



## Company Overview

Our business, product and the people that shape it



## Manufacturer of Gas Generators for scientific applications

### 20 years of experience in this field

#### Privately Owned

Founder & M.D. : Palge Fabienne

#### Ranking

3<sup>rd</sup> Largest in the world

#### + 11,000 Machines

Global install base

#### Annual Growth

20%+ Annual per year

#### European Trust

Manufacturing and R&D

#### Network presence

Dealer network in all continents and over 11,000 satisfied customers



#### Boston office



# FDGSi company: Who are we ?

**Fabienne Palge:** founder and CEO

In the analytical field since 25 years

7 years for Shimadzu France as sales manager

6 years for Domnick Hunter as European manager



**Jean-Marie Casanova:** General Manager

In the analytical field since 25 years

15 years for Waters in sales MS organisation



**Ludovic Brosse:** Service manager

15 years for Peak Scientific as France service manager



**Rod Wilson:** territory manager

7 years for Peak Scientific as APAC manager

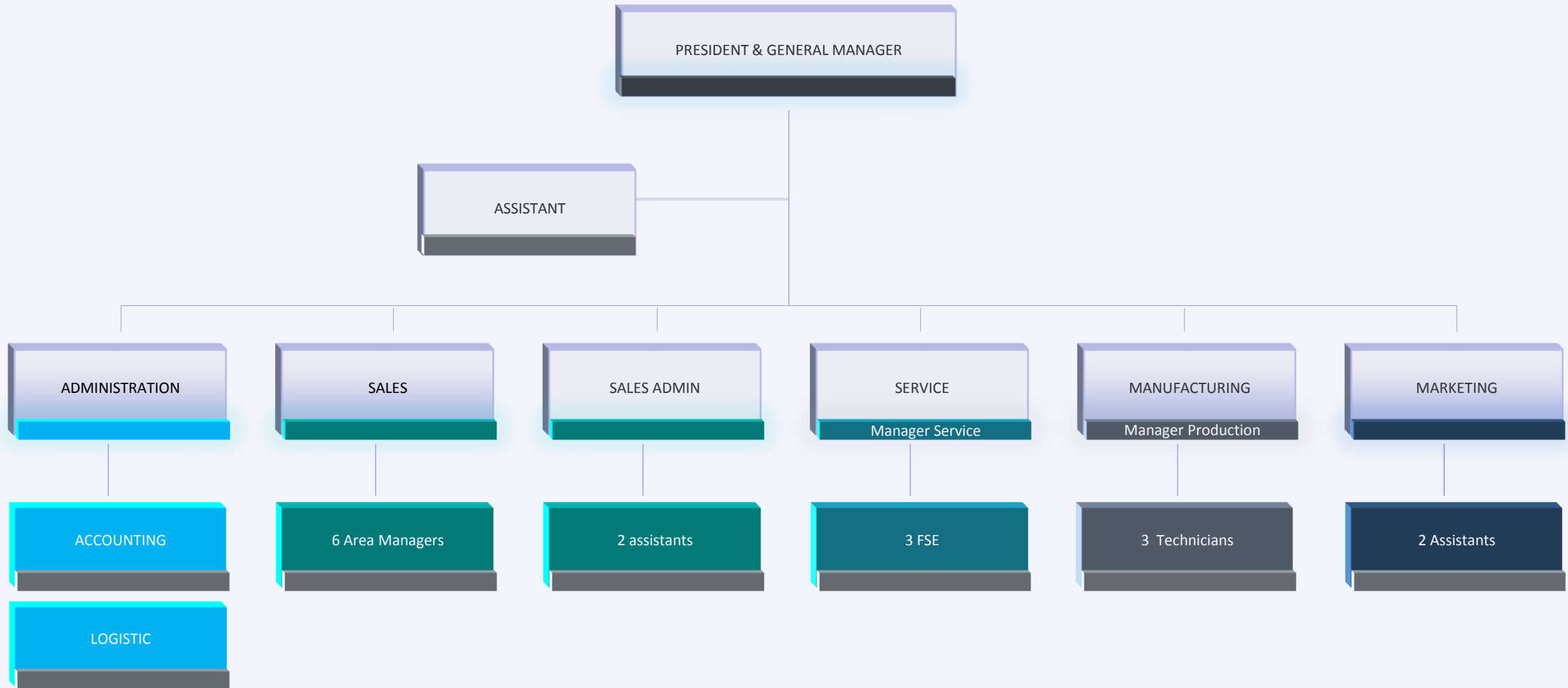


**4 employees at production site**

**4 Field Service Engineers**

**4 admin & Logistic**

# Organisation



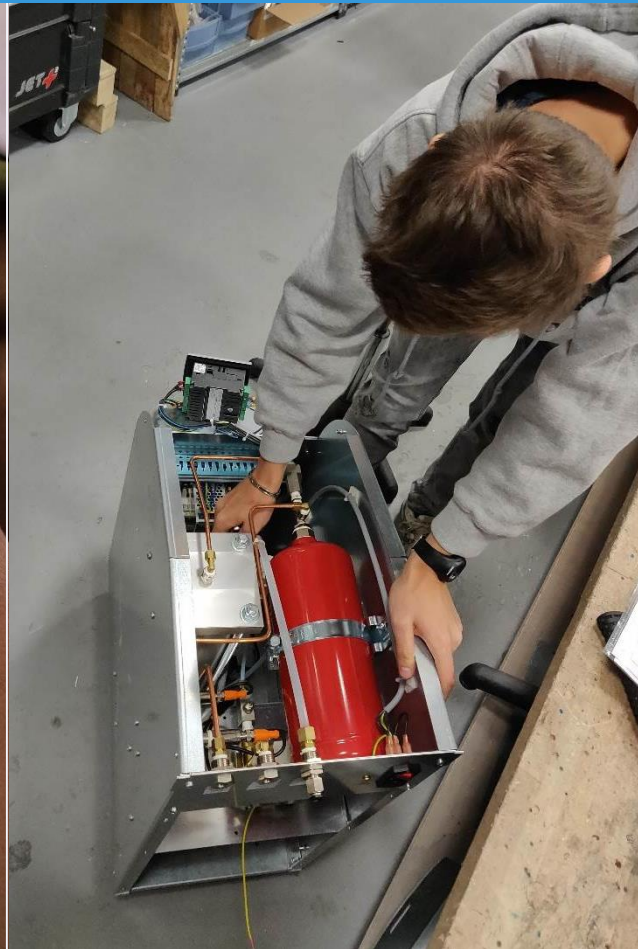
# Head count by function

About us



Research &  
Development

14%



Manufacturing

18%



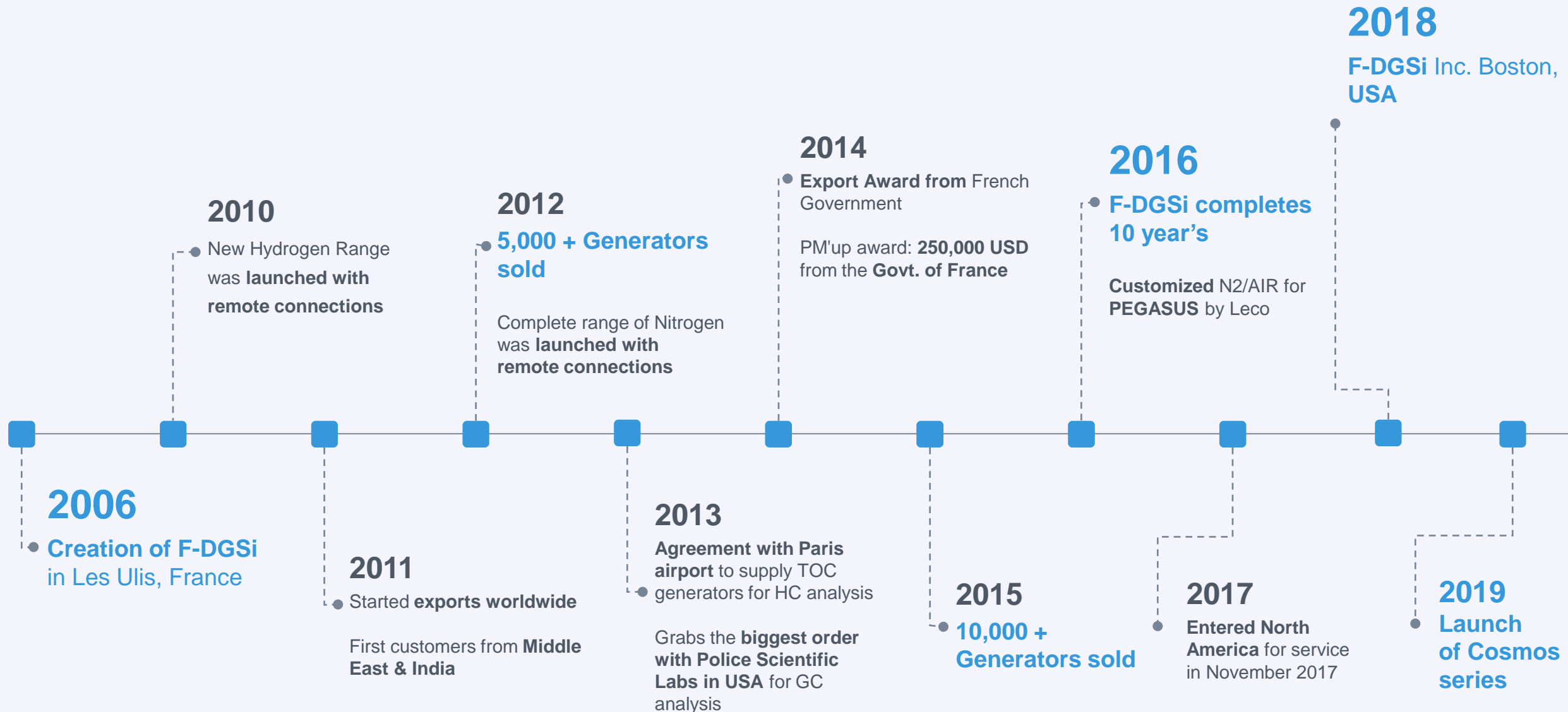
Services

37%



Sales & Marketing

31%







**Customer Focused**



**Market demand focused**



**Continuous innovation**



**Business Agility**



**Continued investment**





# F-DGSi Manufacturing Excellence

Product  
