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MAINTENANCE & AFTER SALES

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SYSADVANCE Sistemas de Engenharia S.A.

PSA HIGH PURITY

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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.



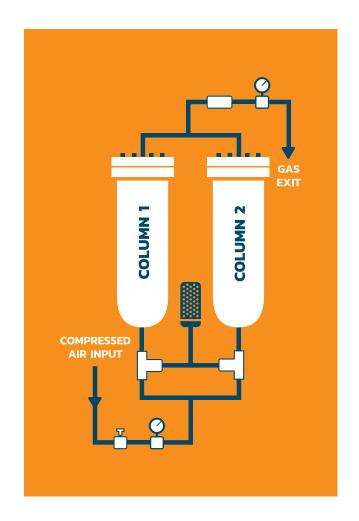
PRESSURE SWING ADSORPTION

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: H2O and CO2 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 N₂ and zeolite is used to produce O₂.

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 (N2 or O2) 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.



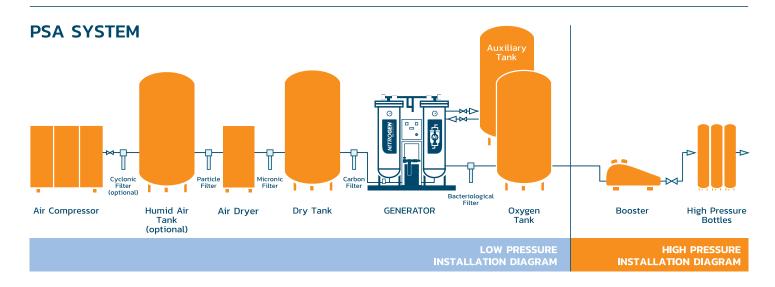




PSA ADVANTAGES

- Economy
 - 90% reduction in the cost of 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



NITROGEN GENERATORS

DESCRIPTION

NITROGEN SERIES

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 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 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 N2, Nitrogen 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.

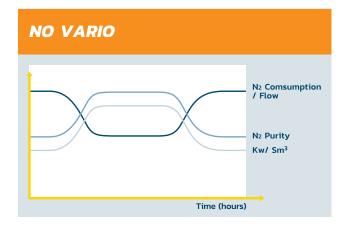
VARIABLE FLOW PSA TECHNOLOGY

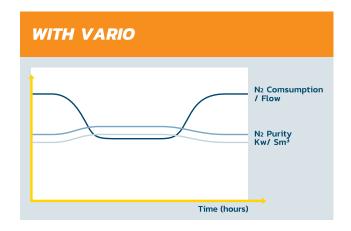
NITROGEN SERIES

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.







