylinders or liquid Oxygen and supplier management;
- Modular, flexible and low maintenance units;

APPLICATIONS

OZONE



GLASS INDUSTRY

WATER TREATMENT

AQUACULTURE

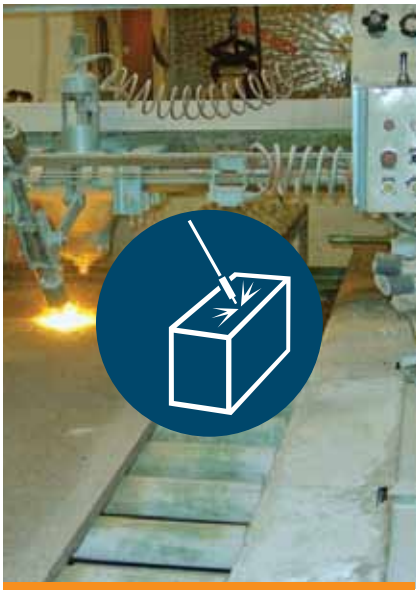
HOSPITALS AND CLINICS

VETERINARY

APPLICATIONS

PLASMA CUTTING

WELDING



STONE FLAMING

PERFORMANCE

MODEL	85% Flow O2 (Sm³/h)	90% Flow O2 (Sm³/h)	93% Flow O2 (Sm³/h)	95% Flow O2 (Sm³/h)
OXYGEN 10C	1,26	1,16	1,07	0,94
OXYGEN 25	2,93	2,67	2,07	1,67
OXYGEN 35	4,4	4,0	3,1	2,5
OXYGEN 50	6,5	6,0	4,6	3,8
OXYGEN 70	9,2	8,5	6,5	5,3
OXYGEN 80	11,2	10,4	8,0	6,5
OXYGEN 90	13,4	12,4	9,5	7,8
OXYGEN 110	17,5	16,2	12,4	10,1
OXYGEN 150	25,6	23,7	18,2	14,8
OXYGEN 200	36,9	34,1	26,2	21,3
OXYGEN 300	51,4	47,6	36,5	29,7
OXYGEN 400	61,2	56,7	43,5	35,3
OXYGEN 500	78,3	72,6	55,7	45,2
OXYGEN 800	109,6	101,6	82,7	67,2

OXYGEN PRODUCTION WITH COMPRESSED AIR INPUT AT 6,5 barg

Performance stated at standard conditions: 15°C /1013,25 mbar.

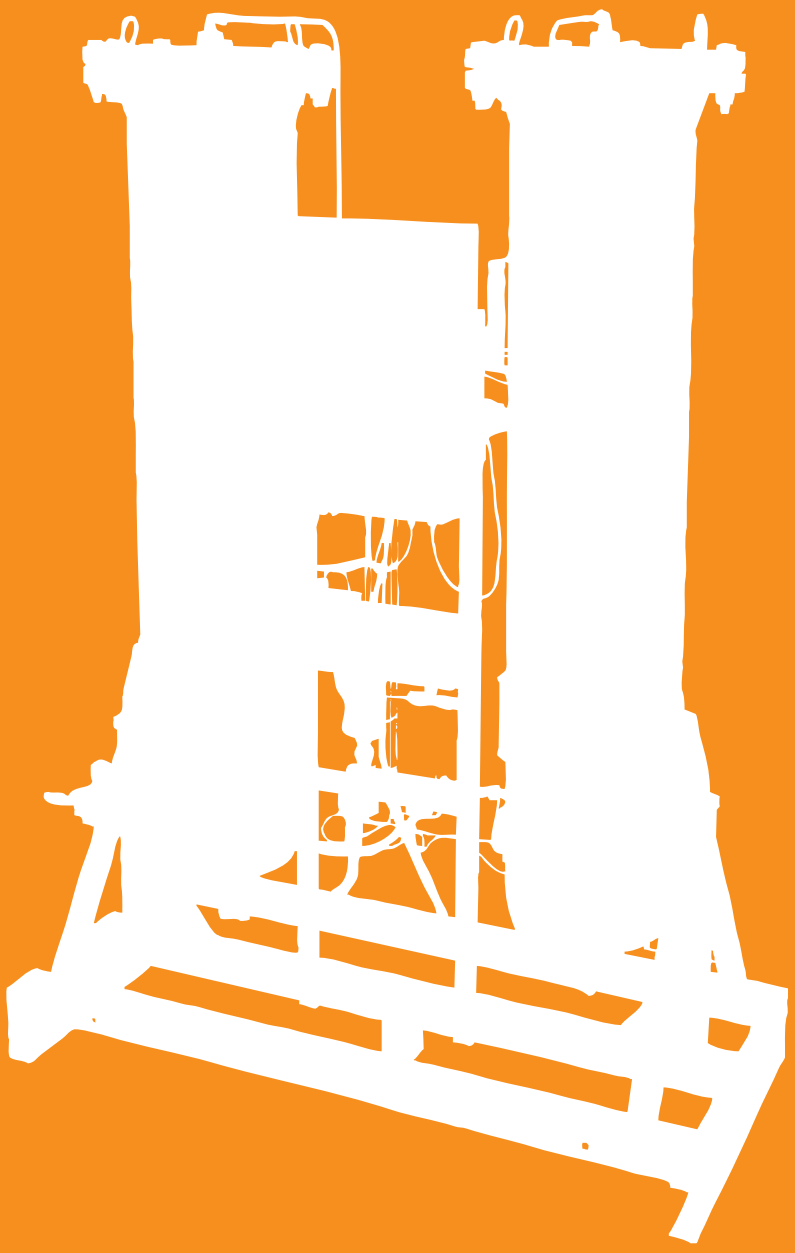
PURITY
Purity values are measured in Oxygen content (Variation ± 1%).
Other purities are available on request.
For choosing the appropriate purity for the process please refer to the applications purity list or contact SYSADVANCE.