certifications



30 - day global generator  
delivery

Kanban : same day parts  
shipment



SAP system for continued  
stock & flexibility

# Vision and Mission



## Customers Service

Is an attitude, not a department



## Process delivery

Our tradition is our reputation



## Relationship Development

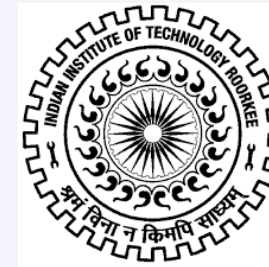
Designing a product is designing a relationship



## Quality of Goods

Quality is never an accident but a result of high intention

# Customers references



# Customers references



# Customers references

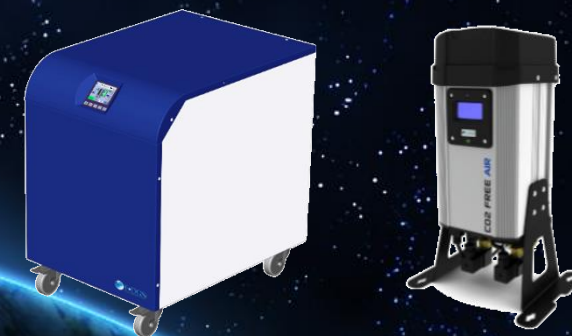


**A COMPREHENSIVE RANGE OF PRODUCTS TO ADDRESS  
YOUR LAB CHALLENGES  
AND  
MAKE YOUR LIFE EASIER AN GREENER**

## Nitrogen Gas Generators



## Air Gas Generators



## Hydrogen Gas Generators



## Liquid Nitrogen



# Nitrogen Gas Generators for LCMS(MS)





# N2 generator Technology



Pressure Swing  
Adsorption (PSA)

- Proven used for over 20 years
- Robust and durable 10+ year life expectancy of the CMS
- Reliable
- Regenerative
- Purity not sensitive to temperature fluctuations
- Phthalate free



Membrane

- **Compact:** can be wall mounted to save place in the lab
- **Silencer:** no noise as there is no moving parts
- **Easy maintenance:** three filters only once a year
- **No electricity needed:** pneumatic operation

About our product

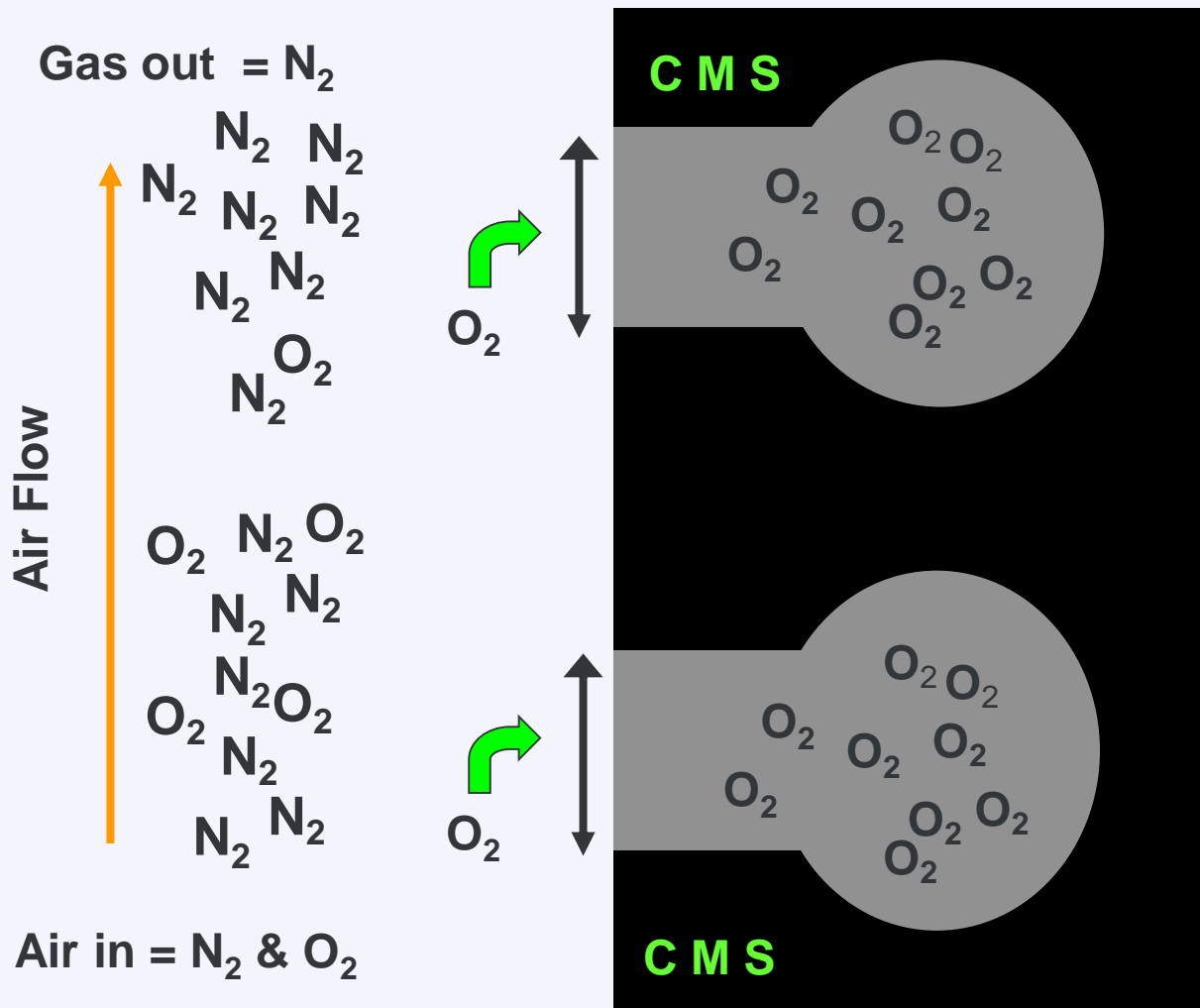
# N2 PSA Technology: Adsorption Stage Pressurisation

