

GROUPE NOVAIR

Corporate presentation

GROUPE

NOVAIR

January 2018

NOXERIOR
Next Generation Gas Solutions

Group Profile

- NOVAIR: French company, founded in 1977, 100% family-owned business
- NOXERIOR: Italian company, founded in 1972
- Manufacturer of on-site gas production systems
- Exporting every year in more than 110 countries
- Certified ISO 9001, ISO 13485, ISO 14001
- Active member of ISO, CEN & AFNOR

Corporate organisation

NOVAIR

Location : Roissy, France
Headquarters, R&D, Manufacturing & Sales
Twin Towers PSA Generators
Medical Gas Systems



Gaz Médical Services



Location : St-Aunès, France
Installation & After-Sales services
Medical Gas Systems

NOXERIOR

Next Generation Gas Solutions

Location : Grosseto, Italy
R&D, Manufacturing & Sales
TT & Modular PSA Generators
EPC Projects

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Groupe NOVAIR - Facilities



Facilities in Roissy, France 5.600 sqm



Facilities in Grosseto, Italy 1.500 sqm



Business Divisions



Healthcare

**Medical Gas Systems
From Source to Patient**



Industry

**Non-cryogenic
Oxygen & Nitrogen on-site
production systems
Custom Built Engineered
Packages**

360° Turnkey Solutions

- Engineering & Design
- Product Development
- Manufacturing
- Installation
- Testing & Commissioning
- Training of local staff
- Servicing & Maintenance



Quality Management



- Quality management certified by SQS and DNV

- ISO 9001:2008
- ISO 13485:2012
- ISO 14001-204

- Systems compliant with :

- ISO 7396
- ISO 8573-1
- IEC & CENELEC
- Directive 2014/68 EU
- EN 1012

- On request :

- ATEX 95, 94/9
- HAZOP

Nitrogen Solutions

- Non-cryogenic on-site production systems
- Special application packages : Example of Laser cutting
- Custom Built Engineered Packages

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Non-cryogenic on-site nitrogen production systems



PSA TwinTower Generators



PSA Modular Generators



Membrane Generators



Engineered PSA packages



Engineered membrane packages

NITROSWING® - Modular Nitrogen Generators

- Gas Purity: from **3 vol.% to 10 ppm O₂** residual
- Outputs from **~5 to 150 Nm³/h**
- High pressure version available, allowing N₂ pressure up to **11,5 bar(g)**



NITROSWING® - Modular Nitrogen Generators

- Standard Pneumatic Cabinet
- Can feature up to max. eight (08) modules
- Master Slave concept up to max. 3 Dual Banks