COMPRESSED AIR
Required inlet compressed air quality is 1:4:1 as in ISO DIN 8573-1.

DEW-POINT
An refrigerated air dryer (3°C dew-point) is required.
The produced Oxygen flow will have a dew-point aprox. -40°C.

Other capacities available on request.
Models and specifications are subject to change without notice.

PSA GENERATORS



PSA HIGH PURITY

PSA HIGH PURITY

DESCRIPTION

A standard Oxygen generator using PSA technology can concentrate the oxygen present in the air at a maximum purity of 95% (V/V). To reach higher purities, up to 99,5% O_2 (V/V), a second stage of purification is needed.

In the first purification stage the adsorbent retains the constituents of the air (N_2, H_2O and CO_2), except Oxygen and argon. A gaseous flow containing 95% O_2, 4% argon and 1 % N_2 is obtained.

The second purification stage uses an high performance adsorbent with kinetic selectivity, allowing the separation of argon and the residual N_2, for the production of O_2 up to 99,5% purity.

ADVANTAGES

- Up to **99,5% purity** for high demand applications;
- **Economy** – Reduction of the costs with Oxygen (compared to the cryogenic Oxygen);
- **Continuous availability** – No need to order Oxygen from external suppliers;
- **Low maintenance** required;
- Simple and robust technology.

PERFORMANCE

MODEL	O_2 / Pressure up to 8 barg Purity up to 99,5%		
	Flow O_2 @ 99% (Sm^3/h)	Air Consumption (Sm^3/h)	Power Consumption @ 8 barg outlet
OXYGEN **HP 110**	**3,9**	**97,5**	**1**
OXYGEN **HP 300**	**10,7**	**266,3**	**2,4**
OXYGEN **HP 400**	**14,9**	**371,3**	**3,9**
OXYGEN **HP 800**	**22,6**	**565**	**5,7**

OXYGEN PRODUCTION WITH COMPRESSED AIR INPUT AT 6,5 barg
Performance stated at standard conditions: 15°C /1013,25 mbar

PURITY
Purity values are measured in Oxygen content (Variation ± 1,5%).

COMPRESSED AIR
Required inlet compressed air quality is 1:4:1 as in ISO DIN 8573-1.

DEW-POINT
An refrigerated air dryer (3°C dew-point) is required.
The produced Oxygen flow will have a dew-point aprox. -40°C.