Gas molecule size Angstrom

- O<sub>2</sub> molecule 2.9A
- N<sub>2</sub> molecule 3.1A

Pore size 3.0A in the CMS

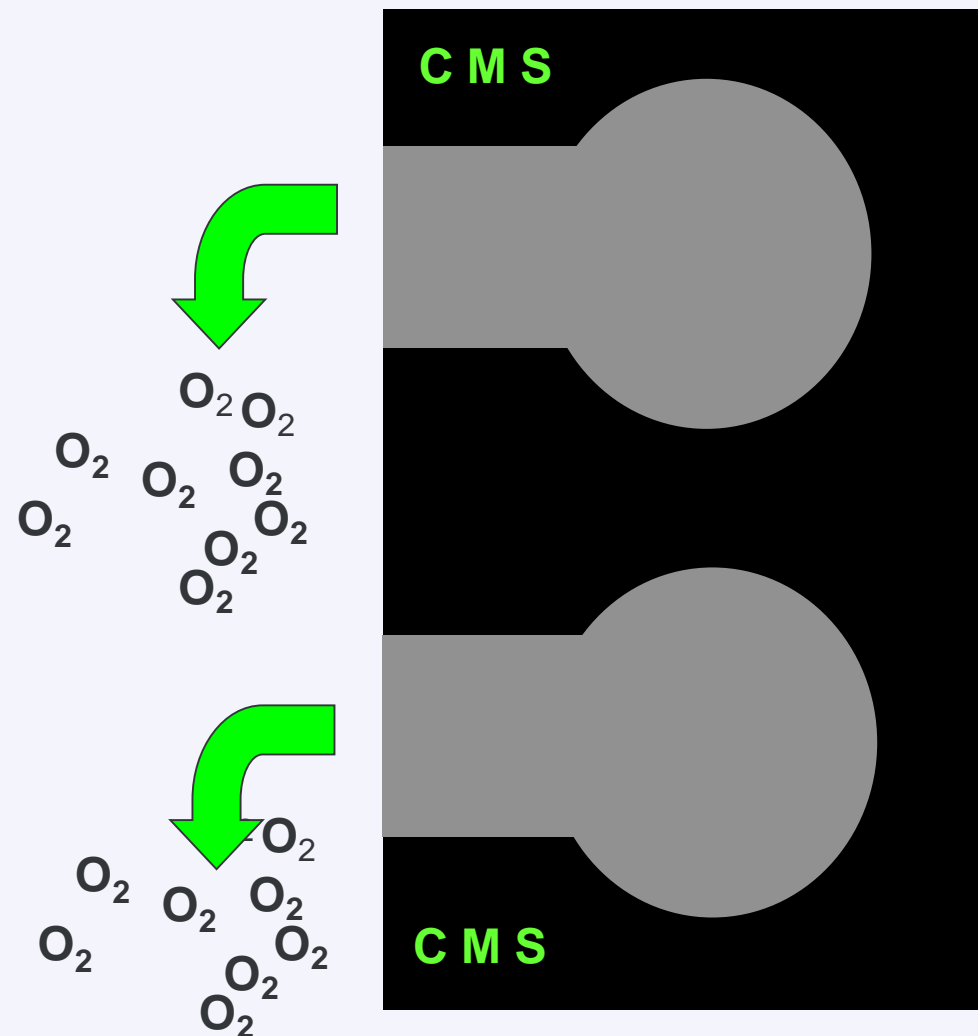
- The small oxygen molecules are forced into and trapped in the CMS
- The larger nitrogen molecules pass through with out being trapped



About our product

# N2 PSA Technology: Regeneration-Depressurisation stage

- To regenerate the CMS we depressurise the column
- The Oxygen is removed from the CMS by the pressure in each piece of CMS forcing out the O<sub>2</sub> molecules (de-gassing)
- The O<sub>2</sub> molecules then exit through the exhaust valve



About our product

# N2 Membrane Technology

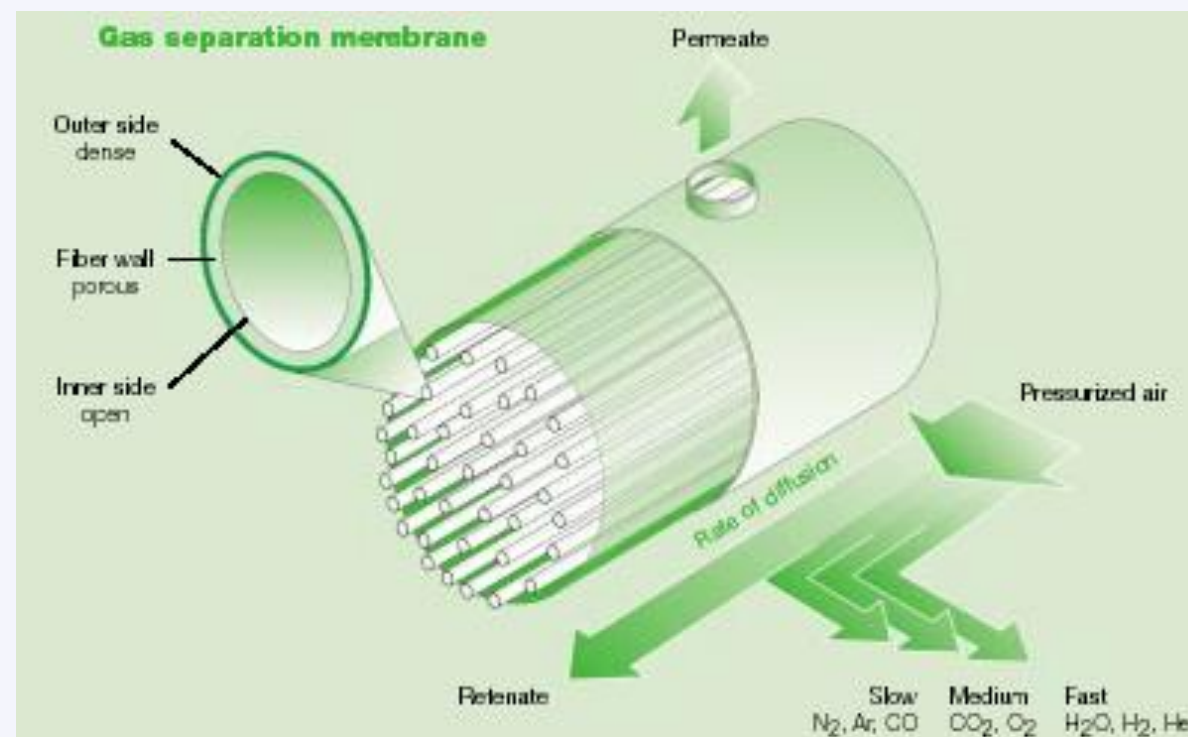
- Most competing LC/MS nitrogen generators use membrane technology
- The working part of a membrane nitrogen generator consists of a sealed metal tube containing a tightly packed bundle of hollow fibres



About our product

# N2 Membrane Principle of Operation

- Compressed air enters the membrane bundle
- Different gases diffuse through the hollow fibre walls at different rates
- Oxygen diffuses quicker than nitrogen
- The residence time (flow rate) determines the levels of residual oxygen (i.e. N<sub>2</sub> purity)



About our product

# PSA Technology – CALYPSO Overview

## Application

LC-MS

Small sample evaporation



UNIQUE AND INTELLIGENT OPERATOR INTERFACE WITH REMOTE ACCESS

Flow: 15 to 70 LPM  
 Pressure: 8 Bar  
 Purity: 99,99 – 99%

**Smart Triple Filtration and Advanced technology PSA** of separating Nitrogen and Oxygen to produce high quality Nitrogen gas on demand 24h/7d.

**With 5 models, 15 L/min to 70 L/min**, LCMS purity of 99% plus, the CALYPSO Nitrogen range provide a nitrogen solution for LCMS instrument with an increase pressure of 8 bar (116 psi)

The CALYPSO is available **without or with integrated oil free air compressor** using the Energy Saving Technology mode (EST)

# CALYPSO Features

- **PSA technology:** removes any hydrocarbons contaminations (No extra cost added with extra trap hydrocarbons filter). Ensures constant purity over many years (with no drop-in quality in comparison with membrane)
- **Intelligent color touch screen** to provide simple and user friendly management of all functions of the unit
- **Soundproofed compressor box** and anti-vibration features
- **Audible alarm display and Visual maintenance indication** with history log
- **Energy Saving Technology (EST): by programming the start-stop mode via intelligent calendar:** To optimize the real time operation of the generator

**\*Year 2 of Warranty**  
subject to generator being serviced at end of the first year by a F-DGSi approved agent in accordance with fixed annual maintenance schedule.

