NOXERIOR

Next Generation Gas Solutions

Unique solutions for medical oxygen

SHAPING THE FUTURE

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NOXERIOR – Competence and Trust

NOXERIOR focuses on all aspects of the production of dry compressed air and its non-cryogenic separation for on-site generation of nitrogen and oxygen; we help our customers to reduce their costs by offering a customized solution based on either Pressure Swing Adsorption (PSA) or hollow-fibre membrane technology.

The unique and patented technology applied for our NITROSWING® and OXYSWING® modular PSA generators has set market standards in terms of flexibility, efficiency and reliability.

Our special packages for instrument air, nitrogen or oxygen generation, designed according to customer's specifications and suitable even for operation at extreme ambient conditions, are well known for their high level of engineering and outstanding quality.

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 relationship based on transparency and reliability. Our customers appreciate our capacity for smooth project execution and on-time delivery.

NOXERIOR has an export quote of almost 90% with customers located in all corners of the world.

Medical Oxygen by OXYSWING®, an unique Solution

The unique OXYSWING® Modular PSA Medical Oxygen Concentrators from NOXERIOR apply the Pressure Swing Adsorption (PSA) process for the on-site production of medical oxygen from clean compressed air conform the Oxygen 93% Monograph of the European and US Pharmacopoeia.

The patented design and process technology of our OXYSWING® Modular PSA Medical Oxygen Concentrators offer you unique features to overcome the major disadvantages of conventional PSA medical oxygen concentrators:

1. Unlimited flexibility to adjust the production capacity of already installed systems

2. Compact dimensions for installations even in small spaces of your hospital

3. Application of non-corrosive materials, like aluminium and stainless steel, as standard for all process components

Flexibility & System Upgrade

You can increase the capacity of your OXYSWING® Modular PSA Medical Oxygen Concentrator at any time simply by adding PSA modules or by installing a so-called Dual-Bank in parallel without additional modifications.

A Dual-Bank is a PSA oxygen concentrator identical to the standard OXYSWING® PSA Medical Oxygen Concentrators, but without PLC and power supply, which will be installed parallel to the standard medical oxygen concentrator.

The Dual Bank will get its power and control signals from the OXYSWING® Modular PSA Medical Oxygen Concentrator through a single cable connection (master/slave principle).

One OXYSWING® Modular PSA Medical Oxygen Concentrator is able to control up to maximum of three Duals Banks in parallel.

CERTIFIED OXYGEN 93% SUPPLY

Certified Quality

Maximum product safety in combination with a reliable and stable medical oxygen production conform the relevant Oxygen 93% Monograph are of fundamental importance according to NOXERIOR's internal standards.

Therefore, the OXYSWING® Modular PSA Medical Oxygen Concentrators have a Full Quality Assurance certification to Annex III (Module H) of the European Pressure Equipment Directive 97/23/EC.

Additionally, the OXYSWING® Modular PSA Medical Oxygen Concentrators are certified as Class IIB medical devices to Medical Device Directive 93/42/EC with mandatory registration of both the technical specifications and the final destination of each manufactured OXYSWING® Modular PSA Medical Oxygen Concentrator at the central database the Notified Body (DNV) in Norway.

Furthermore, our OXYSWING® Modular PSA Medical Oxygen Concentrators are allowed to be placed on the market or put into service in Italy and in other member states of the European Union according to Attest No. DGDFSC.3/P/I.5.I.e.1/1016/2014 released by the Italian Ministry of Health.

As a consequence, the Ministries of Health in many other countries outside the European Union have officially approved our OXYSWING® Modular PSA Medical Oxygen Concentrators as alternative supply mode for medical oxygen to hospitals.

OXYSWING®
Master Unit with Dual Bank

OXYSWING® Advantages

Cost Savings
Significant reduction of your hospital's expenses for medical oxygen with savings up to 60%.

High System Reliability & Quality
First-class components, stainless steel process piping, valves and regulators, heavy-duty PLC. It should work. Always.

