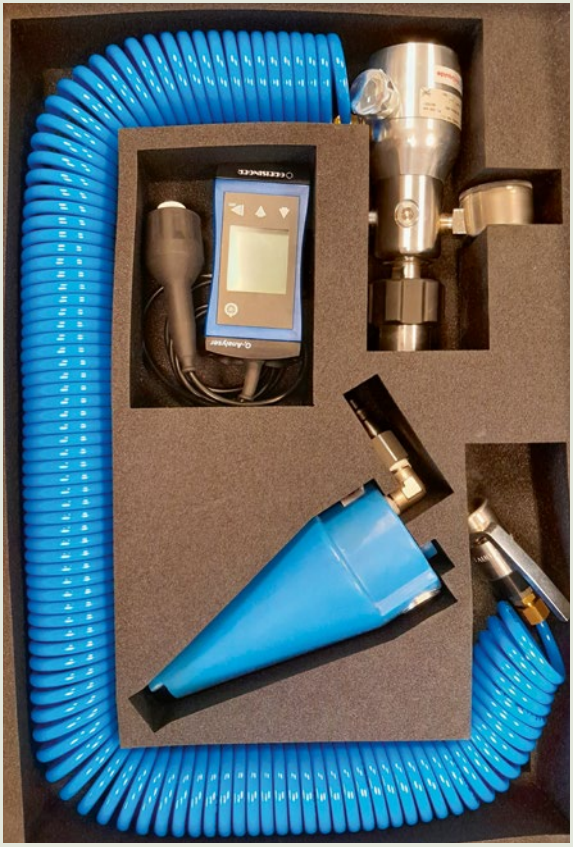
Air Liquide

Quick Inert Polymere inerting set for small container

Operating manual



OP 904

Content

Warning

To preserve the quality of our product throughout its usage in the best safety conditions, please read this manual carefully and strictly follow the instructions that it contains. Non compliane with these instructions or modification of the product many results in serious accidents or bodily injuries.
Air Liquide shall not be held responsible in case of non approved usage of the product.
Air Liquide reserves the right to make all necessary modifications to the specifications described hereafter without notice.

1. Preliminary notes

According to the legislator, the operator is responsible for the safety and health of his employees. He must also provide employees with the necessary work equipment to prevent hazards from arising. In addition, must regularly monitor and document the safety-related systems document this.

This operating manual is intended to help that a small part of these requirements can be met.

Our pressure control panels comply with the actual rules of regulation and are design according to the state of the art.

1.1 AIR LIQUIDE Commitments

1.1.1 Conformity

AIR LIQUIDE certifies that the equipment is manufactured, tested and controlled, in accordance with state of the art and AIR LIQUIDE rules.
It is the responsibility of the end user to ensure that such equipment is installed and used in accordance with the current regulations.

1.1.2 PED Directive 2014/68/EC: Pressurized equipment

Technical requirements of Article 4 §3 indicates that Pressure equipment and assemblies below or equal to the limits set out in points (a), (b) and (c) of paragraph 1 and in paragraph 2 respectively shall be designed and manufactured in accordance with the sound engineering practice of a Member State in order to ensure safe use.

Without prejudice to other applicable Union harmonisation legislation providing for its affixing, such equipment or assemblies shall not bear the CE marking referred to in Article 18.
By design, these equipment may integrate pressure relief valves or burst disks. In this case, those ones shall neither be CE marked according to paragraph 2 of annex II.
In all other cases, pressure relief valves and burst disks shall be CE marked.

1.1.3 ATEX Directive 2014/34/EC

The equipment is not in the scope defined in points a), b) et c) of the article of the ATEX Directive: consequently, they shall not wear the CE marking.

The equipment is not capable of causing an explosion through their own potential sources of ignition: then, they can be installed in ATEX zone 1 or 2, as far as respecting up to date regulations, rules, operating instructions, in accordance with the sound engineering practice are followed during installation and use.

Reminder: it belongs to the end user to define the ATEX zone.

