

LABORATORY LINE

Dr. Laura Michaels
Laboratory Manager



GN INOX
Nitrogen generators



GALILEO
Nitrogen generators



GEMINI
Oxygen generators



ORION P-SERIES
Pure air generators



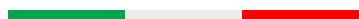
MARS
Hydrogen generators



ORION Z-SERIES
Zero air generators

ON SITE GAS GENERATORS

Designed and manufactured in Italy



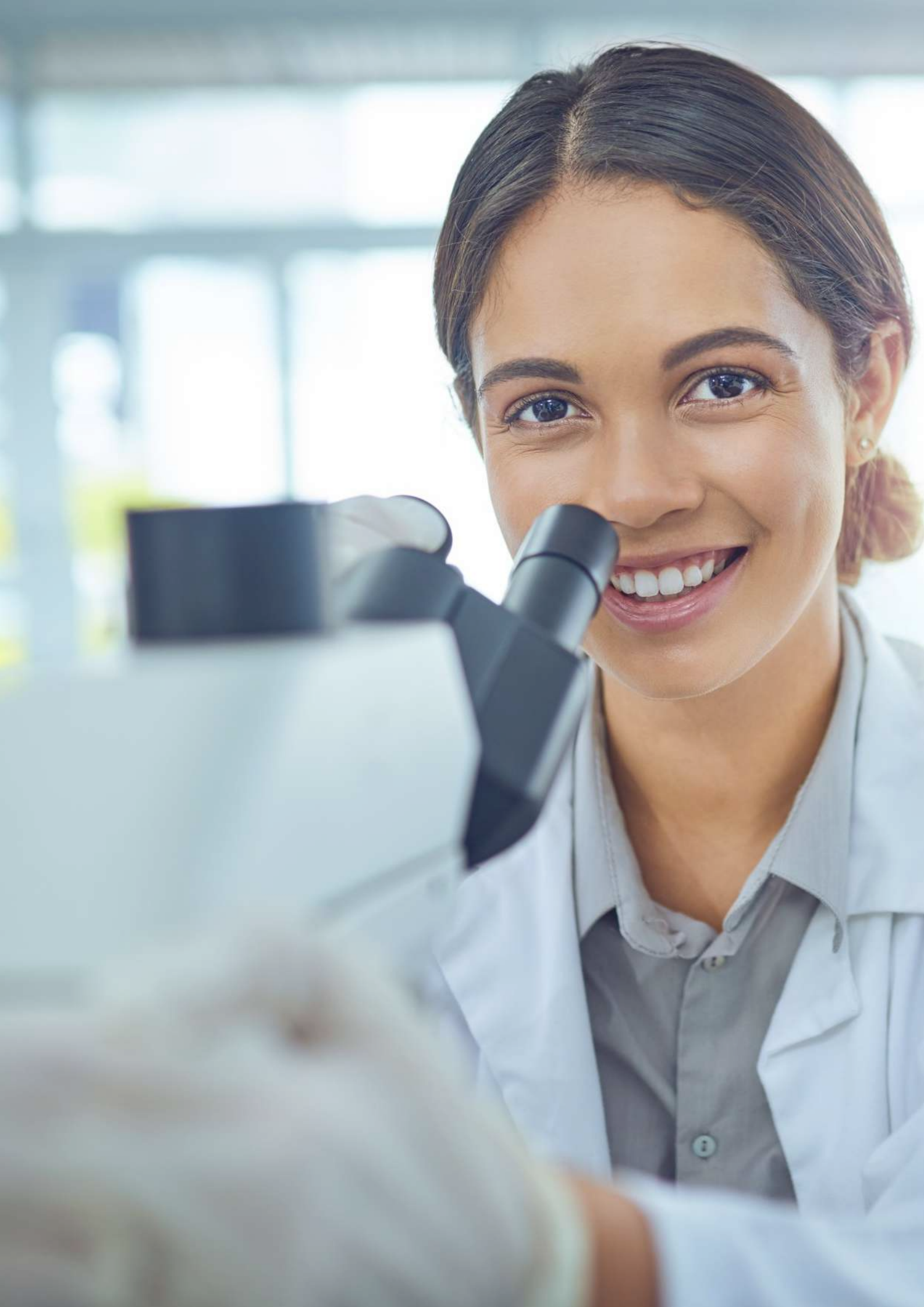
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ErreDue s.p.a.



Specialist in the generation, mixing and purification of technical gases, ErreDue designs and manufactures in Italy systems for the production and the management of gases for every environment, from small laboratories to large companies, with innovative technologies that improve efficiency, safety and quality of processes.

ErreDue is an Italian company born from the union of the skills of a group of experts in engineering of the generation of technical gases.