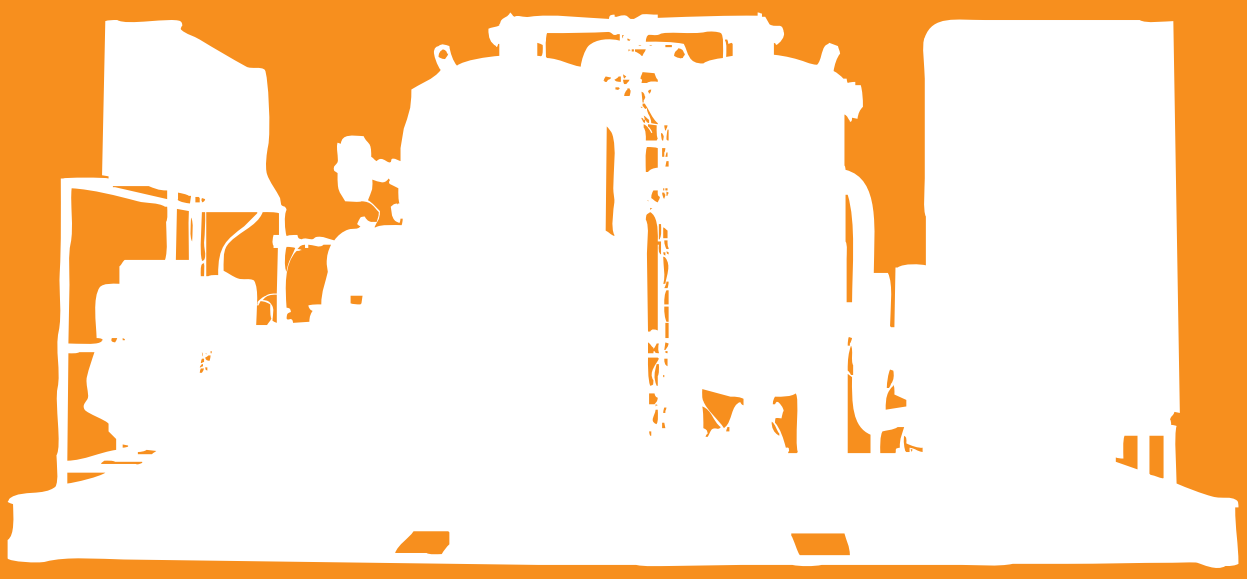
System includes oil-free Oxygen compressor;
Other purities and flow capacities available on request;
Different O_2 outlet pressures available on request: 10 to 300 barg;
Models and specifications are subject to change without notice.

APPLICATIONS

OXYCUTTING / LASER CUTTING

VSA GENERATORS

VSATECHNOLOGY



VSA TECHNOLOGY

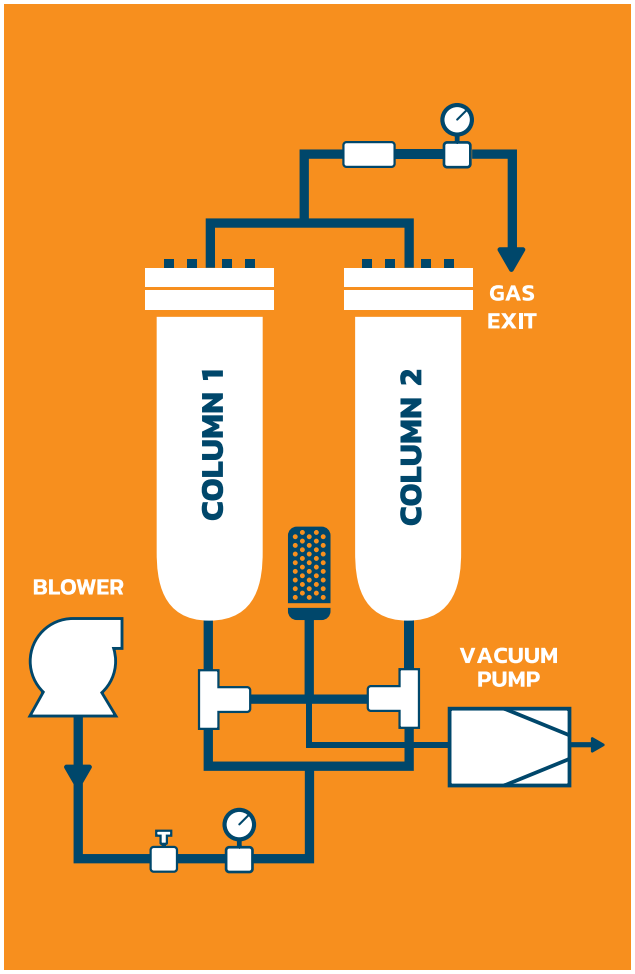
DESCRIPTION

The Vacuum Swing Adsorption (VSA) technology for O_2 production is one of the variations of the PSA process specially engineered for low pressure O_2 applications. The O_2 VSA technology makes use of a specific zeolite adsorbent that takes advantage of the higher adsorption selectivity at lower pressure. The adsorption step is carried out feeding air from a blower at a maximum pressure of 2000 mbarg (abs), followed by a regeneration step under vacuum (ranging from 200 to 500 mbarg (abs)).

The most relevant advantage of the O_2 VSA compared to O_2 PSA is a 50% reduction in the power consumption for O_2 production.

This technology can produce O_2 with a purity ranging from 75% to 93,5%. The product pressure is 500 mbarg without any supplementary compression stage. Higher pressures can be achieved using an additional blower for O_2 to reach 2 barg, and scroll or piston compressors to reach up to 8 barg.
O_2 VSA is a very good value for money when it comes to heavy duty applications requiring continuous consumption of O_2 at low pressure.