1.1.4 REACH regulation (EC) n°1907/2006

The pressure reducers are made of brass parts, essentially the body, which is a copper alloy with a lead content between 1 % and 4 % w/w.
As requested by art. 33 of REACH Regulation (Registration, Evaluation and Authorisation of Chemicals) and with reference to current list of SVHC (substances of very high concern) available on ECHA website, we inform that lead may be present in a concentration above 0,1 % w/w in our products made of brass.
Lead inclusion in the SVHC list in June 2018 does not modify the use conditions described in operating instructions.
Lead will not be released to the surrounding environment or the gas used during normal use.
After product end of life, the pressure reducers must be scrapped by an authorized metal recycler.

1.1.5 FOOD regulation (EC) n°1935/2004

The AL equipment enhancing the term “FOOD” in their designation are specifically designed for use with food gases used for food and beverage applications. They are compliant with Regulation EC 1935/2004 which requires that packaging and articles intended to be in contact with foodstuffs are to be manufactured in compliance with good manufacturing practices and standard operating procedures.
Thus, under normal or foreseeable conditions of use, no transfer of contaminants, eg, metal elements, to food in quantities that could endanger human health, modify food composition or deteriorate organoleptic characteristics is expected.
Nevertheless, the end-user must check the compliance with an eventual national regulation.
Articles for food usage has a Food logo marking.
For traceability purposes, the batch number is written on each article and AL can perform a batch recall, as requested by its Quality management system.

1.2 Cleaning

Each equipment is subject to a grease removal and a high quality cleaning to preserve the purity of gas in the equipment as well as for use with oxygen for compatible equipment.
A suitable packaging protects the equipment against exterior pollutants during storage and transport.
Take care to avoid polluting the equipment during installation.

1.3 Warranty

Our “General Terms and Conditions of Sale and Terms of Delivery” apply. These are available to the operator at the latest upon conclusion of the contract. Warranty and liability claims for personal injury and property damage are excluded if they are attributable to one or more of the following causes:

- Improper use of the equipment.
- Improper installation, commissioning, operation and maintenance of the pressure and maintenance of the equipment.
- Operation of the pressure equipment with defective safety devices or improperly installed or or non-functioning safety and protective devices.
- Failure to observe the instructions in the operating manual regarding transport, storage, assembly, commissioning, operation, maintenance and set-up of the pressure equipment.
- Unauthorized structural modifications to the pressure equipment.
- Unauthorized alteration of the cylinder connections for the use of other types of gas, exceeding the permissible inlet pressure permissible inlet pressures, the use of foreign or non-original seals.
- Inadequate monitoring of equipment, screwed connections and sealing parts that are subject to wear.
- Improperly performed repairs.
- Exceeding or falling below the temperature range specified in the data sheet during operation or during storage.
- Catastrophic events due to the effects of foreign bodies and higher force majeure.

The warranty period of this equipment supplied by AIR LIQUIDE is one year, including spare parts and repair, excluding postage and packing costs. Excluded from the warranty are gaskets, these parts are subject to natural wear.

For further information please refer to the General Terms and Conditions of AIR LIQUIDE.

2. General Informations

2.1 Safety

First of all, it is essential to read and follow the instructions described in the documents attached with the equipment.

Other technical files available:
- DYNAREG Food Air Liquide: User manual OP111
- Analyzer G1690: Quickstart manual

Never use the equipment supplied for an application or a gas, other than that for which they are intended.

Before fitting flexible, to avoid any risk of falling, make sure that:
- The gas cylinders are fixed, on a flat floor.
- Located in a ventilated location (protection against anoxia risks).

Never disconnect the flexible hose if:
- The cylinder valve is open.
- The flexible hose is under pressure.

Never tighten or loosen a fitting under pressure. Always close or open valves slowly.

We therefore decline all responsibility in the event of damage caused by a failure to comply with the information provided in this manual and by anything not referred to in it.