Guaranteed Stable Oxygen Purity
Real-time purity monitoring in combination with an automatic blow-off system and a oxygen discharge flow regulation guarantees you that your produced medical oxygen always corresponds with the specifications of the required Monograph, even if medical oxygen demand would exceed the maximum production capacity of your OXYSWING® medical oxygen system;

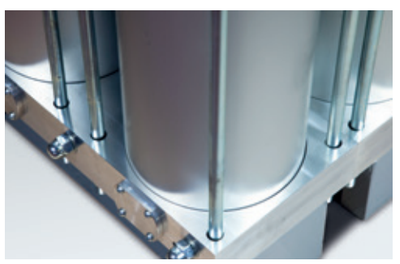
High Oxygen Discharge Pressure
Unmatched high gas discharge pressure which allows direct supply to your downstream medical oxygen distribution network without the need for expensive and maintenance intensive oxygen boosters;

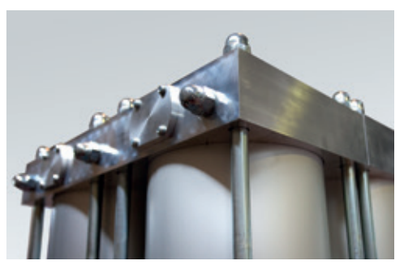
Unlimited Flexibility
The best fit solution for any medical oxygen supply requirement. No risk for excessive oversized systems;

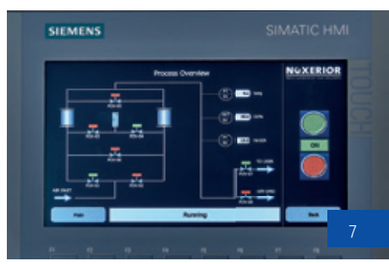
Easy System Adjustment
In case your medical oxygen requirements will change, simply adjust your OXYSWING® system by varying the number of PSA modules. Just by yourself, no other modifications to the system required;

Compact
All OXYSWING® Modular PSA Oxygen Concentrators fit through standard door openings and can be handled easily by manual pallet trucks. Installation possible even in the smallest angle of your hospital or inside ISO freight containers;

Easy Fleet Management
Identical components for the entire model range allow very limited budgets for spare part management and stand for easy maintenance.







Complete OXYSWING®

Medical Oxygen Generation System

For installation of a fully redundant OXYSWING® Modular PSA Medical Oxygen System according to ISO 10083:2006 and HTM 2022 (both to be replaced by ISO 7396-1), NOXERIOR can include the MedOX external gas analysing system and a PLC based Central Supervision System in its scope of supply in order to guarantee a 100% safe and reliable system for the supply of Oxygen 93%.

Such redundant system will also comprise a dedicated connection for external back-up supply of medical oxygen by HP cylinder bundles, LOX tank or a HP oxygen booster with cylinder filling.