VSA DIAGRAM



ADVANTAGES

- Low power demand:
  <0,4 kWh/Nm^3 @ 90% O_2, @ 500 mbarg;
- O_2 purity up to 93%
  (dew point < -50°C @ 0 barg);
- Lower maintenance compared to O_2 PSA;
- No pre-treatment required for inlet air;
- Longer adsorbent lifetime compared to O_2 PSA;
- Compression up to 8 barg available;
- O_2 sensor & output signal for remote monitoring;
- Skid or container mounted for mobility.

PERFORMANCE

MODEL	Flow @ 90% (Sm^3/h)	Flow @ 93% (Sm^3/h)	Power Consumption @ 90% @ 500 mbarg[1] (kWh/m^3)	Power Consumption @ 90% @ 8 barg[2] (kWh/m^3)
OXYGEN **VSA 20**	**22**	**18**	**0,40**	**0,53**
OXYGEN **VSA 30**	**42**	**30**	**0,40**	**0,53**
OXYGEN **VSA 60**	**72**	**60**	**0,40**	**0,53**
OXYGEN **VSA 90**	**108**	**90**	**0,40**	**0,53**
OXYGEN **VSA 120**	**144**	**120**	**0,40**	**0,53**

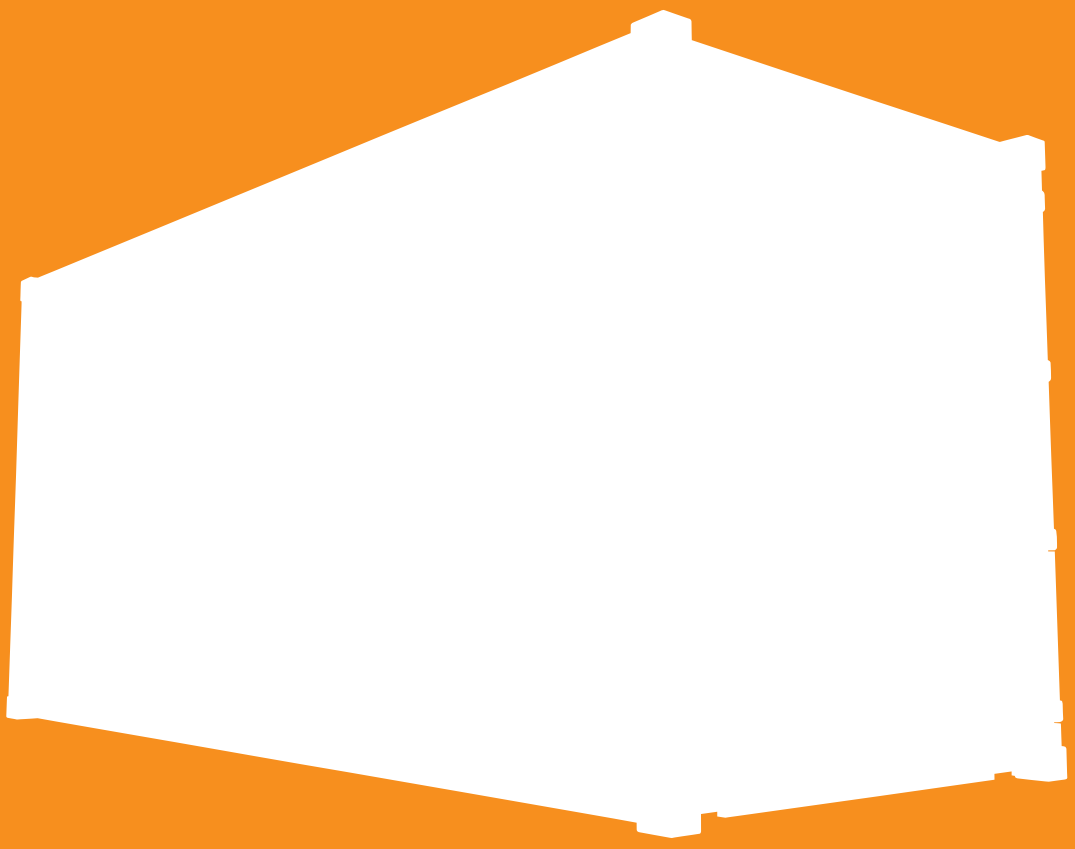
Performance stated at standard conditions: 15°C /1013,25 mbar /40% RH;
Operation at different conditions will affect performance;
Power Requirements: 400 VAC +/- 5%, 50Hz +/- 3%, 3-Phase;
[1] Power Consumption includes: Blower, Vacuum Pump and Control;
[2] All items on [1] + Oxygen Compression;
Purity may vary within +/- 2%;
Power Consumption and O2 Flow may vary within +/- 5%;
Other capacities available on request;
Different outlet pressures available on request: 2 to 300 barg;
Models and specifications are subject to change without notice.

