

Carboflash

User Manual



Content

Page

1	General Information	3
1.1	Safety	3
2	Guidelines	3
2.1	Conformity	3
2.2	PED Directive 2014/68/EC:Pressurized equipment	3
2.3	ATEX Directive 2014/34/EC	3
2.4	REACH regulation (EC) n°1907/2006	3
2.5	FOOD regulation (EC) n°1935/2004	3
2.6	Cleaning	4
2.7	Testing	4
2.8	Warranty	4
3	Assembly - Activation	4
3.1	Precautions before assembly	4
3.2	Assembly	4
3.3	Use	4
3.4	After use	4
4	Marking	5
4.1	Indications on the flexible hose	5
5	Operation and maintenance	5
5.1	Troubleshooting	5
5.2	Maintenance	5
5.3	Disposal and recycling	5

1 General Information

1.1 Safety

First of all, it is ESSENTIAL to read and respect the safety instructions described in the document "General Safety Instructions" delivered with the product.



The carbon dioxide (CO₂) for this application does not contain any oxygen, as a consequence it does not keep up life. It is toxic in high concentrations.

Take some precautions:

- Attach the adhesive label on the container near the access doors,
- perform the treatments in a well-ventilated place,
- do not lean over a tank underway a treatment,
- before entering the tank, ventilate and verify that the CO₂ content is less than 0.5 % with an appropriate detector.
- scrupulously respect the recommendations given on the Material Safety Data Sheet (MSDS). The produced carbon dioxide snow is at the temperature of -78°C; contact with skin may cause burning. Use protective gloves and glasses.



NEVER use CARBOFLASH for an application or a gas other than that for which it is intended.

Before mounting the CARBOFLASH, and to avoid any risk of falling, ensure that:

- Cylinders are well-attached or fixed in a dedicated trolley.
- The location of the cylinders is sufficiently well ventilated,

NEVER dismantle a flexible hose if:

- The cylinder or bundle valve is not closed,
- The flexible hose is under pressure,

NEVER tighten a connection under pressure.

Never attempt to repair a flexible hose. In case of problem, close the cylinder valve fully, purge the flexible hose and proceed to replace with a new flexible hose.

2 Guidelines

2.1 Conformity

AIR LIQUIDE certifies that these equipment are in conformity with the technical specifications of AIR LIQUIDE, which have been manufactured, tested and inspected accordingly. Please observe the relevant national and international laws, regulations, directives, standards, technical rules as well as the regulations and bulletins of employers liability insurance association.

2.2 PED Directive 2014/68/EC: Pressurized equipment

The AIR LIQUIDE equipment with a nominal diameter < 25 mm (e. g. pressure regulators, valves, filters, etc.) meet the requirements of Article 4, Paragraph 3 of the Directive 2014/68/EU and the provisions of the article. Therefore these devices do not bear a CE marking according to Article 18 of this Directive.

2.3 ATEX Directive 2014/34/EC

The cylinder pressure regulators are not in the scope defined in points a), b) et c) of the article of the ATEX Directive ; consequently, they shall not bear the CE marking.

The regulators are not capable of causing an explosion through their own potential sources of ignition: thus, they can be installed in ATEX zone 1 or 2, provided that up to date regulations, rules and operating instructions are observed accordingly during installation and operation. Reminder: it is the responsibility of the end user to define the ATEX zone.

2.4 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 % in our products made of brass.

2.5 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.

3 Assembly - Activation

Nethertheless, 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.

2.6 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.

2.7 Testing

Prior to packing, each device is checked for function and for tightness.

2.8 Warranty

The warranty period for equipment supplied by AIR LIQUIDE is one year, covering faulty material or workmanship during manufacture.

The warranty does not cover packing and return transport costs. Excluded from warranty: seals and bursting discs. These components are subjected to a natural wear. Warranty is not valid on deterioration resulting from incorrect or improper use, use of spare parts which are not marked AIR LIQUIDE or from the none respect of this operating instruction. For more information, refer to the general sales conditions of AIR LIQUIDE.

3.1 Precautions before assembly

After opening the packaging, check that the equipment is not damaged and that the contents correspond to the accompanying delivery notes. It is essential to read and respect the Safety Instructions.