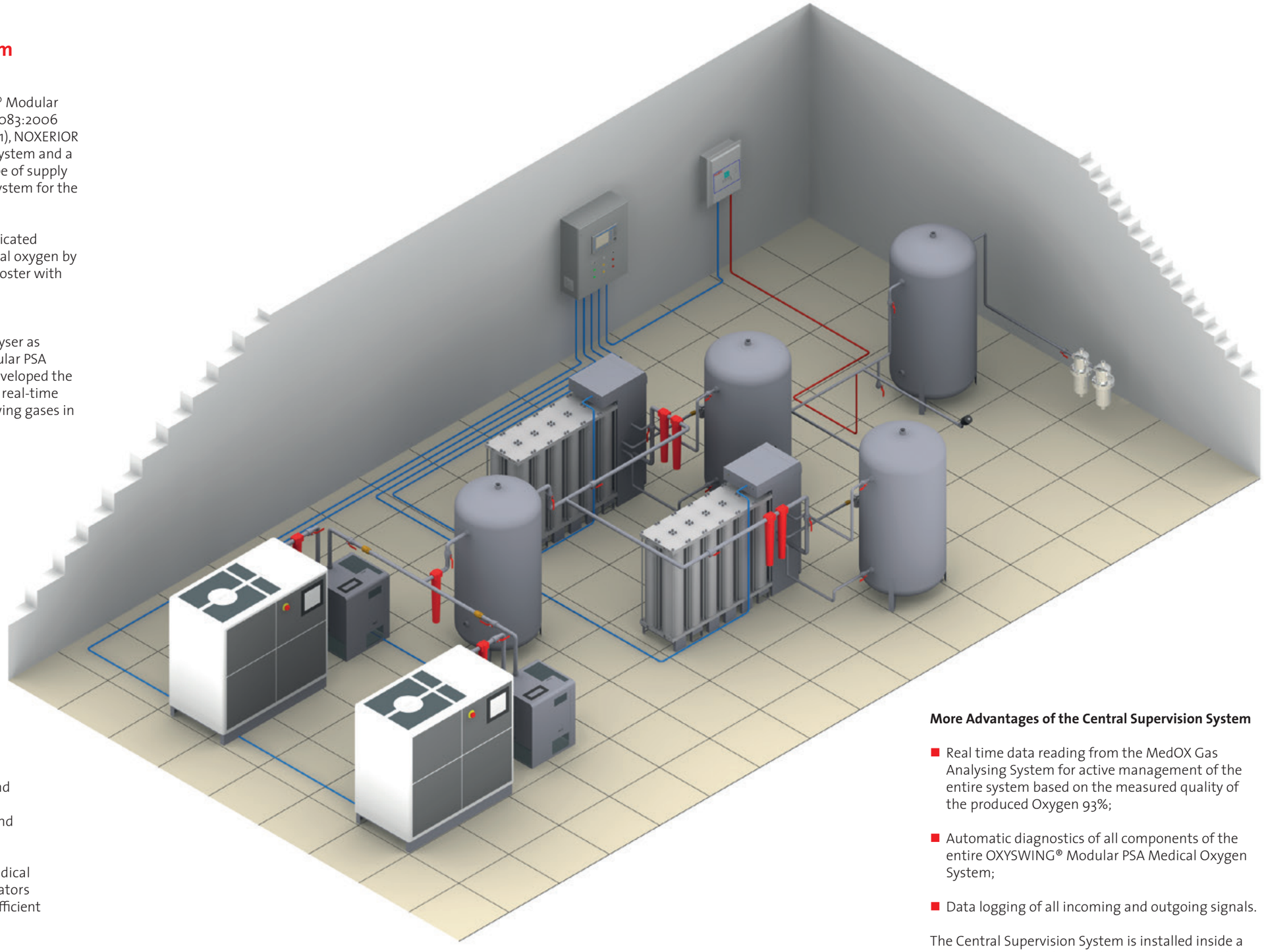
MedOX Gas Analysing System
Beside the presence of an on-board oxygen analyser as standard equipment for each OXYSWING® Modular PSA Medical Oxygen Concentrator, NOXERIOR has developed the MedOX Gas Analysing System for the additional real-time measurement of the concentration of the following gases in the produced Oxygen 93%:

- Oxygen (O_2)
- Carbon Monoxide (CO)
- Carbon Dioxide (CO_2)
- Moisture (H_2O)

The MedOX Gas Analysing System is fitted with a paramagnetic oxygen sensor, an infrared carbon dioxide sensor and an electro-chemical carbon monoxide, including flow and pressure regulation of the sample gas.

Central Supervision System
The PLC based Central Supervision System includes all essential functions for a fully dynamic and intelligent monitoring and control of the entire OXYSWING® Modular PSA Medical Oxygen System:

- Fully automatic selection of the operating and stand-by OXYSWING® Modular PSA Medical Oxygen Concentrator, based on availability and running hours of each single unit;
- Fully automatic activation of the back-up medical oxygen supply in case both oxygen concentrators would have a failure or would produce an insufficient quantity of oxygen;
- Preventive switch-off of the running PSA oxygen generation train in case of a failure signal from the corresponding air compressor and / or air dryer;



More Advantages of the Central Supervision System

- Real time data reading from the MedOX Gas Analysing System for active management of the entire system based on the measured quality of the produced Oxygen 93%;
- Automatic diagnostics of all components of the entire OXYSWING® Modular PSA Medical Oxygen System;
- Data logging of all incoming and outgoing signals.