APPLICATIONS

- Waste water treatment plants;
- Ozonization for water treatment;
- H_2S reduction in sewage lift stations;
- H_2S reduction in biological processes (biogas plants);
- Water oxygenation in aquaculture;
- Oxy-combustion (foundry, cement, glass production, etc...);
- Gold leaching for gold mines;
- Paper pulp bleaching in paper mill plants.

CONTAINER OR SKID MOUNTED

CUSTOMENGINEERING



CUSTOM ENGINEERING

DESCRIPTION

SYSADVANCE developed container and skid mounted solutions that allow the customer to have a plug & play unit, allowing for easy installation and start-up.

OIL & GAS

The specifications for Nitrogen Systems in Oil & Gas are very restrictive and normally the installation site is remote with difficult access to parts. A complete system including a wide range of equipment and options. Together with the Nitrogen Generator, the system can include compressed air, dryers, filters, tanks, boosters, piping and different levels of control.

SYSADVANCE developed container and skid mounted solutions that allow the customer to have a plug & play unit, preventing installation, start-up and operation troubles. The preparation of the site to receive the unit is also minimal and the units comply with the most known certifications, as well as the possibility to install in classified areas.

The quality and efficiency of our Nitrogen Generators are guaranteed, even in the most extreme conditions:

- Temperatures from -30°C to +55°C;
- Humidity up to 90% RH at 40°C.

SYSADVANCE provides a complete technical file for each container or skid mounted Oil & Gas System with a detailed Engineering and Design Package.

Special Specification for Integrated Solutions:

- ASME - U-stamp - UL CSA standard compliant packages;
- ATEX systems.

LABORATORY UNITS

Attending the difficulties experimented by laboratories with traditional nitrogen generation units, **SYSADVANCE** developed reliable and functional systems together with laboratory equipment manufacturers and customers. Our systems combine the technology applied generally in the industry to the laboratory scale, giving a high efficiency and low maintenance solution to our customers.

Together with the Nitrogen Generator, the system can include compressed air, dryers, filters, tanks, piping and different levels of monitoring, control and communications.

SYSADVANCE provides all necessary project documentation as well as design, layout, construction, operation and maintenance details. Installation, commissioning, start-up & training are also offered, giving to the customer a reliable and functional turnkey solution.

HIGH PRESSURE / CYLINDER FILLING

The possibility to increase the pressure up to 40 bar with an high pressure booster, is the perfect solution to answer customerís needs regarding high pressure consumption of Nitrogen or Oxygen. In addition, Nitrogen and Oxygen cylinder filling stations up to 300 bar, can solve the problem of peak consumptions, as well as easy access to gas in remote places.

High pressure boosters and filling stations can be easily incorporated into any Nitrogen or Oxygen generator system allowing a maximum benefit of your on-site installation. **SYSADVANCE** offers reliable and suitable solutions to increase the pressure or fill your own Nitrogen or Oxygen cylinders, for a fraction of the cost of bottled-gas purchase and delivery.

CUSTOM ENGINEERING

GASMIX SOLUTIONS

In some applications, the mixture of different gases (ex. N_2/CO_2 for processed meat) is imperative to achieve an acceptable shelf life for the product. Sometimes these mixtures can change, depending on the storage conditions the product will face.

Our solutions for mixing gases allow a high level of accuracy together with the possibility to change the mixture for better results. **SYSADVANCE** has a large experience to design and install systems in food industry (CO_2/N_2 mixture), metal heat treatment (N_2/H_2 mixture), leak test machines (N_2/He mixture), etc.

Consult us with your application for gas mixtures and you will receive the best solution adapted to your application.

CUSTOMIZED UNITS

In addition to our extensive Nitrogen and Oxygen generation product line, **SYSADVANCE** has the experience and capability to offer the best solution for complex applications.

The development of custom engineered solutions adapted to specific processes and site conditions are recognized from our partners as cost-effective alternatives to surpass challenges of on-demand Nitrogen and Oxygen generation. We will recommend the best option for each application. Our engineered systems are used throughout the world in various applications and industries.

OPTIONALS

FEATURES

- PLC able to integrate a wide range of sensors alarms and data communication options;
- 3,5" to 10" colour touchscreen;
- Air and N_2/O_2 pressure sensors;
- N_2/O_2 flowmeter;
- O_2 analyzer (Zirconia or electrochemical sensor);
- Remote Start/Stop;
- Total control and visualization of the PSA/ VSA system;
- Intelligent control of multiple PSA generators and compressors in operation according to flow and purity demand;
- Parameters and alarms recording capability in data cards and USB;
- Alarms and data via 3G/ 4G (optional);
- Local alarms (coil free contact);
- Remote access via Web Server;
- Comunication protocols: Profibus, Modbus, Ethernet, Profinet;

