INDUSTRY

N2 PSA OENOLOGY GENERATORS

SPARGING TECHNIQUE - BLANKETING TECHNIQUE - BOTTLE FILLING

2022 ENG

Isolcell

CONTROLLED ATMOSPHERE SINCE 1958


Isolcell

More than 60 years of experience

Isolcell: from pioneers to international leaders

We have been designing and making systems based on Generated and Controlled Atmosphere technology since 1958. We were the first in Europe to develop these technologies and apply them as a way of preserving food, subsequently extending the use of controlled atmospheres as a technology that generates a benefit in terms of quality and technology in the process for various production sectors: from the pharmaceutical to the chemical industry, from plastic moulding to electromechanics, form wine making to laser cutting, from fire prevention to the protection and preservation of artworks. We are recognised global leaders and we are part of an industrial group led by Finanziaria Unterland Spa. Isocell has a worldwide presence with a network of distributors and retailers. We operate in accordance with the highest quality standards; we are ISO 9001, ISO 14001 and OHSAS 18001-certified and our product range complies with the strictest European and international directives.

Our strong suit is our ability to provide highly customised and reliable solutions that reflect and sometimes anticipate the state of the art in available technology.

A natural bent for improvement and evolution

1950› 1960› 1970› 1980› 1990› 2000› 2022 ›

Our history is closely connected to the development of controlled atmosphere technologies. We believe in constant innovation and in capitalising on our experience to design innovative technologies in any sector. **Our solutions have often anticipated market demand and have sometimes become the benchmark for new quality and technological standards.**

zero oxidation

A SHIELD AGAINST OXYDATION

Nitrogen is mostly used in winemaking to prevent wine oxidising, which is a cause of a deterioration of quality, involving changes in colour, aroma and flavour. In winemaking, the technique of inert wine storage tanks rapidly spread, in order to reduce the amount of oxygen in contact with the product, by injecting gaseous nitrogen.

THE IMPORTANCE AND ADVANTAGE OF HAVING AVAILABLE ON-SITE GENERATED NITROGEN

In cellars, the approach to the use of on-site produced nitrogen happened gradually, to satisfy the increasing demand from innovations with gas injection at bottling. World-wide there is rapid movement towards nitrogen generators replacing the traditional nitrogen production systems, such as bottles or liquid gas, due to the advantages derived from the convenience and cheapness of this system. The key of the success of the nitrogen generator is that by simply switching on the machine, all nitrogen needed can be produced on site, in complete safety, at the desired purity and definitely at lower cost compared to other supply systems.

PSA SERIES NM

For low flow-rates.
From 0.5 to 33.7 m^3/h
Compact but with the same reliability as larger models.