APPLICATIONS

NITROGEN SERIES

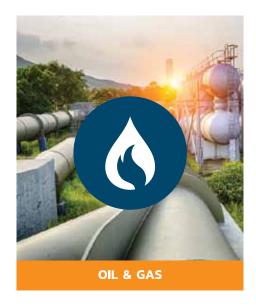




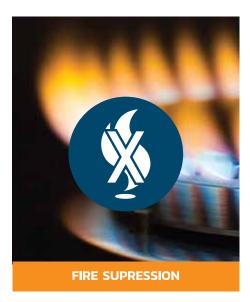












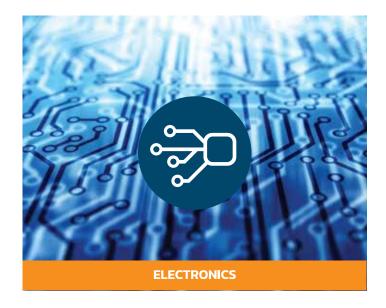
APPLICATIONS

NITROGEN SERIES











PERFORMANCE

NITROGEN SERIES

| MODEL | 95% Flow N2 (Sm ³ /h) | 99% Flow N2 (Sm³/h) | 99,9% Flow N2 (Sm³/h) | 99,999% Flow N2 (Sm³/h) |
|-----------------|--|-------------------------------|---------------------------------|-----------------------------------|
| NITROGEN 5C | 1,82 | 1,1 | 0,65 | 0,2 |
| NITROGEN 10C | 3,78 | 2,28 | 1,35 | 0,38 |
| NITROGEN 15C | 6,43 | 3,88 | 2,3 | 0,63 |
| NITROGEN 30/C | 12,45 | 7,51 | 4,5 | 1,46 |
| NITROGEN 50/C | 17,23 | 10,4 | 6,2 | 2 |
| NITROGEN 70/C | 27,08 | 16,34 | 9,7 | 3,01 |
| NITROGEN 90/C | 36,93 | 22,28 | 13,2 | 4,03 |
| NITROGEN 120/C | 55,11 | 33,25 | 19,7 | 5,76 |
| NITROGEN 150 | 73,87 | 44,56 | 26,5 | 7,55 |
| NITROGEN 250 | 100,42 | 60,58 | 36 | 10,18 |
| NITROGEN 325 | 114,33 | 68,97 | 41 | 11,81 |
| NITROGEN 400 | 150,5 | 90,79 | 54 | 16,33 |
| NITROGEN 600 | 208,04 | 125,5 | 74,5 | 22,86 |
| NITROGEN 800 | 298,36 | 191,65 | 113,8 | 34,45 |
| NITROGEN 1000LP | 393,55 | 237,4 | - | - |
| NITROGEN 1000HP | - | - | 141 | 44,41 |
| NITROGEN 1200LP | 450,04 | 271,48 | - | - |
| NITROGEN 1200HP | - | - | 161 | 51,07 |
| NITROGEN 1800LP | 593,73 | 358,16 | - | - |
| NITROGEN 1800HP | - | - | 212,4 | 68,45 |
| NITROGEN 2400LP | 737,42 | 444,83 | - | - |
| NITROGEN 2400HP | - | - | 264 | 87,51 |
| NITROGEN 3000LP | 946,64 | 571,04 | - | _ |
| NITROGEN 3000HP | - | - | 338,9 | 111,97 |
| NITROGEN 3600LP | 1155,86 | 697,25 | _ | _ |
| NITROGEN 3600HP | - | - | 414 | 137,05 |
| NITROGEN 4000LP | 1323,81 | 798,56 | | _ |
| NITROGEN 4000HP | | | 474,15 | 157,31 |
| | | | | |

SHKHS ZHDOKHT

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 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

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

Oxygen 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 O2, Oxygen 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

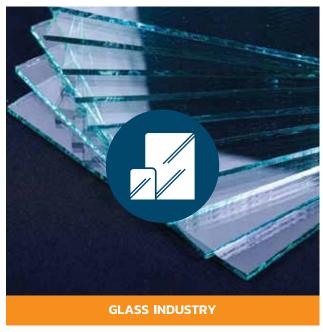
- Safe delivery and independence from external gas suppliers and from fluctuation of the Oxygen market price;
- Suppression of logistic operations like handling of cylinders or liquid Oxygen and supplier management;
- Modular, flexible and low maintenance units;
- Don't waste more money with Oxygen.



APPLICATIONS

OXYGEN SERIES











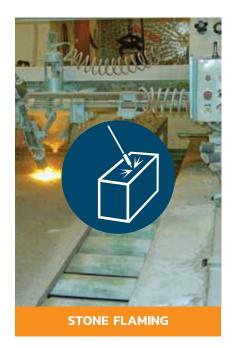


APPLICATIONS

OXYGEN SERIES







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 8573–1.