Flexible hoses are sensitive to various mechanical constraints, before commencement of use the following recommendations of AIR LIQUIDE, should be followed:

- Avoid twisting,
- Avoid tension and compression stress.
- Ensure the assembly of the flexible hose is such that it's curvature on the bend is higher than the allowed minimum: $R > 150 \text{ mm}$ for DN6.

3.2 Assembly

The CARBOFLASH is directly connected to the CO₂ cylinder valve (fitted with a dip tube).

Check the tightness of the assembly (upstream circuit closed). The tightness of each flexible hose, being controlled in factory, it remains nevertheless necessary to check the tightness of connections.

On the flexible hose label, indicate the expiry date. Permanently mark the corresponding Month & Year. Slowly open the cylinder valve. The equipment is ready to operate.

3.3 Use

Slowly open the cylinder valve. The CO₂ pressure flows through the whole hose. You just have to press the CARBOFLASH handle to get carbon dioxide snow at the „nozzle“ output.

Example of treatment time: To protect an atmosphere of 15 hl (Residual oxygen smaller than 5 %), 30 seconds of injection are necessary. The pressure of the liquid CO₂ trapped in the hose, can become very high (in particular, if the heat increases). A burst disk, mounted on the hose, is used to depressurize the hose in total safe conditions for the operator.

3.4 After use

Close the cylinder valve. Push on the CARBOFLASH handle to depressurize the equipment.

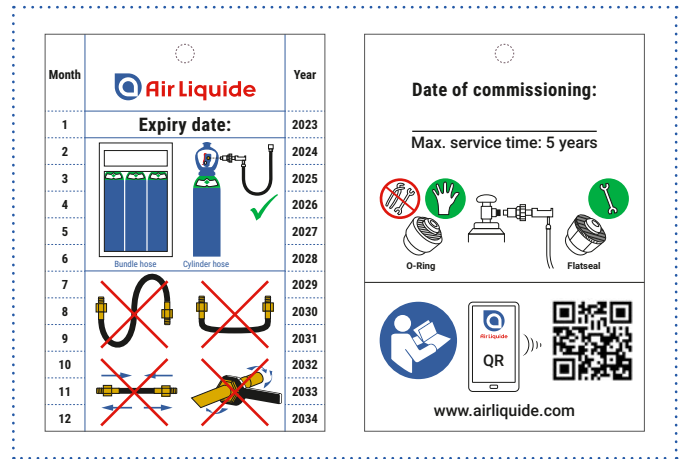
Dismantle the flexible hose and store it safely from dust and moisture.

4 Marking

4.1 Indications on the flexible hose

Every flexible hose carries following marking:

- ISO 10380.
- Flexible hose type (example: T2 10a).
- Manufacturer Identification.
- Tube material.
- Date of manufacture (month / year).
- Nominal Pressure in Mpa and, between brackets, in bar.
- Reference n° for the traceability of the product and link with the compliance test certificate.



5 Operation and maintenance

5.1 Troubleshooting

Fault	Cause	Remedy
Mounting impossible	Damaged connection	Verify the compatibility of gas, the inlet and the outlet.
Gas leak	Tightening failure	Close the cylinder valve and change the seals.
	Bursting disc opened	Change the bursting disc.

5.2 Maintenance

The maximum lifetime of CARBOFLASH is 5 years from the date of commissioning. However the date of replacement of the flexible hose is determined by AIR LIQUIDE according to the conditions of use and the implemented gas.

This date is clearly pointed out on the label fixed to the safety cable.

- Verify the state of the protection sleeve
- Verify the state of the connection threads
- Control the corrosion level of the various components.
- Change seals each time you change cylinders.

5.3 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.



Contact

Air Liquide Deutschland GmbH

Fütingsweg 34
47805 Krefeld
Tel: +49 (0) 2151 379 - 4555
equipment@airliquide.com
www.airliquide.de

Air Liquide Austria GmbH

Sendnergasse 30
2320 Schwechat
Tel: +43 810 242427
technik.at@airliquide.com
www.airliquide.at

Carbagas AG

Hofgut
3073 Gümligen
Tel: +41 31 95 05050
info@carbagas.ch
www.carbagas.ch

www.airliquide.de



A world leader in gases, technologies and services for Industry and Health, Air Liquide is present in 75 countries with approximately 66,400 employees and serves more than 3.8 million customers and patients.