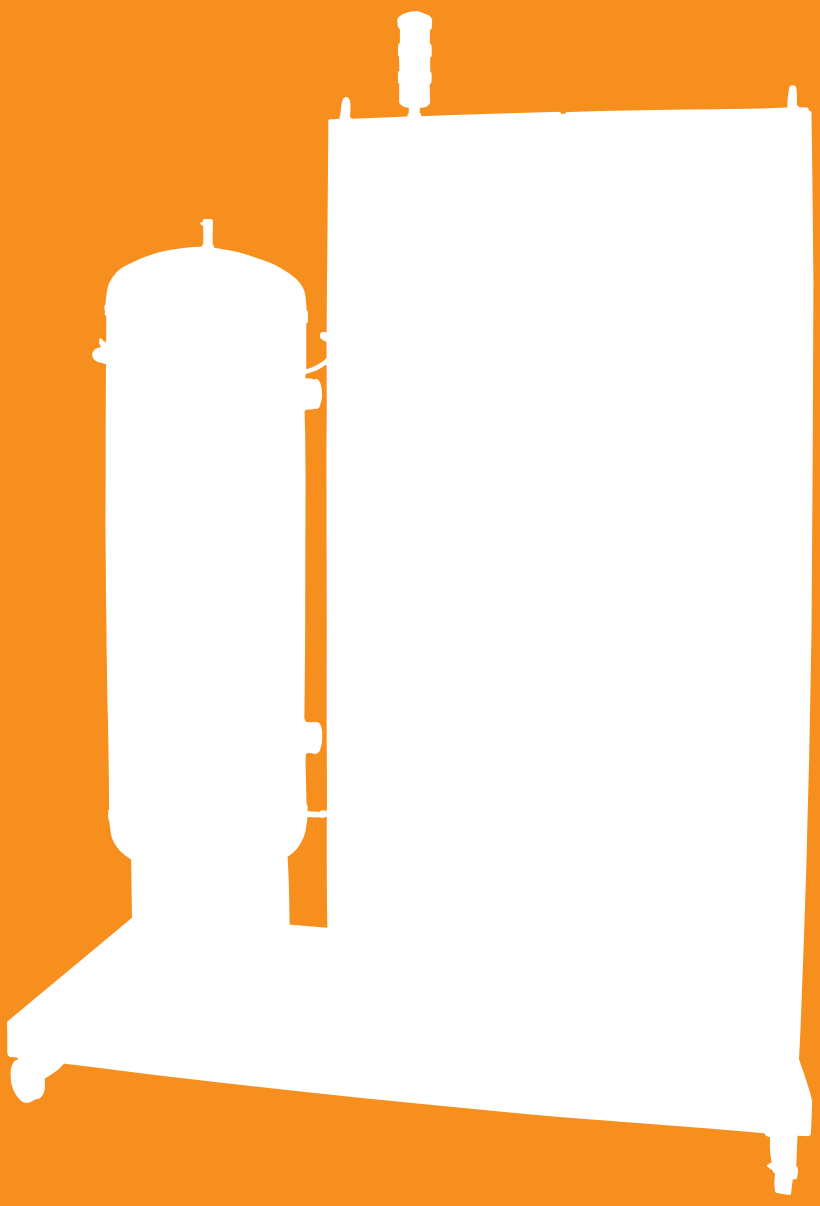
AVAILABLE INFORMATION:

- Generator(s) condition(s);
- Air pressure;
- Produced N_2/O_2 pressure;
- Produced N_2/O_2 purity;
- Produced N_2/O_2 flow;
- Compressed air consumption (optional);
- Power consumption (optional);
- Work hours;
- Maintenance alarm;
- Other sensors available on request.

N2 | O2 GENERATORS

MODEL	N2/O2	● Standard O Optional
CONTROL PANEL		
Control basic (Siemens logo + HMI)	●	
ControlSYS Premium (Siemens S7-1200 + Touch HMI)	O	
SENSORS AND DATA HANDLING		
Air and Nitrogen / Oxygen Pressure Sensors	●	
External Alarms Digital Inputs	●	
General Alarms / Fault (Dry Contacts)	●	
Remote Start-Stop	●	
Data Logging	●	
Oxygen Sensor	O	
Dew Point Sensor	O	
Flowmeter (Instant and Accumulation Values)	O	
Sensors Analog Outputs	O	
COMMUNICATIONS		
Webserver	●	
MODBUS TCP / IP	●	
S7 - Protocol	●	
SMART Server	O	
PROFINET / ETHERNET TCP -IP	O	
Other Protocols through Gateway	O	
Remote Maintenance / Acess through SECOMEA	O	
E-MAIL and SMS Events / Alarm	O	
EQUIPMENT		
Turn Key Solution (Skid and Container Mounted)	O	
Air Compressor and Treatment	O	
Gas Booster from 10 bar to 300 bar	O	
Filling Station and Bottle Rack	O	
Food / Medical Grade Filter Pack	O	
ON - OFF SPEC Control	O	
Multi-Purity Switch	O	
VARIO (Efficient Cycle Control)	O	