## CALYPSO Features

- Switch off the compressor when gas supply is not required
- Allowing low energy consumption and increasing durability of the compressor
- **Remote PC monitoring and diagnostic analysis via USB** to interface the unit with customer's PC software (allow to carry out checks and maintenance effectively, only via a remote connection)
- **Heat distribution management** via a special tunnel to avoid overheat of the compressor box with adequate fans above and below the compressors
- **Data events logging over 30 days (service maintenance record, alarm record)**: Can be transferred to a memory card or direct to a PC (Excel) via a Ethernet cable using the SD CARD inside the generator

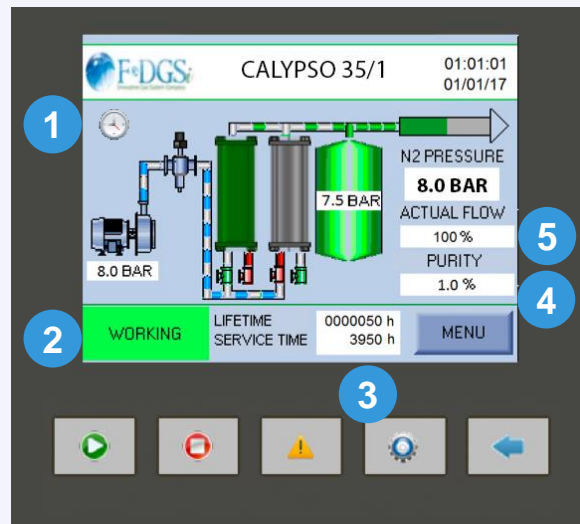
### \*Year 2 of Warranty

subject to generator being serviced at end of the first year by a F-DGSi approved agent in accordance with fixed annual maintenance schedule.



About our product

# Our Software



Home

- 1 Autotimer
- 2 Status
- 3 Service time Remaining
- 4 Oxygen Sensor (Optional)



Auto Timer

- 5 Output Flow (Optional)
- 6 Enable/Disable
- 7 Enter Time
- 8 Enable Periodicity



Alarm

- 9 Alarm Acknowledgement
- 10 Alarm history and history log

After sales service

# F-DGSi Secure



OTF (One-Time Fix)



Saves money



Expert advice



Speedy parts supply



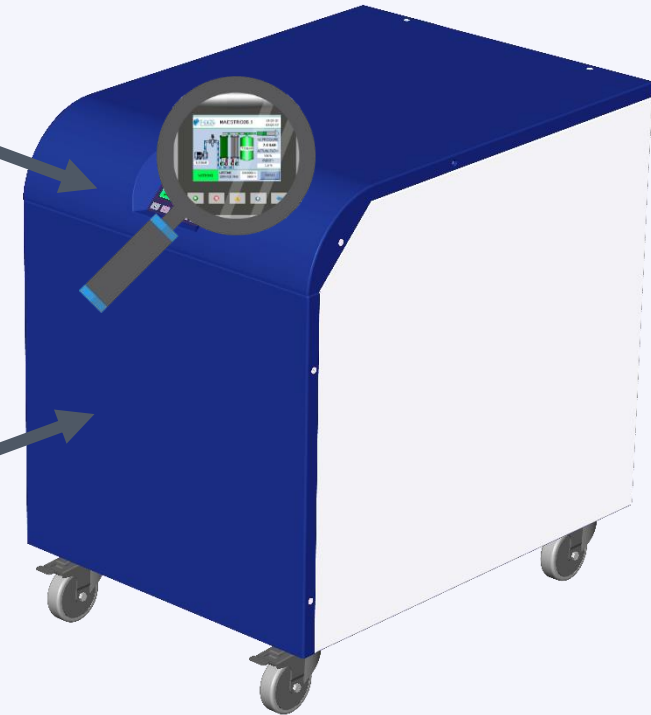
Improves generators life



Speedy analysis without a physical engineer visit



Remotely connected by  
Smartphone or Computer



About our product

# PSA N2 generator serie Calypso for OEM LCMS



## CALYPSO 2G.SH

Shimadzu

Flow: 25 l/min Air & N2  
combined  
Max pressure: 6,9 bar

## CALYPSO 3G.SC

Sciex

Flow: 12 l/min N2 (5,5 bar)  
24l/min Pure Air (7,6 bar)  
8l/min Pure Air (4,2 bar)

## CALYPSO 2G.PE

Perkin Elmer

Flow: 15 l/min N2 (7 bar)  
34l/min Pure Air (7 bar)

## CALYPSO 35/1

Agilent

Flow: 30 l/min N2 (7bar)  
200 ml/min  
N2 (3 bar | purity: 99.999%)

## CALYPSO 35/1

Thermo

Flow: 32 l/min  
Max pressure: 8 bar



About our product

# Membrane Technology – Stream Series Overview

LCMS, Evaporation



## STREAM

Built without air compressor

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Flow: **40 to 120 l/min**  
Max pressure: **7 bar**  
Purity: **98% - 99%**

LCMS for Sciex



## STREAM 3G

Built without air compressor

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Flow **N2**: **12 to 85 l/min @ 4.5 bar**  
Flow **AIR**: **26 to 85 l/min @ 7.6 bar**  
Flow **AIR**: **16 to 60 l/min @ 4.1 bar**

# STREAM Features

- **Wall mounted** installation: save space in the lab
- **No noise:** no mechanical parts moving
- **No need of electricity supply**
- **Low maintenance:** only to replace the filters once per year
- **Gas saving mode:** the unit stops automatically when nitrogen is not required
- **Upgradable:** from 40L to 120L

**\*Year 2 of Warranty**  
subject to generator being serviced at end of the first year by a F-DGSi approved agent in accordance with fixed annual maintenance schedule.

About our product

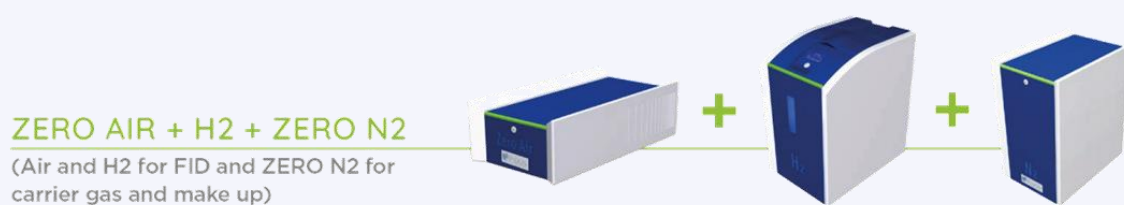
# Gas Generators for GC



- Stackable and modular design
- USB port for the OTF (One time Fix) full Remote Control
- Visible status via LED's

About our product

# Possible Combinations





About our product

# Hydrogen Generator – Benchtop Or Rack design

GC Detector Gas



## MB Series Rack MB series

Hydrogen generator  
with Static dryer

Flow: 110 to 600 cc/min  
Max Pressure: 7 and 11 bar  
Purity: 99.9996%  
O<sub>2</sub> < 1 ppm. H<sub>2</sub>O dewpoint < -30°C

GC-Detector Gas



## MD Series

Hydrogen generator  
With dessicant cartridge

Flow: 110 to 600 cc/min  
Max Pressure: 7 bar  
Purity: 99.9996%  
O<sub>2</sub> < 1 ppm. H<sub>2</sub>O dewpoint < -55°C

GC GC-MS  
Detector Gas  
Carrier Gas



## MF Series / Rack MF Series

Hydrogen generator  
with double column dryer regeneration

Flow: 110 to 1,350 cc/min  
Max Pressure: 11 bar  
Purity: 99.99999%  
O<sub>2</sub> < 0,1 ppm. H<sub>2</sub>O dewpoint < -75°C