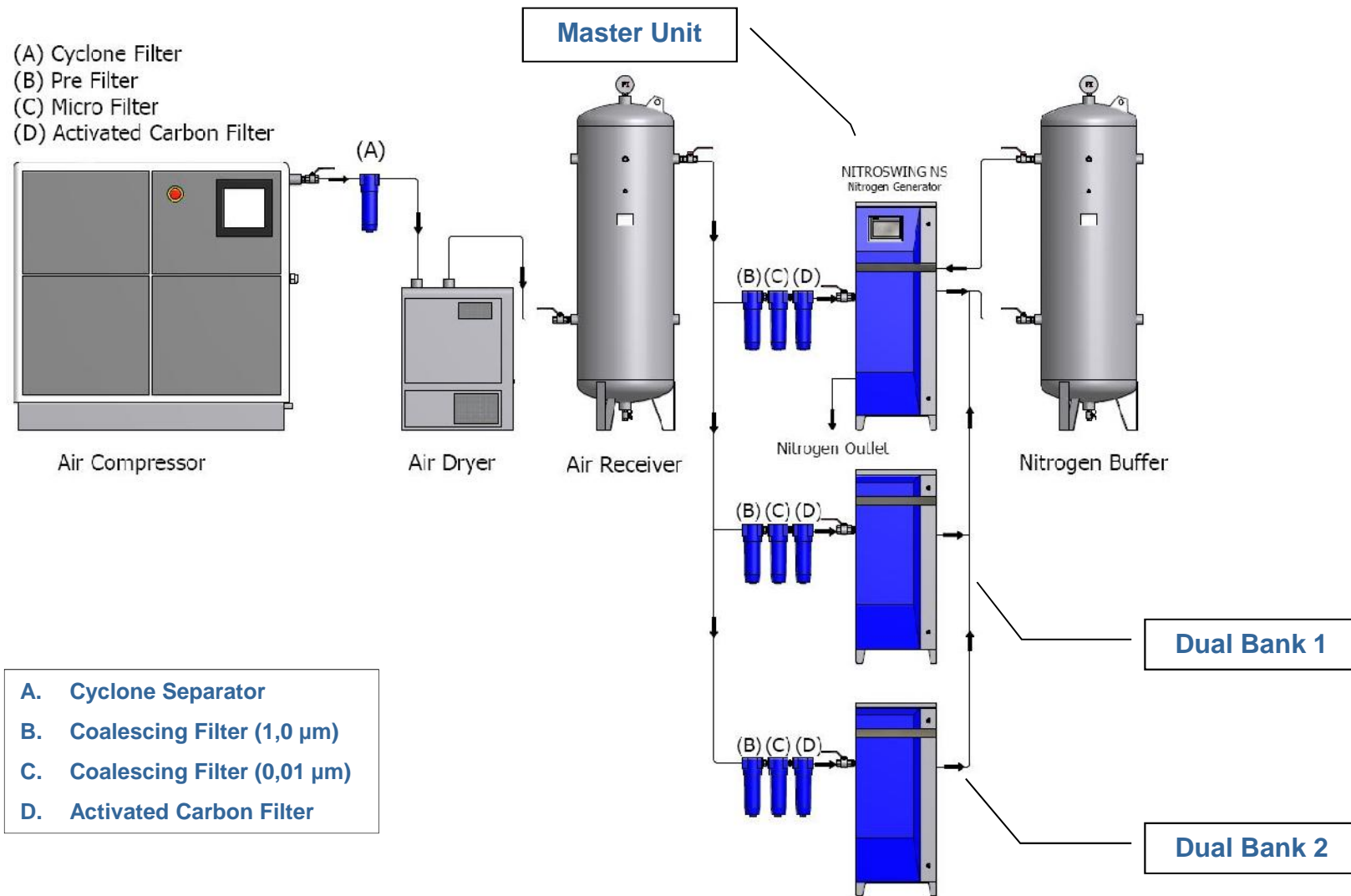
- Easy capacity extension by addition of modules or Dual Bank

NITROSWING® - Modular Nitrogen Generators

- Unprecedented productivity
- Enlarged and optimized HMI
- Extended data communication capabilities
- Improved piping and valves design
- Faster reaction time
- New ergonomic design



NITROSWING® - Master Station with two Dual Banks



NITROSWING® - 7" Colour Touch Screen

Main Menu

NOXERIOR
Next Generation Gas Solutions

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Process Parameters User Settings