Thanks to its enormous experience and the expertise of its specialists, ErreDue designs, manufactures and sells gas generators, mixers and purifiers at the top of the technologies available today, with a range of solutions that can cover all levels of need, from those of small laboratories to those of big industries.





Self-production means self-sufficiency

Companies that use technical gases can become self-sufficient and independent from the cylinders; ErreDue allows companies and laboratories to self-produce the necessary gases with reliable solutions and safe technologies that:

- eliminate or reduce the use of cylinders
- simplify logistics
- eliminate the risks deriving from storage and handling of pressurized gas containers
- ensure continuity of work and operator safety.

Reliability, speed and personalization for the business

ErreDue aims for excellence in quality. Each gas treatment system is certified and tested to guarantee maximum reliability over time. Furthermore, ErreDue is able to provide fast and personalized answers and solutions, thanks to:

- a state-of-the-art R&D department
- a complete and structured technical office
- three specialized workshops
- production facilities in Italy

Assistance and continuous training

The great experience gained over the years by ErreDue is available to customers who enjoy the security of a highly efficient after-sales service, with qualified technicians always available:

- by phone, for interventions, advice and immediate assistance
- by e-mail, for sending materials, documents or updates
- by remote assistance, connecting via internet to the generator control panel
- on site, for direct maintenance, repair and restoration.

In addition, ErreDue Gas constantly forms the commercial network and end users of its systems to ensure the best knowledge of products, optimize their use and always guarantee best performance and long-term reliability.





Why should you generate your own gas?

Convenience and security

A laboratory gas generator saves the costs of purchasing, transporting, renting and storing of gas in cylinders, making independent the management of the laboratory. Just do the math to find out how much you can save every year with a generator!

In addition, a generator eliminates the risks of handling pressurized gas cylinders and makes the working environment and the surrounding area safer.

No waste, no downtime

ErreDue generators produce all the gas required by the production cycles and only that, avoiding any waste. In addition, ErreDue generators guarantee the continuity of production processes, their productivity and their efficiency, because they eliminate interruptions and machine stops for cylinder changes, which are no longer needed. What is the total annual cost of all the machine stops required to change the cylinders? ErreDue knows this and that's why it has set up convenient systems, to save money and make production cycles more efficient.

Easy to use, even with an app

The very high technology of ErreDue gas generators makes them easy to use: they work completely automatically and can be easily controlled through the easy and intuitive touchscreen display and the control and management software. In addition, they are completely remotely managed via computer and - first in the world - from smartphones, with an easy and efficient dedicated app!

An absolute and constant purity, always!

The gas produced by the ErreDue generators solves the problem of constancy over time of important parameters such as purity degree, humidity degree and many others. This frees up from the burden of repeated calibrations and allows the laboratory to operate continuously without downtime, with greater precision of analysis and significant savings in time and money. With cylinder gas, on the other hand, there may also be sensitive variations in parameters such as humidity degree or other indicators of purity; this occurs with cylinders of different batches or even with the same cylinder, as it is emptying. Those who choose an ErreDue generator save money and are safe from all this.

Top Reliability and assistance

Each ErreDue system is designed and built in Italy and is individually tested and certified before being delivered to the customer. ErreDue constantly guarantees the maximum reliability of its solutions and provides every customer with a timely technical service, always available for any type of need.



A wide-angle photograph of a modern laboratory. The room features white cabinetry, multiple sinks with chrome faucets, and various scientific equipment. In the background, there are two large white fume hoods with glass fronts. To the right, there are several black office chairs and a long white bench with drawers. The ceiling is white with recessed fluorescent lights and circular ventilation grilles. The floor is a light gray. The overall atmosphere is clean and professional.

CATALOGUE



Ideal in every laboratory for each GC-FID/GC-NPD/GC-TCD carrier gas generation, GC-ELCD/GC-HALL reagent gas and ICP-MS reaction gas, Mars Generators produce very pure hydrogen. The gas produced by Mars generators is suitable for storage in cylinders with metal hydrides for use with fuel cells, which produce electricity from hydrogen.

ErreDue Mars generators use **PEM technology** (Proton Exchange Membrane) to produce **pure hydrogen at the desired pressure**, without the need for external purification or compression systems. They are customizable and ideal to meet the gas needs of every laboratory, thanks to **flow rate from 150 to 1200 mL/minute** and the possibility of **parallel connection**.

Mars generators are **supplied with standard power supply** and **distilled water** and do not require any kind of caustic solution.

Mars generators are equipped with a **touchscreen display** with real-time display of gas flow and output pressure, **self-diagnostics with hydrogen leak detection alarms**, sensor for water level and quality, **connectivity for clean contacts** and **Ethernet connection** (RS485 optional).

MARS N series

Mars N is the hydrogen generator that combines easy of use and performance. Its Nafion hose dryer **requires no maintenance**, guarantees **99.9999% purity** and a maximum pressure of 8 bar. Perfect for feeding GC-FID and other applications where ultra-pure hydrogen is not needed.