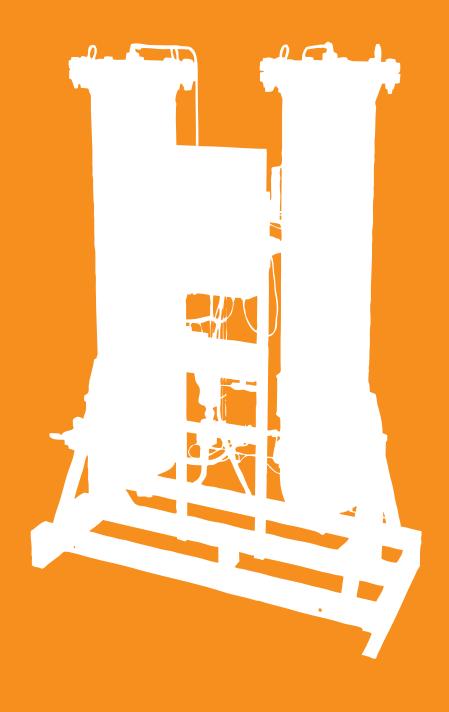
DEW-POINT

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



SA 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% O2 (V/V), a second stage of purification is needed.

In the first purification stage the adsorbent retains the constituents of the air (N2, H2O and CO2), except argon and Oxygen. A gaseous flow containing 95% O2, 4% argon and 1 % N2 is obtained.

The second purification stage uses an high performance adsorbent with kinetic selectivity, allowing the separation of argon and the residual N₂, for the production of O₂ 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

Pressure up to 8 barg Purity up to 99,5% **MODEL** Air Consumption Power Consumption Flow O2 @ 99% (Sm3/h) (Sm3/h) @ 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 **OXY**GEN **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 \pm 1,5%).

COMPRESSED AIR

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

DEW-POINT

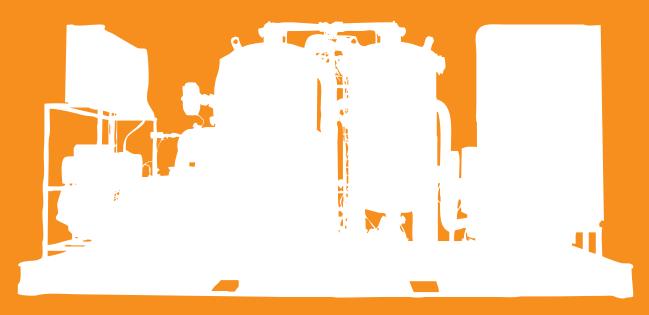
An refrigerated air dryer (3° C dew-point) is required. The produced Oxygen flow will have a dew-point aprox. -40° C.

System includes oil-free Oxygen compressor; Other purities and flow capacities available on request; Different O₂ outlet pressures available on request: 10 to 300 barg; Models and specifications are subject to change without notice.

APPLICATIONS



VSA GENERATORS



DESCRIPTION

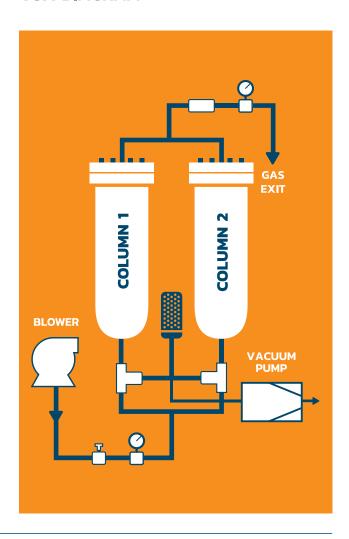
The Vacuum Swing Adsorption (VSA) technology for O2 production is one of the variations of the PSA process specially engineered for low pressure O2 applications. The O2 VSA technology makes use of a specific zeolite adsorbent that takes advantage of the higher adsorption selectivity at lower pressure. The adsorption step is carried out feeding air from a blower at a maximum pressure of 2000 mbar (abs), followed by a regeneration step under vacuum (ranging from 200 to 500 mbar (abs)).

The most relevant advantage of the O2 VSA compared to O2 PSA is a 50% reduction in the power consumption for O2 production.

This technology can produce O2 with a purity ranging from 75% to 93,5%. The product pressure is 300 mbarg without any supplementary compression stage. Higher pressures can be achieved using an additional blower for O2 to reach 2 barg, and scroll or piston compressors to reach up to 8 barg.

O2 VSA is a very good value for money when it comes to heavy duty applications requiring continuous consumption of O2 at low pressure.