Process Synoptics Instrumentation Settings

Trends Manufacturer Settings

Statistics Calibration O2 Analyser

Maintenance Log out

Alarms

Main

Product Gas - Residual Oxygen Content 00.0 O2 % ⚠

Product Gas - Flow Rate 000.0 Nm3/h ⚠

Product Gas - Pressure 0000 barg ⚠

Product Gas - Temperature +000.0 °C ⚠

Product Gas - Dew Point (PDP) +000.0 °C ⚠

Feed Air - Pressure 000.0 barg ⚠

Feed Air - Inlet Temperature +000.0 °C ⚠

Feed Air - Dew Point (PDP) +000.0 °C ⚠

Back **Unit is Stopped - Ready to be Started**

Process Overview

NOXERIOR
Next Generation Gas Solutions

0000 barg PY 101

000.0 O2% AET 101

000.0 Nm3/h FY 101

TO USER POV-107

OFF-SPEC POV-108

ATR INLET POV-101 POV-102

POV-103 POV-104

POV-105 POV-106

Back **Unit is Stopped - Ready to be Started**

Product Gas

NOXERIOR
Next Generation Gas Solutions

Residual Oxygen Content **Flow Rate**

5.0 400

4.0 320

3.0 240

2.0 160

1.0 80

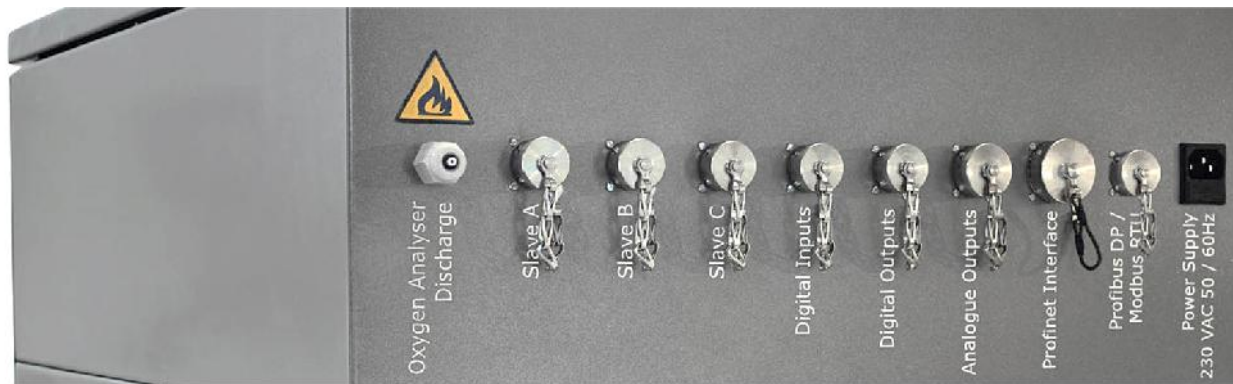
0.0 0

02 % Nm3/h

00.00 000.0

Menu **Unit is Stopped - Ready to be Started** Next

NITROSWING® - Extended data connection capacity



Standard Features

- Connections for Control of up to 3 Dual Banks
- Digital Output Signals
(Run – Stand-by – Common Alarm)
- Digital Input Signals (max. 14)
- Profinet Industrial Ethernet Interface

Optional Features

- Analogue Output Signals (max. 8)
- Modbus RTU or Profibus DP



NITROMEM

Membrane Nitrogen Generators



Compact cabinet mounted
Membrane technology

- Outputs from ~ 350 to 6.000 Nm³/h
- Gas Purity: from 5,0 to 0,1 vol.% O₂ residual
- Main Application :
Marine market

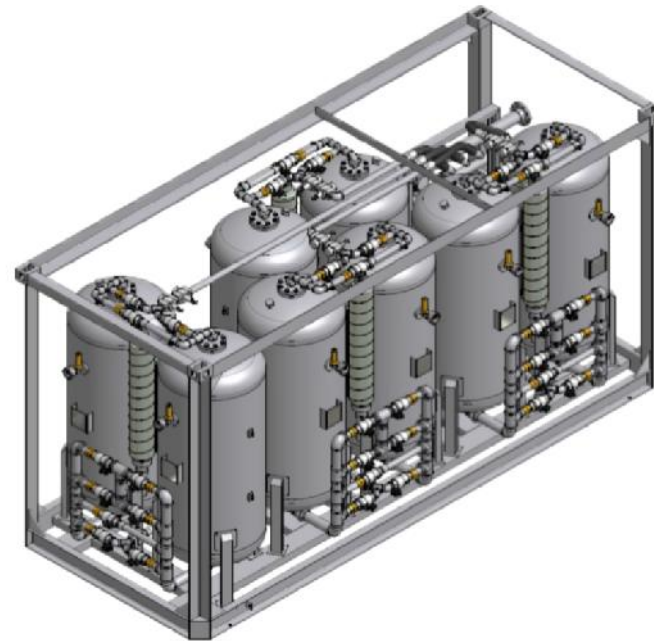
Membrane Nitrogen Generator M-4100 Mini

- High nitrogen purities
- Low nitrogen production cost
- Easy gas purity adjustment
- Compact design
- No nitrogen receiver required
- Almost no maintenance



NITROPLUS - Flexible Twin Tower Technology

Robust construction and big plants based on
Multi-Twin-Tower Concept



Performances:

- Nitrogen Output Flow from ~ 150 to $1.700 \text{ Nm}^3/\text{h}$
- Residual Oxygen content from 5 vol.% to 10 ppm

Special application packages - Example Laser Cutting

High pressure nitrogen production package :

- All equipment mounted in a turnkey cabinet
- Output pressure up to 300 barg
- Optional feed air unit
- Designed for laser cutting industry



EPC – Sound and longlasting experience



Nitrogen Generation Package

- Product Flow = 2 x 140 Nm³/h / 90 scfm
- Purity = 5,0 vol.% O₂
- Discharge Pressure = 6,7 bar(g) / 95 psig
- Direct Control by Customer's DCS/ESD



N₂ Membrane Packages - Indoors, Desert Environment



Nitrogen Generation Package

- Product Flow = 410 Nm³/h / 260 scfm
- Purity = 3,0 vol.% O₂
- Discharge Pressure = 7,0 bar(g) / 100 psig
- Redundant MODBUS Data Transfer