MARS D series

Mars D is the hydrogen generator for the most specific needs. Equipped with a self-regenerating dryer of the TSA type, it **guarantees maximum purity (99.9999%)** and can reach a **pressure of use up to 10 bar** (12 bar optional).

Both versions of Mars Generators are available in a rack-mount version with a 5-liter water tank, to guarantee maximum operational versatility.

Technical datasheet - MARS N

		MARS 150N	MARS 250N	MARS 400N
Production capacity	ml/min	150	250	400
Output pressure	bar	0.1-8		
Purity	%	99.9999		
Power supply		110-120V 60Hz / 220-240V 50Hz		
Interface		Color 3.5" touch screen display		
Dimensions	mm	245 x 460 x 500h		
Weight	kg	23	23	23
Comunication		RS 485, Ethernet		
Gas connection		1/8 SWAGelok		

Technical datasheet - Mars D

		MARS 150D	MARS 250D	MARS 400D	MARS 600D	MARS 800D	MARS 1000D	MARS 12000D
Production capacity	ml/min	150	250	400	600	800	1000	1200
Output pressure	bar	0.1-10 (optional 12)						
Purity	%	99.99999						
Power supply		110-120V 60Hz / 220-240V 50Hz						
Interface		Color 3.5" touch screen display						
Dimensions	mm	255 x 460 x 500h						
Weight	kg	25	25	25	26.5	26.5	28	28
Communication		RS 485, Ethernet						
Gas connection		1/8 SWAGELOK						

NITROGEN GENERATORS



Nitrogen produced by ErreDue Galileo generators can be used in **any type of laboratory analysis application**, for example as a carrier in gas chromatography, as a nebulizing gas in LC/MS liquid chromatography, for ICP analysis, for the evaporation of solvents, etc.

Galileo generators use the PSA (Pressure Swing Adsorption) technology, which allows to **generate pure nitrogen** at a pressure already suitable for laboratory applications, eliminating the need for additional equipment.

In addition, they are **powered only by electricity and compressed air**, do not require any type of chemical substance and are available in five models with different flows and different levels of purity, to meet any laboratory need.

Producing exactly the amount of gas required by the equipment connected, they avoid waste and guarantee maximum savings. **Perfectly autonomous**, they are also **modular**: in case of need, it is very easy to increase gas production, simply by adding one or more modules.

ErreDue Galileo generators are also equipped with a **touchscreen display** that allows, by a simple and intuitive parameter management system, to:

- check operating parameters in real time: production percentage, gas flow, pressure, alarms
- on/off scheduling with weekly time intervals

Galileo nitrogen generators can be equipped with a catalytic furnace for the total removal of hydrocarbons, indispensable in applications where the use of nitrogen as carrier gas is required.

Technical datasheet - Galileo

		GALILEO T2	GALILEO T4	GALILEO T6	GALILEO T8	GALILEO T10
Production range	NI/min	15.5 - 1.9	31 - 3.8	46.5 - 5.7	62 - 7.6	77.5 - 9.5
Purity range	%	98-99.999				
Standard output pressure	bar	6-8	6-8	6-8	6-8	6.8
Power supply		110-120V 60Hz / 220-240V 50Hz				
Interface		Color 3.5" touch screen display				
Dimensions	mm	440 x 855 x 760h				
Connection		RS 485, Ethernet				
Gas connection		1/4 GAS input air/output N ₂				



GN INOX

ErreDue GN Inox are **pure nitrogen generators (up to 99.999%)** designed to guarantee a constant flow of gas for all those applications where special attention to hygiene is required in addition to gas quality.

Thanks to the **stainless steel finishing** they can be sanitized with standard procedures and can be perfectly integrated into modified atmosphere packaging machines or sterile environments for drugs handling. Furthermore, the choice of using stainless steel makes them **corrosion resistant** because steel does not release its composition to other materials with which it comes in contact and vice versa.

Equipped with **PSA (Pressure Swing Adsorption) technology**, ErreDue GN Inox generate pure and pressurized nitrogen that is already suitable for laboratory use, eliminating the need for additional equipment.

The nitrogen produced by **GN Inox can be used in any type of application in the analytical laboratory**, for example as a carrier in gas chromatography, as a nebulizing gas in LC/MS liquid chromatography, for ICP analysis, for solvent evaporation etc.

Powered only by electricity and compressed air, ErreDue GN Inox do not require any kind of chemical substance and work complete autonomously, producing only what is required by the equipment connected to the generator; this prevents waste and **guarantees maximum savings**.

Available in four models with different flows and different levels of purity, ErreDue GN Inox can satisfy any need. In addition, they are **modular**: to increase the production of the generator in case of need it will be enough to add one or more modules.