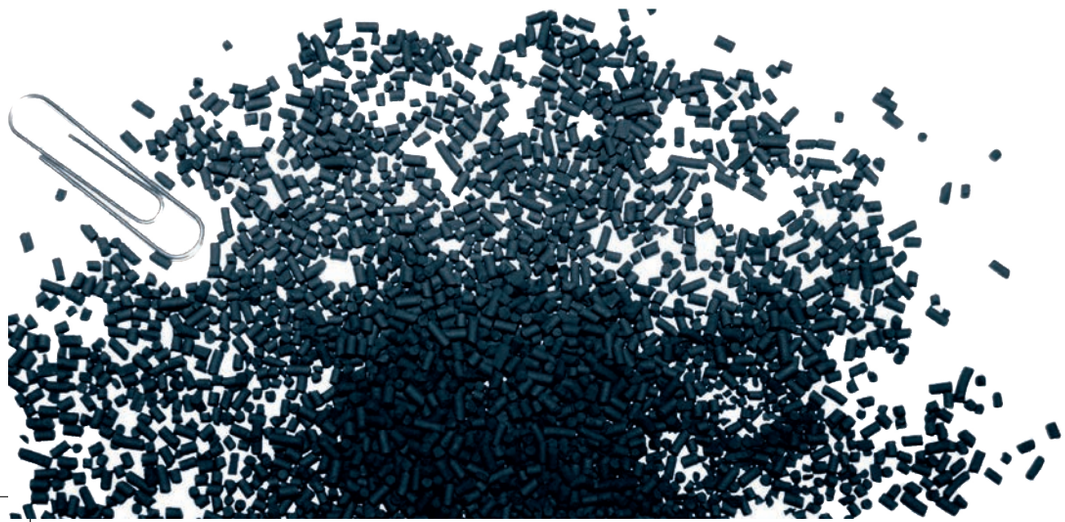
PSA SERIES S

PSA SERIES D

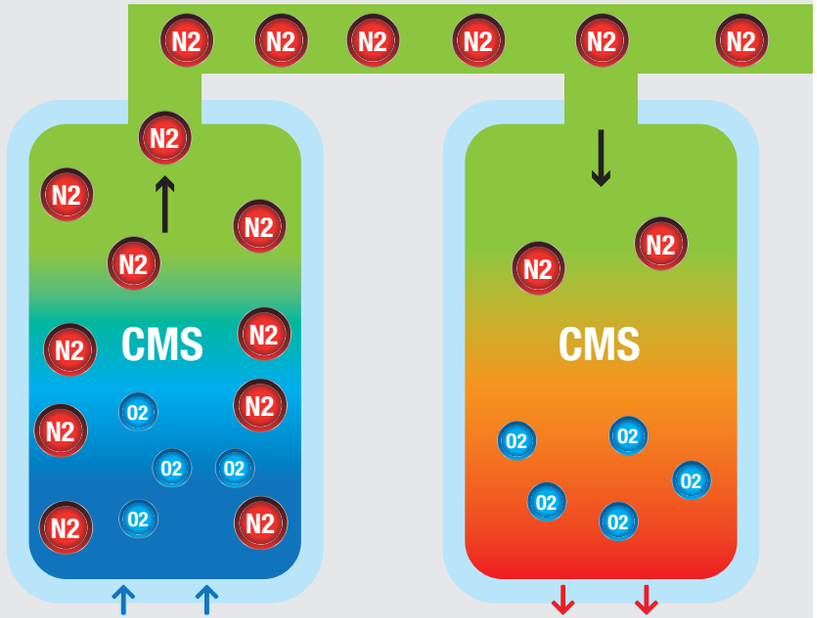
The design of the new Isolcell PSA NL S & D Nitrogen Generators minimizes obstructions to allow flows of nitrogen from a few liters per minute to thousands of cubic meters per hour. Their modular structure allows expansion of the production capacity of the system even after start of operation, simply by inserting other filtering columns into the single machine, or by adding additional external modules.

PSA NITROGEN GENERATION TECHNOLOGY

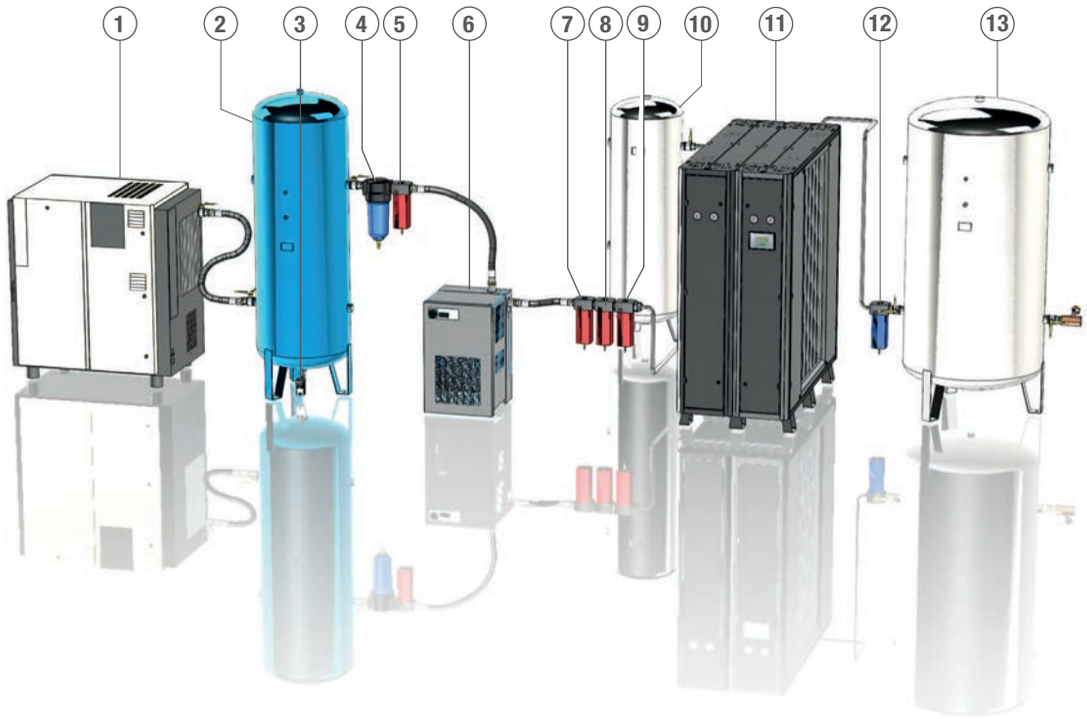
NIMOS PSA nitrogen generators use compressed air at 6 –10 bar, which is piped into one or more pressurized filters containing carbon molecular sieve material which is able to retain the oxygen present in the air. During the adsorption phase, the oxygen concentration is reduced to the desired percentage and the resulting gas passes to a pressure tank ready for use. All generation operations are controlled by a PLC, ensuring nitrogen production at the desired purity.