# COSMOS Hydrogen Generator Range

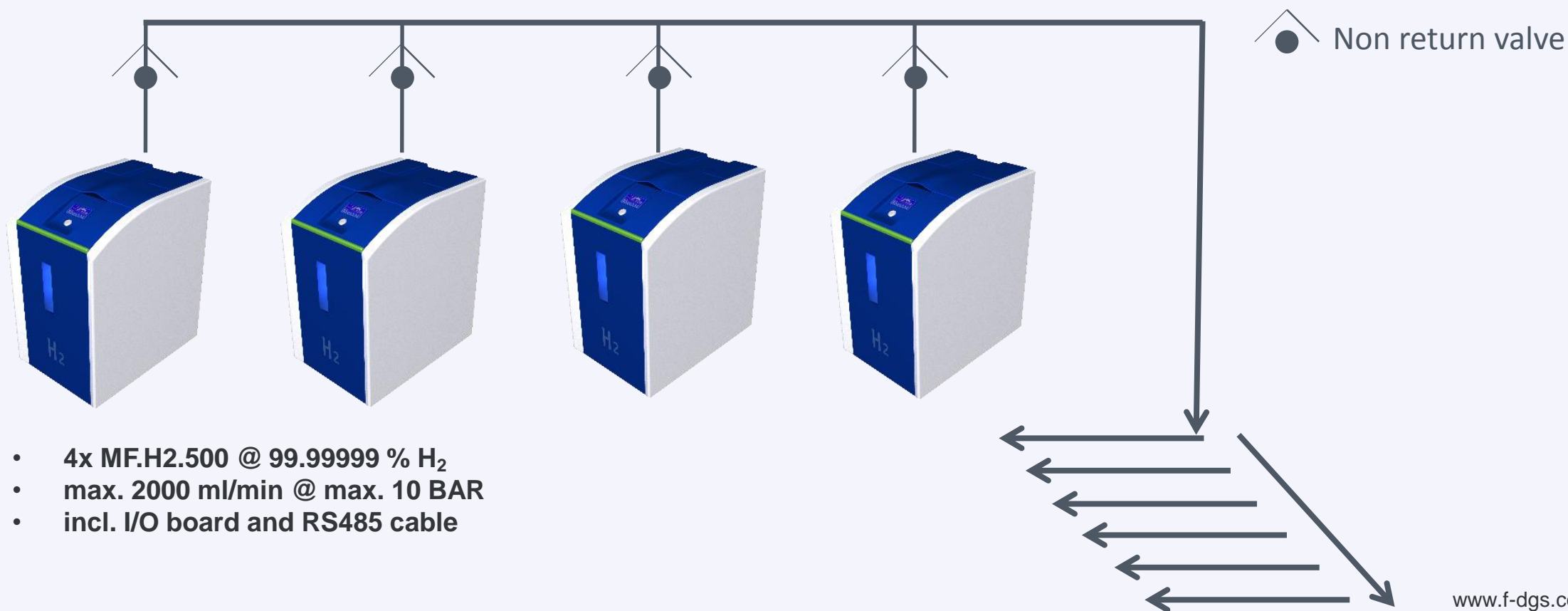
RANGE	Reference	Flow rate	Purity
<b>MB.H2 SERIES:</b> Hydrogen generator compact line with Static dryer	<b>MB.H2.110 to 600</b>	110 to 600 cc/min	<ul style="list-style-type: none"> <li>• 99.9996%</li> <li>• 7-11 BAR</li> <li>• O2 &lt; 1 ppm</li> <li>• H2O dewpoint &lt; -30°C</li> </ul>
<b>MD.H2 SERIES:</b> Hydrogen generator with desiccant cartridge	<b>MD.H2.110 to 600</b>	110 to 600 cc/min	<ul style="list-style-type: none"> <li>• 99.9996%</li> <li>• 7 BAR</li> <li>• O2 &lt; 1 ppm</li> <li>• H2O dewpoint &lt; -55°C</li> </ul>
<b>MF.H2 SERIES:</b> Double column dryer with cold dual automatic regeneration	<b>MF.H2 110 to 1350</b>	110 to 1350 cc/min	<ul style="list-style-type: none"> <li>• 99.99999%</li> <li>• 11 BAR</li> <li>• O2 &lt; 0.1 ppm</li> <li>• H2O dewpoint &lt; -75°C</li> </ul>

# Hydrogen USP's

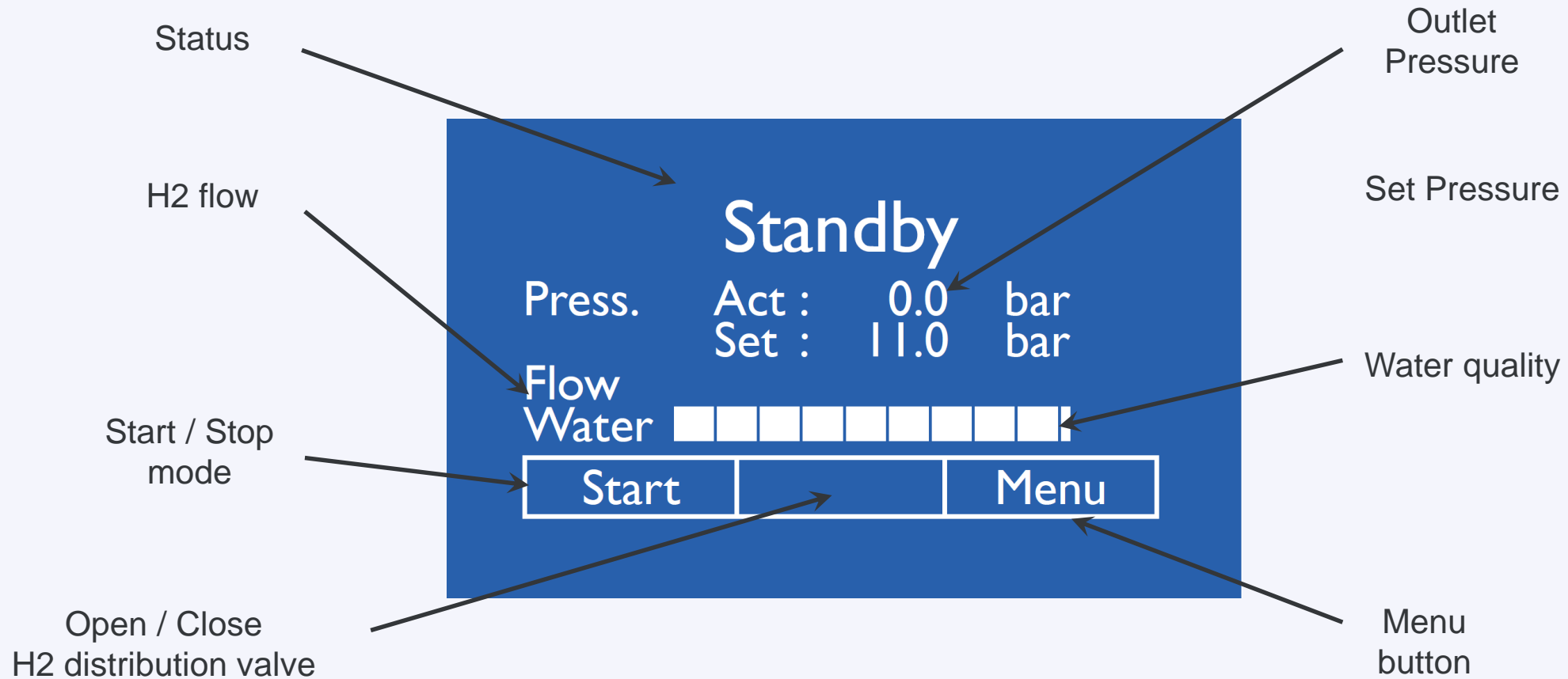
- **Exclusive cold dual regeneration dryer:** removes both moisture plus oxygen and eliminates the need to monitor, change and purchase desiccant cartridges and no heat needed
- **Pressure up to 11 bar (160 psi):** suitable for fast and high-speed GC methods
- **Option : Cold Palladium Catalyst reduces O<sub>2</sub> < 0.01 ppm and moisture < 1 ppm**
- **Exclusive 100% titanium electrolytic cell:** longer life/better gas purity
- **Remote PC monitoring and diagnostic analysis via USB** to interface the unit with customer's PC software (allow to carry out checks and maintenance effectively, only via a remote connection)
- **Display water quality:** allows user to take necessary action should the water quality becomes "bad"
- **Ability to be link in cascading mode:** to supply high flow and automatic back up
- **Cell diagnostic to monitor the cell life time**
- **Stackable with zero air:** save space in the lab

# Cascading Mode

The “**Cascading mode**” is a system that allows you to add up the flow of multiple machines on a single line where each contributes in proportion to their ability. Maximum 10 units.

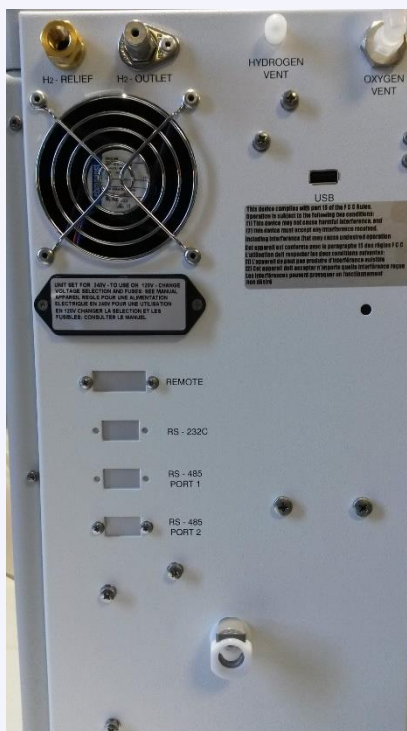


# Touch Screen Display



About our product

# The I/O Board Accessory



- **Allows the generator to communicate with a peripheral**

Multiple free ports allows connection to :

- **To communicate with other H2 generator to create parallel mode**
- **For automatic water refill**

After sales service

# USB port for Remote Control



**OTF (One-Time Fix)**



**Saves money**



**Expert advice**



**Speedy parts supply**



**Improves generators life**



**Speedy analysis without a physical engineer visit**

Remote PC monitoring and diagnostic analysis via USB to interface the unit with customer's PC software (allow to carry out checks and maintenance effectively, only via a remote connection)



About our product

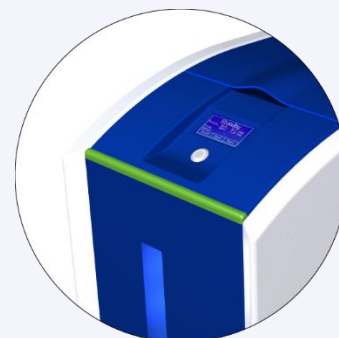
# LED's Indicators Status



**Off**



**Standby**



**Ready**



**Alarm**



About our product

# COSMOS N2/ZN2

## Application

GC-ECD

GC-FPD

GC-NPD

GC-AED

GC-AED

GC-MS

GC-Make up

GC-Carrier Gas

Sample Prep.