AIR GENERATORS

ErreDue **pure air** generators (Orion P line) and **zero air** generators (Orion Z line) work completely autonomously, generating only the amount of air required by the appliance to which they are connected: thanks to this feature it is easy to **save energy and other operating costs**.

Orion air generators **further reduce the TCO** (operating cost) because they only require annual filter control maintenance.



Z-Series generators produce **zero air**, i.e. **hydrocarbons free**, and in particular methane.

The operation process of Orion Z-Series generators consists in introducing compressed air into a high temperature reactor with a catalyst that burns the hydrocarbons normally present in the air. Purified air is then cooled through a coil to reach the analysis instrument at the right temperature.

Technical datasheet - Orion Z

		ORION Z 01	ORION Z 02	ORION Z 03	ORION Z 04
Flow rate	NI/min	4	8	16	32
Max outlet pressure	bar	9			
Residual methane CH ₄	ppm	<0.1			
Air supply		Compressed air up to 10 bar			
Power supply		230V AC - 50/60 Hz			
Electric consumption	Wh	1100	1100	1800	1800
Dimensions	mm	450 x 230 x 625h			
Weight	kg	10			



P-Series generators are able to produce pure air (i.e. **hydrocarbons free**) and **dried air**, with a **very low dew point** (**-50 ° C**).

The operation of Orion P-Series generators consists in adding a drying process to a zero air generator, by passing the already purified air from the hydrocarbons through a self-regenerating drying tower. Orion P-Series generators are **equipped with a touchscreen display** with real-time display of the gas flow and the output pressure.

Technical datasheet - Orion P

		ORION P 01	ORION P 02	ORION P 03	ORION P 04
Flow rate	NI/min	4	8	16	32
Max output pressure	bar	9			
Residual hydrocarbons concentration HC	ppm	<0.1			
Residual carbon monoxide CO	ppm	<0.5			
Residual carbon dioxide CO ₂	ppm	<0.5			
Outlet air dew point	°C	-50			
Air supply		Compressed air up to 10 bar			
Power supply		230V AC - 50/60 Hz			
Power consumption	Wh	1100	1100	1800	1800
Dimensions	mm	360 x 760 x 590h			
Gas connection		1/4 GAS input/output			

OXYGEN GENERATORS



ErreDue Gemini oxygen generators use the **PSA (Pressure Swing Adsorption) technology** to produce a **continuous flow of pure oxygen (up to 95%)** from simple compressed air, **without the use of chemicals** because they simply work with power supply and a compressed air flow.

Range of products consists of a wide variety of models, with different flow rates and various levels of purity, to respond in the most precise way to **every laboratory need**, but also guarantees **the advantage of modularity**. Oxygen production of each generator can be increased or reduced **according to the needs of the moment** (oxygen can be requested by one or more instruments differently over time). Furthermore, in the event of a steady increase in the demand for gas, it is enough to **add production modules** within the same generator.

The generated oxygen can be used in various types of analyzes such as TOC analysis (determination of total organic carbon), electrochemical and any other application where a constant flow of pure oxygen is required.

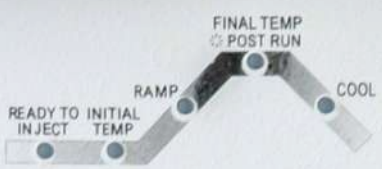
ErreDue Gemini oxygen generators are **equipped with a touchscreen display** with real-time display of the gas flow and the pressure output.

Technical datasheet - Gemini

		GEMINI T2	GEMINI T4	GEMINI T6	GEMINI T8
Production range	NI/min	2.5 - 1.75	5.0 - 3.5	7.5 - 5.25	10 - 7.0
Purity range	%	90 - 95	90 - 95	90 - 95	90 - 95
Standard output pressure	bar	6	6	6	6
Power supply		110-120V 60Hz / 220-240V - 50Hz			
Interface		Color 3.5" touch screen display			
Dimensions	mm	440 x 855 x 760h			
Connection		RS 485, Ethernet			
Gas connection		1/4 GAS input air/output O ₂			

COLUMN 1 (H2)
Pressure 44 44
Flow 0.9
Velocity 34K
ACTUAL SETPOINT

NOT READY
ERROR
STANDBY
PREP RUN



- RUN LOG
- GAS SAVER
- BASELINE COMP
- CLOCK TABLE
- SEQUENCE
- NON-ACTIVE MET / SEQ EDIT

STOP

PREP RUN

START

OVEN LEFT INLET RIGHT INLET LEFT DETECT RIGHT DETECT LEAK CHECK
AUX LEFT CARRIER RIGHT CARRIER LEFT SIGNAL RIGHT SIGNAL COLUMN EVAL
TEMP PRESS TIME RAMP# CONFIG
ON YES CLEAR ENTER
7 8 9
4 5 6
2 3
-



for more information

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