2.2 Anoxia

The use of inert gases such as nitrogen or argon requires precautions for use. An excess of gas in the ambient atmosphere of a closed room decreases the oxygen content and creates a risk of suffocation for operators.The oxygen content for a breathable air must remain between 19 and 21 %

It is therefore recommended to use equipment using inert gases in ventilated rooms (air renewal). The installation of a fixed O_2 ambient detection or a portable ambient O_2 detector is strongly recommended for the protection of operators.

3. Characteristics and using rules

3.1 Use of equipments supplied

The DYNAREG

To connect the hose to the DYNAREG, it is necessary to remove the original outlet fitting.

- Connected to the gas cylinder, the DYNAREG allows the gas stored under 200 bar to be released to a relative pressure of 3 bar.
- The flow rate can be adjusted from 1.5 to 100 l/min
- Before disconnecting the DYNAREG from the gas cylinder, be sure that the cylinder valve is closed and depressurize the flexible hose with the injection trigger.

Flexible hose and injection trigger:

- Once connected to the outlet of the DYNAREG (connection ⅛" M), the flexible hose allows the transfer of the gas to the Quick Inert via the injection trigger (connection ¼" M).

Oxygen Analyzer:

- Screwed on the Quick Inert, the O_2 cell (Connection M 16 x 100), allows the measurement of the O_2 content in the container during the gas injection. This O_2 cell is connected to the display unit (G1690) by an electrical cable.
- The display unit (G1690) is powered by 3 Alkalines batteries, It allows the display of the residual O_2 content in the headspace of the container. It allows, as well, the calibration of the O_2 cell when a drift of the O_2 content is observed under air measurement.

The Quick Inert cap:

- The Quick Inert allows injecting an inert gas into the headspace of a container. Its conical shape allows it to adapt to various neck diameters (from 20 to 70 mm).
- Gas injection is done through an orifice located at the end of the cone (diameter 4 mm), the internal atmosphere is purged and evacuated through the interior of the Quick inert, passing in front of the O_2 cell, for the measurement of the residual O_2 content. The gas flow rate must be adapted to the volume of the head space, to avoid projection of liquid product during injection.
- To avoid any projections it is also necessary to ensure that the extremity of the cone doesn't touch the liquid product.

3.2 Gases Specifications

According to the application (Food, Pharma ...)
Nitrogen: ALPHAGAZ / ALIGAL / Industrial
Argon: ALPHAGAZ / ALIGAL / Industrial
Range of operating temperature: 0 °C to +40 °C
Maximum using pressure: 3 relative bar
Gas flow rate: 1.5 to 100 l/min

3.3 Compatibility / Using area

All equipment supplied are planned to be used with the gases and in the conditions noted in the previous paragraph.

The Quick Inert is in no case intended to pressurize a container. It is strictly forbidden to lock the Quick Inert on the container, obstruct the vent hole and use this equipment with a pressure higher than 3 bar.

The Quick Inert must be handled manually and without fixing it on the container.

The Quick Inert is intended to inert liquid products, not flammable, for any other uses a specific analysis must be performed, in this case contact Air Liquide.

To avoid crossing pollution between two inerting of different products, we recommend to clean the conical cap of the Quick Inert with water and soap after each inerting operation. Never use corrosive or aggressive products to clean the polymer conical cap.

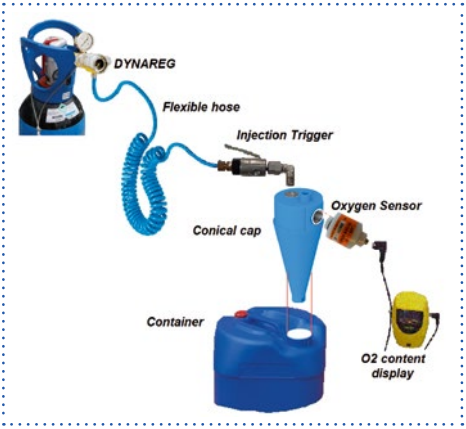
The Quick Inert is not suitable for the safety inerting of flammable products that can generate ATEX area.

4. Assembly - Implementation

4.1 Assembly

Before the connection to the gas cylinder, it is necessary to assemble all the equipments as in the following description.