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Non-cryogenic oxygen on-site production systems



PSA TwinTower Generators



PSA Modular Generators



Engineered PSA packages



High purity DS-PSA Generators

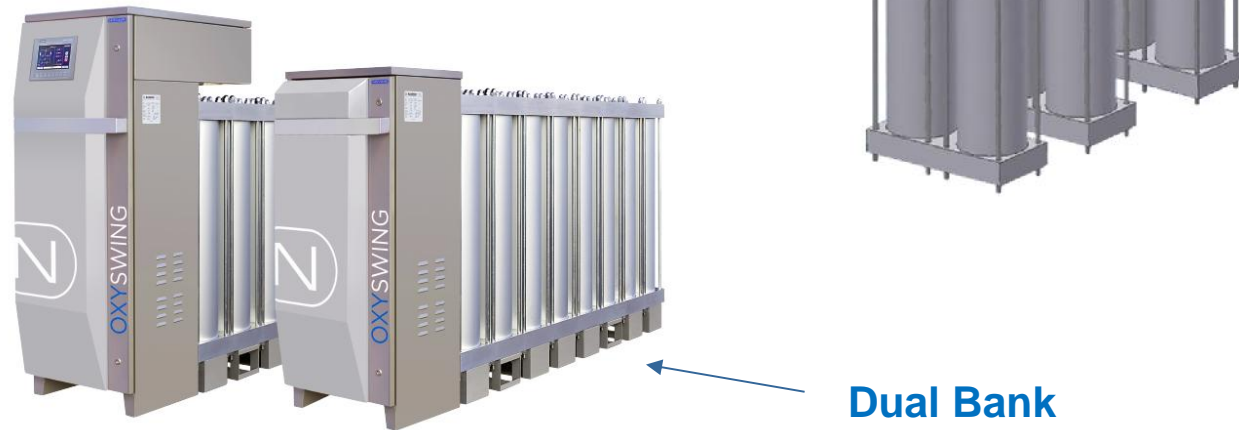
OXYSWING® - Modular Oxygen Generators

- Gas Purity: from **90 to 95% O₂**
- Outputs from **~2,5 to 60 Nm³/h**
- Master slave Concept



NITROSWING® - Modular Nitrogen Generators

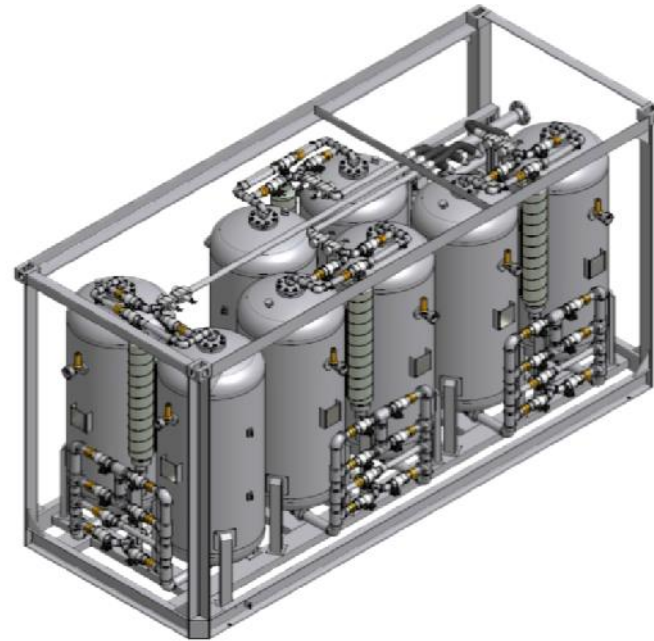
- Standard Pneumatic Cabinet
- Can feature up to max. six (06) modules
- Master Slave concept up to max. 3 Dual Banks



- Easy capacity extension by addition of modules or Dual Bank

OXPURE - Flexible Twin Tower Technology

Robust construction and big plants based on
Multi-Twin-Tower Concept



Performances:

- Outputs Oxygen: from ~60 to 100 Nm³/h
- Oxygen purity from 90% to 95%

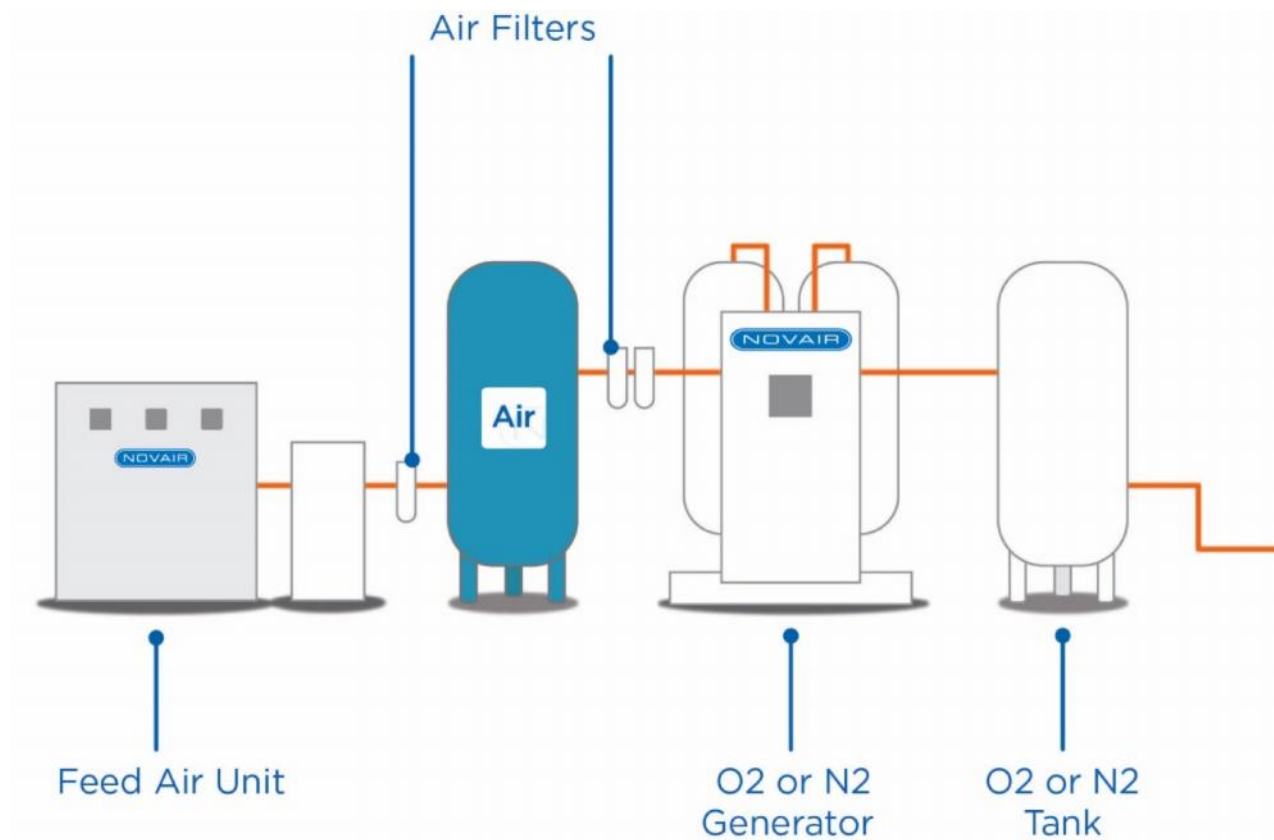
OXPURE DS-PSA - High Purity Oxygen Generator



- Gas Purity: from **96 to 99,5% O₂**
- Outputs from **~ 4,5 to 45 Nm³/h***
- **Adjustable Purity on-site**
- **Extra stable concentration +/- 0,2%**

** At 96% purity*

Our scope of supply



SOME REFERENCES

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NOXERIOR
Next Generation Gas Solutions

Thousands of references worldwide



Oxygen PSA Package - Outdoors, Desert Environment



Oxygen Generation Package

- Product Flow = 2 x 37 Nm³/h / 2 x 24 scfm
- Purity = 95,0 vol.% O₂
- Discharge Pressure = 6,0 bar(g) / 90 psig
- Control by external UCP

PSA Oxygen Cylinder Filling Plant



Skidded Membrane Nitrogen Generation Plant



Skidded PSA Nitrogen Generation Plant



Thank you



Noxerion s.r.l.

Via Giordania, 48 – 58100 Grosseto, Italy

Tel: +39 (0564) 45 80 41/42

Fax: +39 (0564) 45 80 43

e-Mail: info@noxerion.com

URL: www.noxerion.com

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