The Central Supervision System is installed inside a wall or frame mounted electrical cabinet with a touch screen HMI (Siemens), central on/off switch and emergency button on the front panel.

Technical Specifications

OXYSWING® PSA Generator	PSA Modules	Oxygen 93% Production (litre/min)		
		Master Unit	with 1 Dual Bank	with 2 Dual Banks
OS-8	1	45	n/a	n/a
OS-16	2	90	n/a	n/a
OS-24	3	137	n/a	n/a
OS-32	4	180	360	540
OS-40	5	225	450	675
OS-48	6	266	533	799

Feed Air Pressure = 7,0 bar(g) / 100 psig
Oxygen Discharge Pressure = 6,0 bar(g) / 87 psig
Oxygen Dew Point = -60 °C / -76 F at atmospheric pressure
Oxygen Content = min. 93 vol.%, max. 96 vol.%"

OXYSWING® PSA Concentrator	Length (mm)/*(inch)*	Weight (kg)/*(lbs)*
OS-8	550 x 830 x 1.755 *22 x 33 x 69*	285 *628*
OS-16	550 x 1.100 x 1.755 *22 x 43 x 69*	440 *970*
OS-24	550 x 1.370 x 1.755 *22 x 54 x 69*	595 *1,312*
OS-32	550 x 1.640 x 1.755 *22 x 65 x 69*	750 *1,653*
OS-40	*550 x 1.910 x 1.755* *22 x 75 x 69*	905 *1,995*
OS-48	*550 x 2.180 x 1.755* *22 x 86 x 69*	1.060 *2,337*

Standard Components

- Feed Air Filters
- PSA Adsorber Vessel Module(s) in anodised Aluminium
- Process Valves, Regulators and Piping in Stainless Steel and compatible for Medical Oxygen
- Exhaust Silencers in Stainless Steel
- Control System with Siemens PLC for fully automatic operation of the OXYSWING® concentrator, including EtherNet/IP Connection for remote monitoring & control
- Touch Panel based Human Machine Interface (HMI) with System Diagnostics
- Onboard Oxygen Analyser with Zirconium Oxide Sensor
- Onboard Oxygen Discharge Pressure Transmitter
- System for Automatic Venting of Off-Spec Oxygen
- Set of Oxygen Bacterial Filters

Options

- Dual Bank (max. 3)
- Electronic Product Flow Meter with Flow Totaliser
- Product Flow Totaliser
- Feed Air Pressure and Temperature Transmitter
- Oxygen Temperature Transmitter
- MedOX Gas Analysing System
- Central Supervision System for OXYSWING® installations to ISO 10083 / ISO 7396-1
- Oxygen Purity Pen Recorder

Special Products

Due to the unique features of the design of the OXYSWING® Modular PSA Medical Oxygen Concentrators, NOXERIOR can supply the most compact, turn-key portable field hospital units on the market.

Additionally, NOXERIOR offers special production plants for the filling of high-pressure cylinders with Oxygen 93%, which are turn-key installed either on a single skid or an ISO freight container, and suitable for operation even under harsh ambient conditions.

Quality

All activities within our company strictly comply with the procedures of our certified quality management system to both ISO 9001:2008 and ISO 13485:2012, which are regularly updated and optimised. Before packing and shipment all OXYSWING® Medical Oxygen Concentrators will be thoroughly tested.

Health, Safety & Environment

According to our environmental management system certified to ISO14001:2004 and EMAS we constantly verify and correct our consumption of utilities and our waste disposal and we pay special attention to the material selected for our products and services.

Our Health & Safety system is implemented and applied according to national Italian legislation with periodic external verification by local authorities.

After-Sales Service

A reliable and responsive after-sales service is an integral part of NOXERIOR's business philosophy.

Our technicians or our local distributors for the OXYSWING® Modular PSA Medical Oxygen Concentrators are able to assist you with correct installation and maintenance of your system.

Critical spare parts are always available on stock and can be supplied immediately to any location in the world.

References

The OXYSWING® Modular PSA Medical Oxygen Concentrators are producing Oxygen 93% in many hospitals and healthcare institutes all over the world.

Please ask for the latest version of our reference list.

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