- Connect the flexible hose and the trigger on the conical cap (Connection ¼" M).
- Screw the O_2 cell on the conical cap (Connection M 16x100).
- Do not over tighten, just put the O_2 Cell O-ring in contact with the conical cap. Too much tightening can damage the thread of the O_2 cell.
- Connect the O_2 cell to the display unit with the electrical cable.
- Put the 2 batteries in the display unit (Alkaline batteries AA).



4.2 Commissioning

- Before connecting the DYNAREG to the gas cylinder, make sure that the gas cylinder is properly secured with no falling risks, use a bottle trolley or a fixing rack.
- Connect the DYNAREG to the gas cylinder, never use tools to screw the DYNAREG - Do it manually.
- Before opening the gas cylinder, make sure that the DYNAREG flow is closed and all the Quick Inert equipment are correctly connected.
- Open slowly the valve of the gas cylinder, the pressure indicator on the DYNAREG shows the pressure in the gas cylinder.
- Open slowly the Flow of the DYNAREG, with a low flow of gas. To adjust a low flow of gas pull the trigger.
- Purge the flexible hose with brief actions on the injection trigger. (before putting the conical cap on the container)
- Before inerting operation, put the oxygen display unit ON, the indicator should display an oxygen content close to 21 %, (20.9 % under air).
- If this value is wrong, proceed to a calibration of the O_2 cell. To do the calibration follow instructions in the "G1690 Quickstart" manual.
- If after a calibration the value is still wrong, the O_2 cell is defective and must be changed . (See spare parts chap. 4-2)
- When the O_2 analyzer is OK, place the conical cap on the container.
- Make the gas injection with the trigger and adjust the flow according to the volume of the headspace. (small headspace = low flow of gas).
- For an extended shutdown of the Quick Inert use, always close the valve of the gas cylinder.

5. Maintenance

5.1 Faults

Equipment	Faults	Actions
Oxygen Analyzer	Analyzer displays incorrect value or no longer calibrates After a calibration the O_2 content must be between 20 and 21 %.	Change the O_2 cell Each new O_2 cell must be calibrated before use
	The analyzer does not turn on	Change batteries 2 Alkaline batteries AA ou LR6
DYNAREG	See technical file of DYNAREG	

5.2 Maintenance

Quick Inert "Conical cap": cleaning with soap and water do not use any corrosive products.
Material: Polymère UPX8400 from AXSON Technologie.

O_2 cell: the O_2 cell is a consumable whose lifespan could vary from 12 to 18 months, depending on the conditions of use. It must be stored in a dry place at ambient temperature.

The Display unit G1690: is powered by 2 alkaline batteries (Type LR6 or AA).
A charge indicator is visible on the screen of this equipment.

Flexible hose: this equipment needs a periodical visual control, according to the using conditions : (number of cycles of use, environment storage ...) and it must be changed in case of premature deterioration. The service life of this flexible hose should never exceed 5 years.

Pressure regulator DYNAREG: The service life of this DYNAREG depends on its condition of use, we recommend changing this equipment after 5 years use.

5.3 Spare parts – Consumables

Consumables		
O_2 cell Type I17	Ref SAP	202822
Analyzer batteries	Alkalines	LR6 or AA

5.4 Disposal and recycling

At the end of the equipment's useful life or when it is impossible to repair it, it is essential to respect the local regulations for recycling / disposal of our equipment. To prevent reuse, these products must be unsuitable for use.
In accordance with EU Directive 2018/851 on waste, the owner of the equipment ensures that when recovery is not carried out in accordance with article 10, the waste will be subjected to safe disposal operations that comply with the provisions of article 13 on the protection of human health and the environment.
The licensee must take steps to promote high quality recycling and, to this end, must establish separate waste collections when technically, environmentally and economically feasible and adequate to meet the quality standards required by the relevant recycling sectors.

The O_2 cell must be treated as waste like the alkaline batteries provided with the O_2 analyzer (G1690).

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