DSC

TGA

TOC

## Tube Conditioning



UNIQUE AND INTELLIGENT OPERATOR INTERFACE WITH REMOTE ACCESS

N2 Flow: 0.4 to 1 LPM @99.9995%  
 0.8 to 1.8 LPM @ 99.99%

Max pressure: 5.5 bar

N2 Purity: 99.9995% ( < 5 ppm O2  
 CH4 < 0,05 ppm for Version

ZN2

About our product

# COSMOS ZA

## Application

GC-ECD

GC-FPD

GC-NPD

GC-AED

Gas Sensing

THA



UNIQUE AND INTELLIGENT OPERATOR  
INTERFACE WITH REMOTE ACCESS

ZA Flow:	<b>1 to 30 LPM</b>
Max pressure:	<b>6.5 bar</b>
HC/C0 outlet content :	<b>&lt; 0.05 ppm</b>

About our product

# COSMOS Air Compressor



UNIQUE AND INTELLIGENT OPERATOR  
INTERFACE WITH REMOTE ACCESS

Compressed Air supply for COSMOS Nitrogen  
and Zero Air Generators

Membrane dryer fitted to have clean and dry air

N2 Flow: **26 LPM**

Max pressure: **8 bar**

Air tank capacity: **4 L**

# Why COSMOS Series ? Top Points to Focus on

## Features and benefits

1. Continuous and consistent source of lab grade Nitrogen, Hydrogen and Zero Air for GC
2. Complete gas solution for carrier, make-up, reference, flame support and sample preparation
3. Compact, stackable system maximising the use of valuable floor and bench space
4. Safer and more convenient than Pressurised Cylinders and Liquid Dewar's or Bulk Storage
5. Proven and robust safety systems (Inc. internal leak detection on Hydrogen models)
6. Long term cost stability – Eliminate risk of rising costs e.g. Helium
7. Very low maintenance required
8. LED light status indicator and touch screen panel on H2 models
9. 12 Month warranty across series (2 Year PEM cell warranty on H2 models)
10. Complete peace of mind and lifetime performance with F-DGSi Gold Service support

## About our product

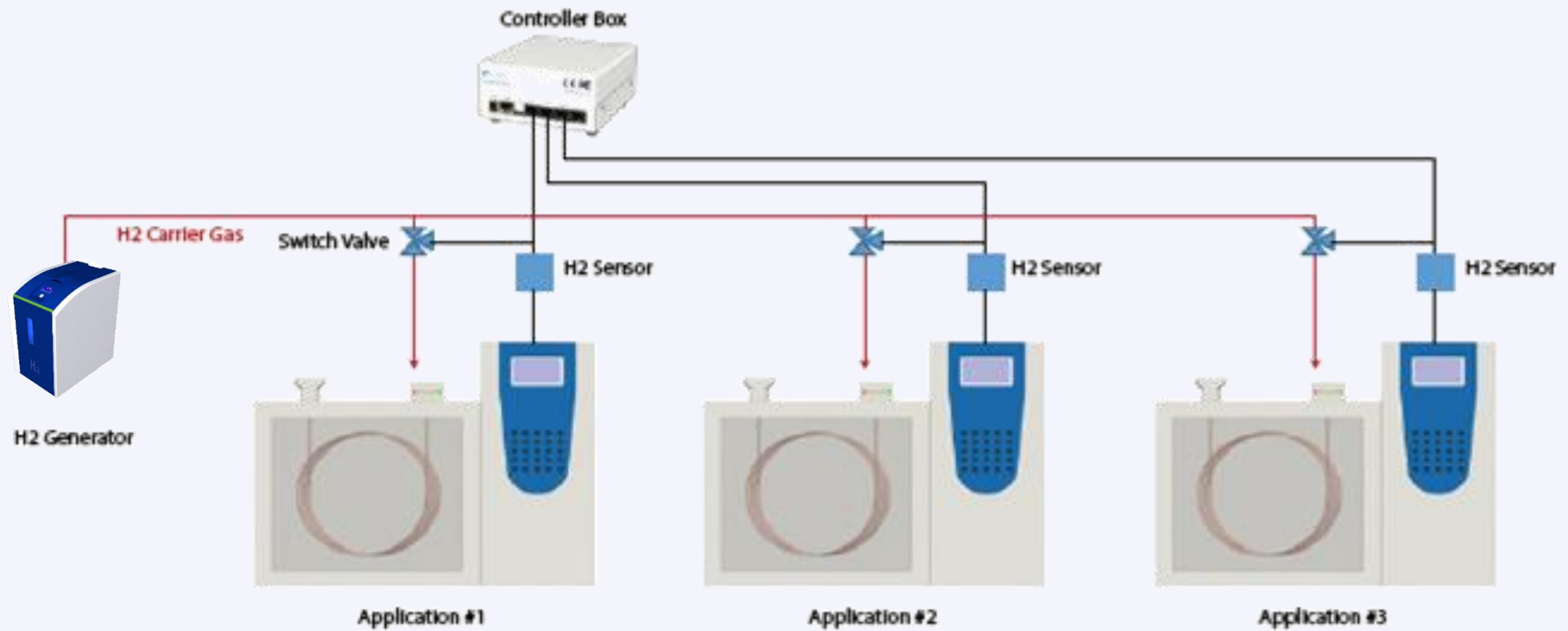
# Hydrogen Sensor

- The sensor can work in a stand alone mode by using an external box and a gas switching valve.
- The sensor is installed in the GC oven for continuous monitoring of H<sub>2</sub> concentrations in the oven air.
- The measured gas concentration is then shown on the LCD screen of the external controller.
- When the hydrogen concentration reaches a user defined level, typically between 1% - 2% by Vol H<sub>2</sub>, the LCD screen starts flashing.
- An audible alarm will be sounded and the carrier gas will be automatically switched to an inert gas



About our product

# Typical Installation with Hydrogen Sensor



# Benefits of Replacing He to H2 Gas Generator

- With a H2 gas generator in your lab you can generate your own hydrogen gas
- Increased sampling speed
- Cost effective, readily-available, environmentally-friendly gas
- Temperature can be controlled and adjusted and lowered accordingly
- The costs involved in using hydrogen are much lower than helium
- Switch from out-dated and awkward gas cylinders to a hydrogen gas generator
- No need to worry about increasing gas prices or a shortage of supply, frequent concerns of helium users
- A hydrogen gas generator means you will also never need to halt your analysis to change a depleted gas cylinder, so interruptions to your analysis will be a thing of the past
- Another distant memory will be the never-ending cycle of ordering, accepting deliveries, moving and storing gas cylinders, leaving you with an overall much more efficient laboratory

# Nitrogen and Air Gas Generators for specific applications



About our product

# AIR GENERATORS

## NDC

### Application

FT-IR GC-FID TOC GC-ATD Laser

Purge Microscope

Flow: 1.5 to 120 LPM  
Max Pressure: 4 and 16 bar



### Patented PSA Technology

- Operation and regeneration fully automatic
- Complete repressurization which means that there is no pressure fluctuation

## NDL

### Application

NMR GC-FID TOC Rheometer

Atomic Absorption

Flow: 70 to 680 LPM  
Max Pressure: 4 and 16 bar



### GUARANTEED PERFORMANCE

- The dryer meets the highest standards of purity and delivers air in accordance with ISO 8573:1 – 2001, Class 2 dirt (1 micron) and Class 2 water (-40°C pressure dewpoint).
- Elimination of external filters and improved design reduces pressure drop through the dryer by 60%\*