HELIUM RECOVERY & PURIFICATION



HELISYS®

HELISYS®

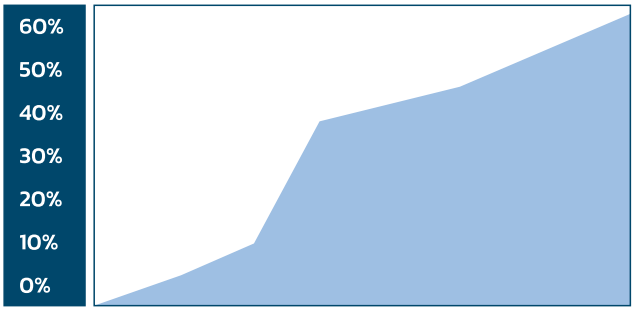
DESCRIPTION

Helium has been a low price resource for many years leading to its ineficient use. Helium is now a scarce resource and its prices are increasing significantly.

Therefore, solutions for Helium recovery and purification are needed. Helium recovery alone is not the answer to this problem, as Helium purity decreases at each process cycle and needs to be released when minimum purity level is reached. **SYSADVANCE** developed an Helium purification system – **Helisys** – using PSA technology.

These units allow the achievement of high purities, high recovery rates, and huge savings in costs associated with Helium usage.

He PRICE EVOLUTION / %



Time (years)

ADVANTAGES

- Huge savings on Helium cost;
- Short payback period;
- High Helium recovery rates;
- High and constant purity;
- Also suitable for He / N_2 mixtures;
- Easy and quick integration with existing recovery systems.

Large range of models and purities available.

TECHNICAL SPECIFICATIONS

- Flowrates: from 2 – 1000 m^3/h;
- Helium purity: up to 99,9%;
- Minimum Helium recovery: 95%;
- Helium storage: up to 300 barg;
- Power consumption:
  < 0.40 kWh/m^3 of purified Helium
  @ 6.5 barg;
- Options: TCD Helium analyser
  Storage bag available.

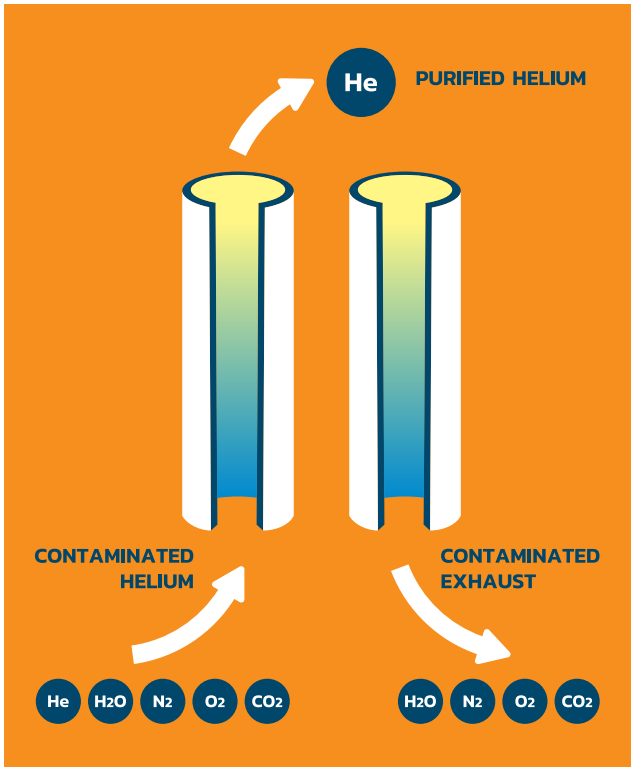
HELISYS®

PSA TECHNOLOGY

Contaminated Helium is fed to the **Helisys** unit that uses Pressure Swing Adsorption technology to remove N_2, O_2, Ar, H_2O and CO_2.