N2 GENERATION



1 Compressor
2 Air tank
3 Condensate Drain
4 Cyclone Separator with Condensate Drain
5 Pre filter
6 Dryer
7 Air filters
8 Micro filter
9 Active carbon filter
10 Nitrogen buffer tank
11 Nitrogen Generator
12 Particle filter
13 Nitrogen Storage tank



COMPRESSED AIR QUALITY

CLASS	1-4-1 ISO
DEW POINT	< +3°C
SOLID PARTICLES	< 0,1 µm
OIL CONCENTRATION	< 0,01 mg/m³

In recent years the evolution of cellaring technology has led nitrogen to be used in many phases of production:

SPARGING TECHNIQUE

Low pressure nitrogen injection directly into wine, through pipes connected to the tank (technique named Sparging). Used to remove oxygen dissolved in wine and can be repeated in more phases, depending on desired results.

BLANKETING TECHNIQUE

Displaces oxygen from the head space of holding or working tanks (technique named Blanketing). In this case nitrogen is injected into the tank to fill the empty space remaining between the wine and the top of the tank. The aim is always to prevent wine oxidation.

BOTTLE FILLING

Modern bottling lines use techniques requiring the use of nitrogen in many phases during filling, such as:
- flushing empty bottles, to remove impurities and to dry out any residue of washing water;
- nitrogen injection in upper side of the bottle-filling machine's tank;
- nitrogen injection before wine filling in order to reduce percentage of oxygen in bottles;
- nitrogen injection before corking to reduce oxygen percentage between wine and cork.

PRESSING OF GRAPES

Soft grape pressing with new types of pneumatic presses, to extract must in saturation with nitrogen.

MIXING OF THE PRODUCT

Fermentation with nitrogen injection into the fermenting vat, from the bottom to the top, to obtain homogeneous mixing of the product and to cause solids to fall to the bottom.

WINE DISPLACEMENT

Moving wine with pressurized nitrogen replacing mechanical pumps. The advantage of this technique is to allow the transfer of wine delicately, without friction and without excessive contact with atmospheric air, caused by the use of traditional pumping systems.

GAS MIXTURES

Nitrogen mixed with small varying percentages of carbon dioxide is mostly used in cellars for filling tanks containing wine addressed to sold in bulk. The mixture of the two gases prevents further oxidation and is useful to maintain a light effervescence and to increase the wine's aroma.

"More than 20 years of experience in the oenology field. Hundreds of installations around the world"

Argentine
Australia
Chile
Croatia
Ecuador
France
Georgia
Greece
Israel
Italy
Moldova
Peru
Russia
Spain
South Africa
Tunisia
Ukraine

"We are really satisfied with the system purchased from Isolcell: we have achieved considerable savings and independence in the management of nitrogen supply. It is a reliable partner."

Wine producer, Alba region - Italy

COMPRESSED AIR TREATMENT

The LaserPower systems come in two different configurations, LP300 and LP40.
Both series can be fitted with optimised drying and filtering systems. Moreover, there are tailor-made solutions with supplies in containers which also have a compressed air system.