About our product

# AIR GENERATORS

## DEIMOS UZA.TOTAL

### Application

GC-FPD GC-FID GC-NPD

Gas Sensing

Flow: 1 to 50 LPM  
Max Pressure: 6 bar

## DEIMOS CO2.FREE

### Application

FT-IR

Flow: 1 to 30 LPM  
Max Pressure: 6 bar

## DEIMOS TOC

### Application

TOC

Flow: 1 to 6 LPM  
Max Pressure: 6 bar

## DEIMOS UZA

### Application

GC-FPD GC-FID GC-NPD

CO2 Analyzer

Flow: 1 to 50 LPM  
Max Pressure: 6 bar

- **Outlet flow indicator**
- **Compact design**
- **Fit with wheels**
- **Energy Saving Technology (EST):** Switch off the compressor when gas supply is not required - Allowing low energy consumption and increasing durability of the compressor



UNIQUE AND INTELLIGENT OPERATOR INTERFACE WITH REMOTE ACCESS

# NITROGEN GENERATORS

## NEZO

### Application

GC ICP TOC

DSC / TGA

N2 Flow: 1 to 5 LPM  
 Max pressure: 6 bar  
 N2 Purity: 99.9995%

- **Oxygen sensor:** Online N2 Purity monitoring capability
- Fully regenerative **PSA technology**
- **Without or with integral oil free air compressor**

## PROSPERO

### Application

GC-Carrier Gas GC-FID GC-NPD

GC-Make up GC-FPD GC-TCD

N2 Flow: 1 to 3 LPM  
 Air Flow: 1.5 to 3 LPM  
 Max pressure: 6 bar  
 N2 Purity: 99.9995%

- **Fast start-up purity < 60 min**
- **Outlet Nitrogen/Air flow indicator**
- **Oxygen sensor:** Online N2 Purity monitoring capability
- Fully regenerative **PSA technology**
- **Without or with integral oil free air compressor**

About our product

# NITROGEN GENERATORS

## TELESTO

### Application

ELSD

CORONA

N2 Flow: 4 to 15 LPM  
Max pressure: 6 bar  
N2 Purity: 99.5%



UNIQUE AND INTELLIGENT OPERATOR  
INTERFACE WITH REMOTE ACCESS



About our product

# NITROGEN GENERATORS

## THEMISTO MP

Application

MP-AES

Flow: **N2 25/15 LPM**  
Air: **36.5 LPM**  
Max Pressure: **6 bar**



UNIQUE AND INTELLIGENT OPERATOR  
INTERFACE WITH REMOTE ACCESS

About our product

# NITROGEN GENERATORS

## ZEPHYR

### Application

- ICP    CIRCULAR EVAPORATION    TURBO VAP
- SAMPLE EVAPORATION    ATOMIC ABSORPTION
- GC-CARRIER GAS

Flow: N2 gas:      10 to 70 L/min  
 Max Press:        4 - 7 bar  
 Purity:             98 - 99.9995%

- Fully regenerative PSA technology
- Built without air compressor
- Option: **O2 Sensor**
- Audible alarm display and Visual maintenance indication with history log
- HMI touch screen technology to display the process in real time, including process variables



UNIQUE AND INTELLIGENT OPERATOR INTERFACE WITH REMOTE ACCESS

About our product

# NITROGEN GENERATORS

## CELENO with or without compressor

### Application

LECO GC x GC TOFMS

For thermo modulation

Flow: N2 gas:	20 L/min
Purity	99,5%
Dew point	-60°C
Pure Air gas:	70 L/min
Max Press:	6 bar



UNIQUE AND INTELLIGENT OPERATOR INTERFACE WITH REMOTE ACCESS

# Liquid Nitrogen Gas Generators



Application

# Liquid Nitrogen Generators

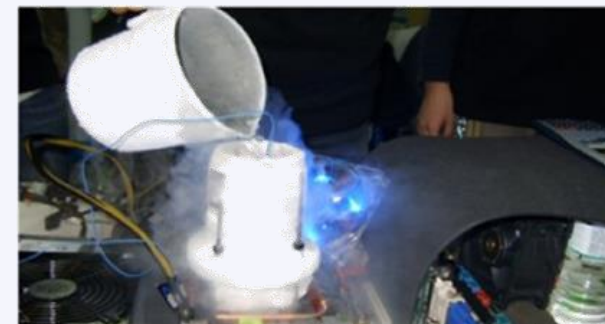
Freezing and transport of food products



Cryopreservation of biological samples



Cooling materials for easier machining or fracturing



Cryotherapy to remove skin abnormalities



Shielding materials from oxygen exposure



Coolant for superconductors, vacuum pumps, and other materials and equipment





- No regular refilling
- No case of irregularity & unavailability
- No dependency on vendor
- No bulk storage required
- No price fluctuation
- No ordering or delivering hassle
- On-site installation in compact space
- User friendly HMI
- Cheaper and consistent cost
- Eliminates sources of contamination
- Reliable & continuous Liquid Nitrogen supply
- Attractive ROI for remote areas

# Liquid Nitrogen Overview

- LN2 are designed to reliably produce liquid nitrogen directly from air
- We use PSA Nitrogen technology. These units produce high purity gaseous Nitrogen from air
- LN2 units are integrated with a Cryorefrigerator to convert gas to Liquid Nitrogen
- F-DGSi supplies the fully integrated Liquid Nitrogen plant and customer only needs to connect power
- MODEL's Available in Liters Per Day: 10 Liters per day to 60 L/day

Produce from **10- 60 liters/day**



Produces Liquid Nitrogen directly from air using **advanced PSA technology**



**In-built storage Dewar**

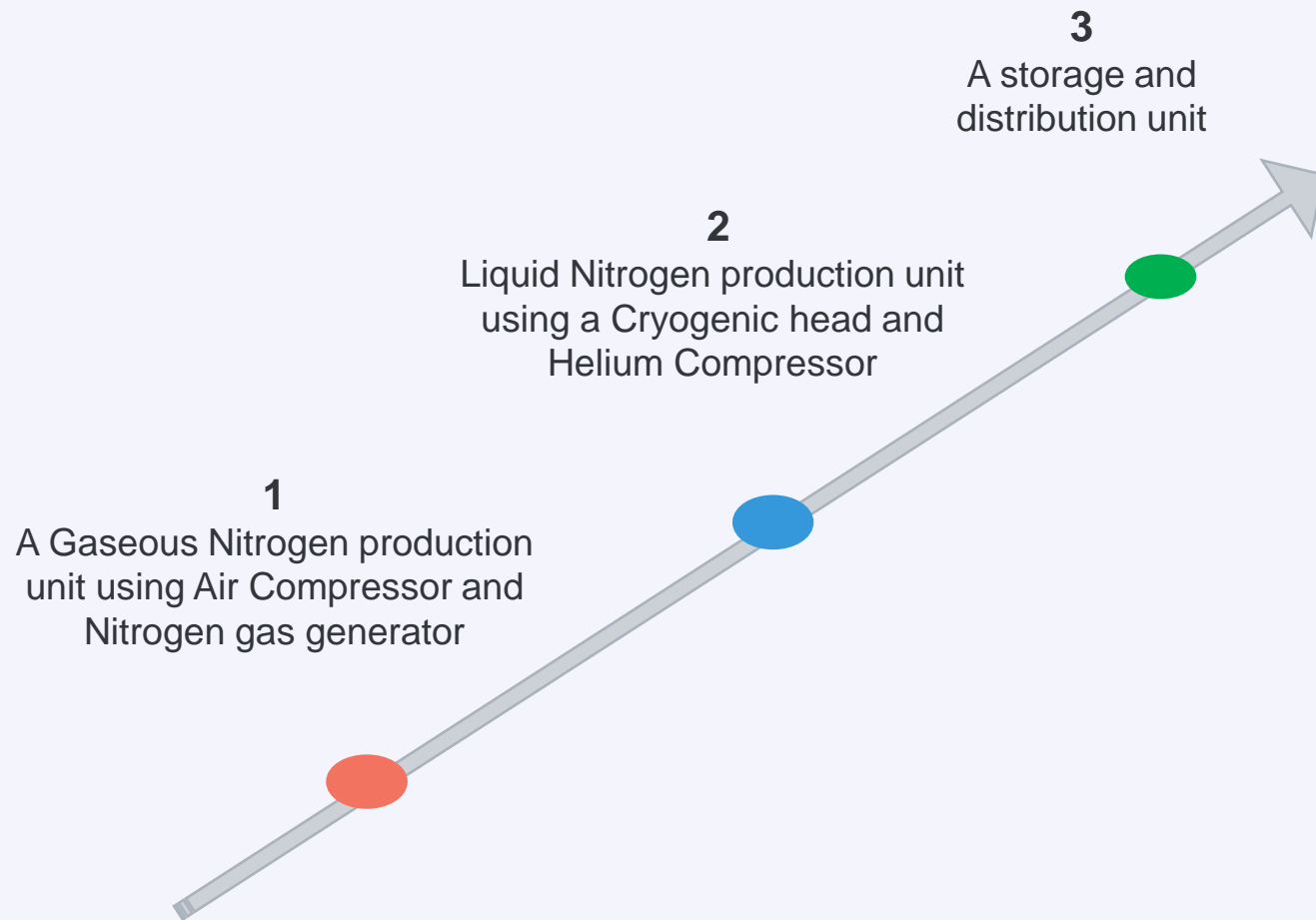


**Pressure and Purity maintained** throughout the production



About our product

# Liquid Nitrogen



**Air Compressor:**

Provides air to the PSA Nitrogen Gas Generator. F-DGSi provides in-built air compressor as part of integrated package.