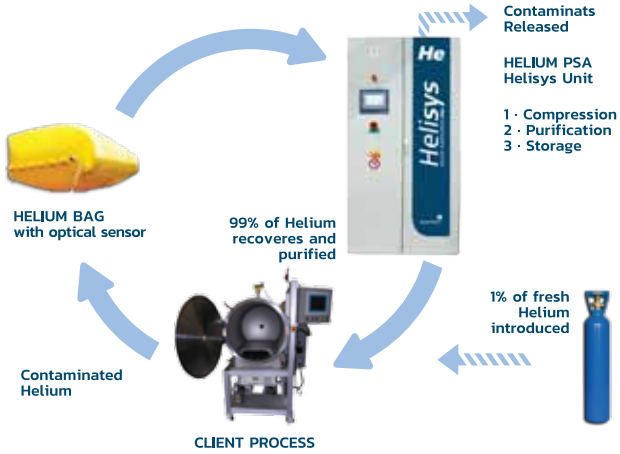
The **Helisys** unit contains two columns packed with a selective adsorbent. Each column undergoes a cyclic sequence of high and low pressure steps, to produce a continuous flow of high purity Helium. The adsorbent regeneration step is assisted by a vacuum system to enhance the process efficiency. The residual Helium desorbed during the regeneration step is recycled into the Helium baloon, resulting in minimum Helium recovery rates of 95%.

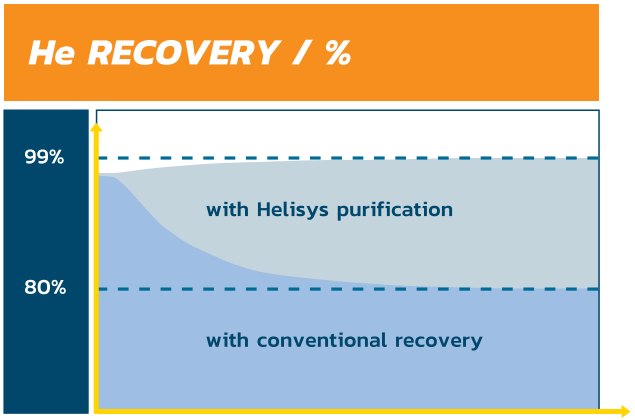
The **Helisys** unit is fully automated and controlled by a PLC.

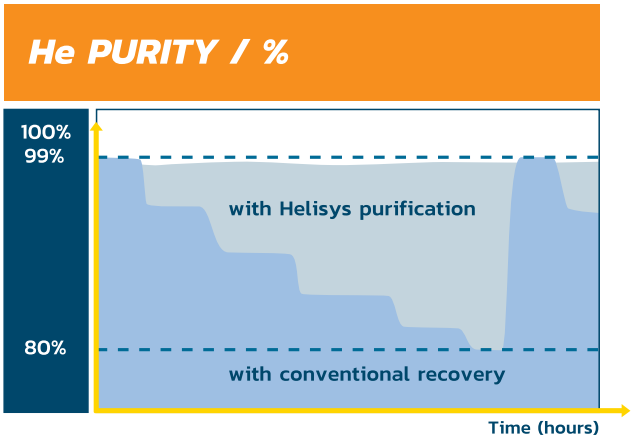


HELISYS VS. CONVENTIONAL RECOVERY

	HELISYS®	CONVENTIONAL RECOVERY
REMOVED CONTAMINANTS	N_2, O_2, CO_2, H_2O, Oil	H_2O
RECOVERY	99% Constant	Decreases down to 80%
DEW POINT	-40° C Constant	Up to +3ª C
PURIFICATION	YES	NO
PURITY	Constant (up to 99,5%)	Variable







MAINTENANCE AND AFTER SALES

The purpose of our service team is ensuring maximum availability of **SYSADVANCE** products for our customers with a minimum cost.
SYSADVANCE Nitrogen and Oxygen generators are constructed with top quality components to reduce the need for maintenance but their efficiency is fully dependent on the quality of the compressed air. It is very important to perform maintenance correctly and supervise your compressed air system. Dust, oil and humidity are the main causes of breakdowns in PSA systems, especially by decreasing the productivity and lifetime of the adsorbents and damaging valves.

SYSADVANCE can be your full service partner, providing you all components and parts for the operation of your Nitrogen or Oxygen system.

Keeping the maintenance of your equipment up to date is the main factor to protect your investment and improve profitability.

SYSADVANCE offers a wide range of service solutions:
- Premium maintenance plan;
- Standard maintenance plan;
- Spot assistance.

Choosing the correct maintenance plan will ensure availability and correct scheduling of your maintenance, without delays and reducing risk of failure, assisted by highly experimented service technicians.
SYSADVANCE also provides service training for our business partners to ensure their capability to assist our customers all around the world.
If your **SYSADVANCE** system needs to be verified or serviced, please contact us. Remember to verify the serial number and running hours of the equipment to help us on the identification and proceed faster.

RENTALS

Nitrogen, Oxygen and Medical Oxygen on-site generators, are now available for renting.

SYSADVANCE answers the industry rental demands, providing quality equipment, with full maintenance included in the rental contract. Save on the investment of purchase and start saving from the get-go.

GLOBAL PRESENCE

PUBLICATIONS

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