OXYGEN ANALYSER

All models have a system to analyse the gas produced.
The analyser uses a zirconium oxide sensor to continuously measure residual oxygen and ensures the set nitrogen purity is maintained. The control system is modular and can be fitted with a number of communication interfaces (4-20mA current transmission, MODBUS, CAN). The optional modules are used to interface the nitrogen generator with the wide variety of remote monitoring and control systems on the market.

WEB SERVER XL - INDUSTRY 4.0
Our response to the fourth industrial revolution.

Nitrogen self-production systems with smart connections, with reliable remote control over the operating parameters of the whole generation system, from the compressed air supply to the final storage of inert gas. Management and analysis of historical data. Option to receive email alerts of any alarms.

CHOOSE ALL THE BENEFITS OF OPERATING RENTAL

QUICK AND EASY TO REQUEST

AFFORDABLE

SMALL AND SIMPLE INSTALMENTS

IMMEDIATE AVAILABILITY

1

Choose the ideal system for your business.

2

Request the **operating rental** service as an alternative to purchase.

3

Authorised in **just a few hours**.

4

Pay with **fully deductible, customised instalments**

		LOW PURITY - LP					HIGH PURITY - HP				
Nitrogen purity rate		95 %	97 %	98 %	99 %	99,5 %	99,9 %	99,95 %	99,99 %	99,995 %	99,999 %
Residual oxygen		5 %	3 %	2 %	1 %	0,5 %	0,1 %	500 PPM	100 PPM	50 PPM	10 PPM
NM1	Flow m³/h[1]	9,9	7,5	6,3	5,5	4,3	2,7	2,4	1,7	1,3	0,8
NM2	Flow m³/h[1]	20,0	15,2	12,7	10,8	8,4	5,5	5,0	3,5	2,8	1,6
NM3	Flow m³/h[1]	30,1	22,7	19,0	16,2	12,6	8,2	7,5	5,3	4,2	2,4
NM4	Flow m³/h[1]	37,7	27,8	23,9	20,5	17,4	13,1	10,1	7,0	5,5	3,9
S2	Flow m³/h	34,4	27,5	23,7	18,9	15,4	10,1	8,5	5,7	4,8	3,2
S3	Flow m³/h	51,8	41,4	35,5	28,3	23,2	15,2	12,8	8,6	7,2	4,8
S4	Flow m³/h	69,2	55,3	47,5	37,9	31,0	20,3	17,1	11,4	9,6	6,5
S5	Flow m³/h	86,6	69,3	59,5	47,4	38,8	25,4	21,4	14,3	12,1	8,1
S6	Flow m³/h	104,2	83,3	71,5	57,0	46,7	30,6	25,7	17,2	14,5	9,7

Flow rates at standard atmospheric conditions (20°C / 1000 mbar / 0% RH)

INLET PRESSURE 9,5 bar

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Residual oxygen		5 %	3 %	2 %	1 %	0,5 %	0,1 %	500 PPM	100 PPM	50 PPM	10 PPM
S7	Flow m³/h	121,8	97,4	83,6	66,7	54,6	35,8	30,0	20,1	16,9	11,4
S8	Flow m³/h	139,4	111,5	95,8	76,3	62,5	41,0	34,4	23,0	19,4	13,0
S9	Flow m³/h	157,2	125,7	107,9	86,0	70,4	46,2	38,8	26,0	21,9	14,7
S10	Flow m³/h	175,0	140,0	120,2	95,8	78,4	51,4	43,2	28,9	24,3	16,3
D6	Flow m³/h	209,2	167,3	143,6	114,5	93,7	61,4	51,6	34,6	29,1	19,5
D7	Flow m³/h	243,1	194,4	166,9	133,0	108,9	71,4	60,0	40,2	33,8	22,7
D8	Flow m³/h	276,7	221,3	190,0	151,4	124,0	81,3	68,3	45,7	38,5	25,8
D9	Flow m³/h	310,0	247,9	212,9	169,7	138,9	91,1	76,5	51,2	43,1	28,9
D10	Flow m³/h	343,0	274,4	235,5	187,8	153,7	100,8	84,6	56,7	47,7	32,0

Flow rates at standard atmospheric conditions (20°C / 1000 mbar / 0% RH)

Isolcell

CONTROLLED ATMOSPHERE SINCE 1958

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