**PSA Nitrogen Generator:**

It works on the principle of Nitrogen separation from air. We provide PSA (Pressure Swing Adsorption) technologies as per user preference and technical recommendations from R&D team.

**Cryorefrigerator:**

It consists of a Cold head, Helium compressor and a pair of stainless steel flexible helium lines. The cold head is mounted on the top of the Dewar. The cold head extends down into the neck of the Dewar for the purpose of cooling the nitrogen gas entering the Dewar to 77K (-196 C). The Nitrogen gas liquefies on contact with the cold head heat exchanger. The liquefied Nitrogen drips off the heat exchanger down into the Dewar. The water chiller keeps the Helium compressor cooled simultaneously.

**Dewar Assembly:**

It is designed for storage and extraction of LN2. The Dewar is a stainless steel, vacuum jacketed container built for the purpose of storing liquid nitrogen with minimal boil off (losses).

**Level Indicator/Switch:**

The operation of the LNP is automatically controlled by the level indicator/ Switch mounted on the Dewar. The level indicator/switch is preset to turn off the cryorefrigerator when the Dewar is full, and places the LNP in standby mode.

## LN2 RESERVOIR

- The liquid Nitrogen reservoir is a double-casing **STAINLESS STEEL** tank
- A vacuum is made between these two envelopes in order to avoid a transfer of heat or cold.



## THE CRYOGENIC HEAD

To create a rapid compression/relaxation phenomenon in order to cool helium, the cryogenic head allows to cool the gases up to a temperature of 77K (about -200°C) and consists of three parts:

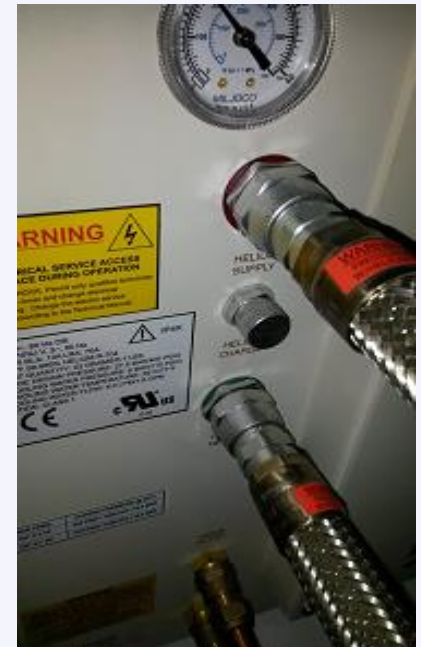
- a fixed part named the body consisting of the body, a buffer volume and the cooling head
- a rotating part consisting of a rotor coupled to a rotary valve in order to select the Working chamber
- a translator part called regenerative.



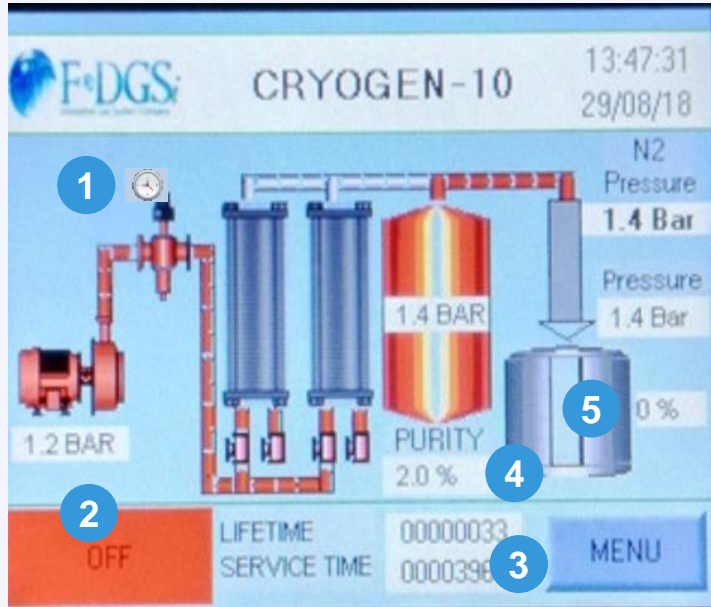
The Helium compressor acts a **Heat Exchanger for the Liquid Nitrogen generator Cold Head**. Basically, to keep the Cold Head cool while the gaseous Nitrogen is passing through it. Helium is the element that actually will convert the N<sub>2</sub> gas to liquid, because Nitrogen will get converted in liquid form at **-197 degree Celsius**.

The Helium pressure can be read continuously using a pressure gauge on the front. In the event of a drop in pressure, leakage or accidental opening of the line, using a specific kit and a bottle of Helium, the gas can be supplemented.

**Helium must be at least 99,999% with a dew point of -50°C**







## Home

- 1 Autotimer
- 2 Status
- 3 Service time Remaining
- 4 Oxygen Sensor (Optional)



## Auto Timer

- 5 Output Flow (Optional)
- 6 Enable/Disable
- 7 Enter Time
- 8 Enable Periodicity



## Alarm

- 9 Alarm Acknowledgement
- 10 Alarm history and history log



- **Intelligent Color touch screen:**  
to provide simple and user friendly management of all functions of the unit
- **Soundproofed compressor box**
- **Anti-vibration** features
- Fully regenerative **PSA technology**
- **Oil-free Air Compressor**
- **Energy Saving Technology (EST):**  
Auto - Switch off the air compressor supply is not required -  
Allowing low energy consumption and increasing durability of the compressor
- Shows LN2 **Dewar Liquid Level**
- Vacuum prevention system on Liquid Dewar
- Built in **O2 analyser** with alarm
- **Audible alarm display** and Visual maintenance indication
- For audits it shows history log
- **Remote PC monitoring** and diagnostic analysis via USB to interface the unit with customer's PC software
- **Wheels for easy mobile installation**

MODELS	CRYOGEN.10	CRYOGEN.20	CRYOGEN.30	CRYOGEN.40	CRYOGEN.60
<b>GENERAL INFORMATION</b>					
Max L/Day	10	20	30	40	60
Max L/Hour	0.42	0.83	1.25	1.70	2.50
Dewar Capacity (L)	35	100		160	210
N2 Gas (L/min)	5.5	11	13	20	33
Cooling Water (L/min @ 27°C)	2.8	4.5	6.0	6.0	7.6
Temperature range	7 - 38°C (45 - 100°F)				
Dimensions (W x H x D)	120 x 180 x 60 cm (47" x 71" x 24")				
Weight (kg/lbs)	150 / 330	200 / 441	300 / 661	320 / 705	350 / 771
Electrical supply	220 - 240 V ac / 1 ph / 50 - 60 Hz 110 - 120 V ac / 1 ph / 50 - 60 Hz				
Power consumption (Kw)	2.2	3.4		5.5	7.5
<b>CONNECTIONS</b>					
Inlet/outlet	G 3/8				
<b>COMMUNICATION</b>					
USB/PC Control	In series				

## **WATER CHILLER Overview:**

Designed to cool the Helium compressor by facilitating a heat exchange water helium oil from the He compressor.

## **WATER CHILLER Function:**

To send cooling water to a constant temperature of 20°C in the helium compressor exchanger in order to cool:

- The oil of the helium compressor necessary for its recompression,
- Helium from the phenomenon of recompression and actuation of the cryogenic head



## **CRYOCAN:**

As required- Please get in touch with us on [info@f-dgs.com](mailto:info@f-dgs.com)



# Summary

About us

## Why Us ?

- User friendly HMI with more than 50 features
- Flexible for Manufacturing
- Customization for special applications
- Largest range of generators in the world
- Remote connectivity using Mobile or Laptop
- OTF: One-Time fix
- Better Design: Bench top & Rack option
- Auto timer for environment friendly
- Turnkey Lab Solutions





**Partnership that keeps the gas flowing**

**Thank You**

**[www.f-dgsi.com](http://www.f-dgsi.com)**