VSA DIAGRAM





ADVANTAGES

- Low power demand:
 <0,4 kWh/Nm³ @ 90% O₂, @ 500 mbarg;
- O2 purity up to 93% (dew point < -50°C @ O barg);
- Lower maintenance compared to O2 PSA;
- No pre-treatment required for inlet air;
- Longer adsorbent lifetime compared to O2 PSA;
- Compression up to 8 barg available;
- O2 sensor & output signal for remote monitoring;
- · Skid or container mounted for mobility.



PERFORMANCE

| MODEL | Flow @ 90% (Sm³/h) | Flow @ 93% (Sm³/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;

Power Requirements: 400 VAC 77-3%, 30112 77-3%, 3-11135e,

Power Consumption includes: Blower, Vacuum Pump and Control;

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;

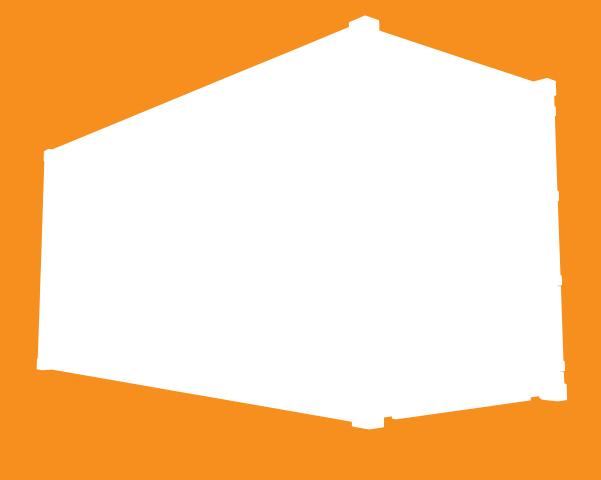
Models and specifications are subject to change without notice.

APPLICATIONS

- Waste water treatment plants;
- · Ozonization for water treatment;
- H2s reduction in sewage lift stations;
- H2s 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.

² All items on ¹ + Oxygen Compression;

CONTAINER OR SKID MOUNTED



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, vessels, 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, vessels, 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 customer's 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 bottledgas purchase and delivery.

GASMIX SOLUTIONS

In some applications, the mixture of different gases (ex. N2/CO2 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 (CO2/N2 mixture), metal heat treatment (N2/H2 mixture), leak test machines (N2/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 costeffective 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.



FEATURES

- PLC able to integrate a wide range of sensors alarms and data communication options;
- 3,5" to 10" colour touchscreen;
- Air and N2/O2 pressure sensors;
- N2/O2 flowmeter;
- O2 analyzer (Zirconia sensor);
- Remote Start/Stop;
- Total control and visualization of the PSA 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 N2/O2 pressure;
- Produced N2/O2 purity;
- Produced N2/O2 flow;
- Compressed air consumption (optional);
- Power consumption (optional);
- · Work hours;
- Maintenance alarm;
- Other sensors available on request.

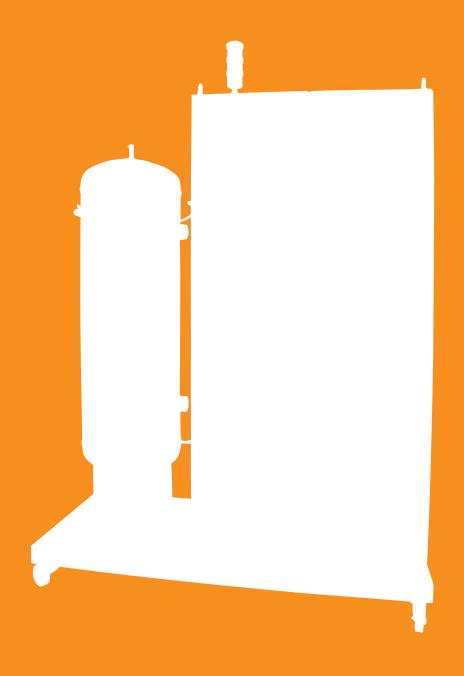




N2 | O2 GENERATORS

| MODEL N2/O2 | StandardO Optional |
|--|---|
| CONTROL PANEL | |
| Control basic (Siemens logo + HMI) | • |
| ControlSYS Premium (Siemens S7-1200 + Touch HMI) | 0 |
| 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 | 0 |
| Dew Point Sensor | 0 |
| Flowmeter (Instant and Accumulation Values) | 0 |
| Sensors Analog Outputs | 0 |
| COMMUNICATIONS | |
| Webserver | • |
| MODBUS TCP / IP | • |
| S7 - Protocol | • |
| SMART Server | 0 |
| PROFINET / ETHERNET TCP -IP | 0 |
| Other Protocols through Gateway | 0 |
| Remote Maintenance / Acess through SECOMEA | 0 |
| E-MAIL and SMS Events / Alarm | 0 |
| EQUIPMENT | |
| Turn Key Solution (Skid and Container Mounted) | 0 |
| Air Compressor and Treatment | 0 |
| Gas Booster from 10 bar to 300 bar | 0 |
| Filling Station and Bottle Rack | 0 |
| Food / Medical Grade Filter Pack | 0 |
| ON - OFF SPEC Control | 0 |
| Multi-Purity Switch | 0 |
| VARIO (Efficient Cycle Control) | 0 |
| VARIO (ETTICIENT Cycle Control) | |

HELIUM RECOVERY & PURIFICATION



S S J J

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 / % 60% 50% 40% 30% 20% 10% 0%

Time (years)

ADVANTAGES

- · Huge savings on Helium cost;
- · Short payback period;
- High Helium recovery rates;
- · High and constant purity;
- Also suitable for He / N2 mixtures;
- Easy and quick integration with existing recovery systems.

Large range of models and purities available.

TECHNICAL SPECIFICATIONS

- Flowrates: from 2 1000 m³/h;
- Helium purity: up to 99,9%;
- Minimum Helium recovery: 95%;
- · Helium storage: up to 300 barg;
- Power consumption:
 - < 0.40 kWh/m³ of purified Helium
 - @ 6.5 barg;
- Options: TCD Helium analyser
 Storage bag available.



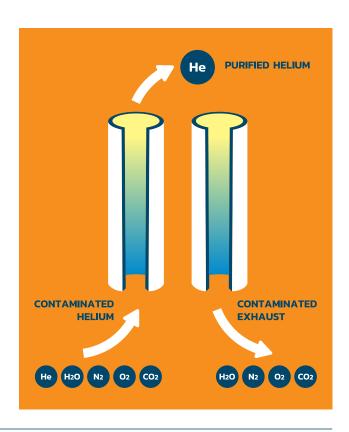
HELISYS

PSA TECHNOLOGY

Contaminated Helium is fed to the **Helisys** unit that uses Pressure Swing Adsorption technology to remove N₂, O₂, A₇, H₂O and CO₂.

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%.

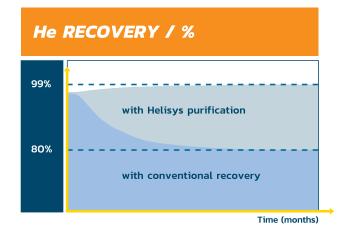
The **Helisys** unit is fully automated and controlled by a PLC.

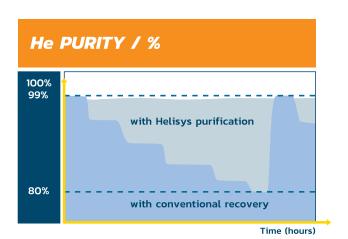


HELISYS VS. CONVENTIONAL RECOVERY

| | HELI SYS ° | CONVENTIONAL RECOVERY |
|----------------------|------------------------|--------------------------|
| REMOVED CONTAMINANTS | N2, O2, CO2, H2O, Oil | H ₂ O |
| RECOVERY | 99% Constant | Decreases down to 80% |
| DEW POINT | -40° C Constant | Up to +3° 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.

















www.sysadvance.com

