GT
2 - 3 - 7 - 9 - 11 - 14 - 18
21 - 26 - 35 - 38 - 40

USER
&
MAINTENANCE GUIDE

AIR LIQUIDE - DMC

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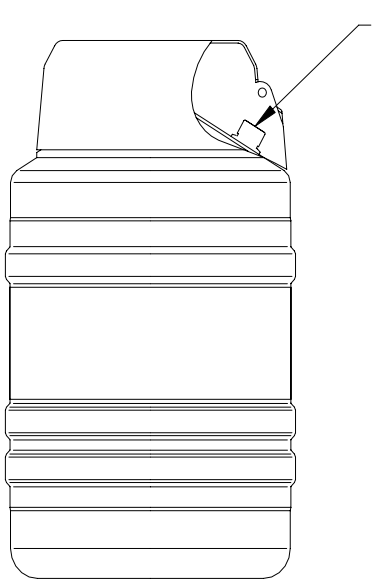
AIR LIQUIDE reserves the right to modify the characteristics given in this document without notice.

Only personnel who have read this guide in full and the safety instructions in document NH78380 are authorised to manipulate and use the apparatuses described in this document.

Like all equipment, your device may suffer an electrical or electronic fault. The manufacturer cannot be held liable for stored products of any nature and which might be lost as a result of this fault, even during the warranty period.

1 GENERAL



GT 3-7-9-11-14-
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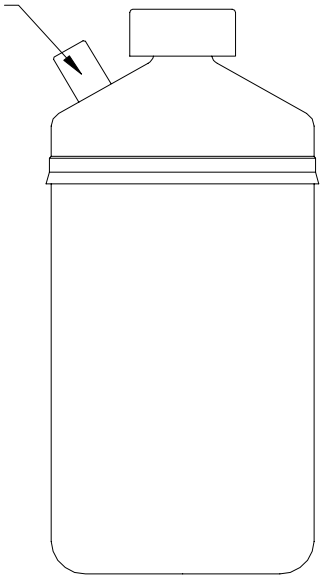


GT 2-40

1.1 THE APPARATUS

Depending on accessories used with them, GT 2 – 3 – 7 – 9 – 11 – 14 – 18 – 21 – 26 – 35 – 38 – 40 units are used to store, transport and keep previously frozen biological elements in the liquid phase at very low temperature.

The apparatus must be used exclusively for storage in liquid nitrogen. No other gas shall be used

Note the following properties:

- ✓ Various storage system adapted to ampoules, straws, pouches, etc
- ✓ Long endurance
- ✓ High capacity

1.2 THE PERSONNEL

Only persons who have read this guide in full and the safety instructions are authorised to manipulate and use the cryogenic apparatus.

Only the distributor or a fully trained person is authorised to do any work on the medical apparatus if the cryogenic apparatus appears to be malfunctioning under normal usage conditions. The user must not do any work on the system himself because this could be harmful to his or her health and/or safety.

1.3 REMINDER ABOUT UNPACKING INSTRUCTIONS

Take safety precautions by respecting safety rules and using individual protection equipment and tools adapted to unpacking.

At least two persons are necessary for unpacking the medical apparatus.

Unpack the medical apparatus as close as possible to its usage location, to avoid the need for handling over an excessively long distance.

A. Check the condition of the packaging on delivery
B. Cut the straps
C. Remove the cover
D. Remove the apparatus from the box gently **(two persons** depending on the medical apparatus). Then put it into place.

1.4 THE INSTALLATION/ENVIRONMENT

1.4.1 Limiting environment conditions

Technical characteristics and correct operation of the apparatus are valid for the following conditions:

During operation:

Ambient temperature ..... $20°C^{\pm 2°C}$ (sheltered from direct sunlight)

Relative humidity..... from 30% to 65% without condensation

Storage: (In its original packaging)

Ambient temperature ..... from 5°C to 40°C

Relative humidity..... from 10% to 65%

1.4.2 The installation

The operator of the apparatus is responsible for assuring that the room complies with regulations, safety standards in force and the following recommendations.

Installation CHECK-LIST

	Yes DONE	NO NOT DONE
Check the general condition of the apparatus.	☐	☐
Are users trained?	☐	☐
Does the room satisfy safety regulations and standards in force?	☐	☐
Is access to the room limited to persons entitled to enter it?	☐	☐
Are safety instructions and risks related to liquid nitrogen posted?	☐	☐
Are instructions accompanying the medical apparatus available/accessible close to it?	☐	☐
Is individual protection equipment available/accessible in the room?	☐	☐
Is the room equipped with a permanent ventilation system adapted to the size of the room?	☐	☐
Is the room equipped with an oxygen content checking system (display outside the room)?	☐	☐
Are safety distances respected (at least 0.5 m around the apparatus)?	☐	☐
Is the 220V-24V power supply fixed to the wall?	☐	☐
Are fittings on the apparatus in position (if applicable)?	☐	☐
Has the medical apparatus being blown through (to eliminate all traces of humidity)?	☐	☐

1.4.3 Filling instructions

Validate the steps in the previous chapter before starting your apparatus.

FILLING

The medical apparatus is filled by pouring liquid nitrogen directly through the neck using a transfer hose connected either to a storage container (for example a TP) or a transfer line.

When you are filling a warm apparatus, pour the liquid in very slowly at first to prevent the liquid from being splashed outside by a strong current of nitrogen gas resulting from cooling of the inner container. Full your device to ¾ and allow it to cool for a few minutes, then top up.

If an apparatus still contains some liquid nitrogen, you can fill it entirely in a single operation.

Do not allow liquid nitrogen to overflow onto the top art of the container during filling. If this occurs, check that all traces of frost have disappeared from the neck after 24 hours.

NOTE: If you are using an initially warm medical apparatus, the full efficiency of the insulation will not be obtained until after 48 hours. Liquid nitrogen losses will be high in the first hours and will generally be above the specifications for the first two days. If you are looking for the maximum endurance, it is a good idea to top up the liquid nitrogen level two or three days after filling.

CHECK

To check the remaining liquid nitrogen level, remove the lid, and insert the plastic straight edge all the way down to the bottom (caution with the overthickness of the canister distributor, if there is one), leave the straight edge in position for 3 to 4 seconds, take it out and shake it in the ambient air. The level of condensation of humidity in the air will indicate the level of liquid remaining in your apparatus.

1.4.4 Precautions to be taken if the apparatus is completely emptied

It is essential to dry the inside of the apparatus thoroughly by blowing through with nitrogen or dry de-oiled air.

1.5 USE

1.5.1 Opening the lid

The lid is fitted with an insulation cover. Always manipulate the lid using individual protection equipment.

2 CONTAINER CHARACTERISTICS

2.1 PARTICULAR SAFETY INSTRUCTIONS

Precautions to be taken for the person during the work:

- ✓ Cold burns
  - On the neck and the lid after opening
  - By splashing of liquid nitrogen during opening or use of accessories
- ✓ Trapping
  - By the lid when closing the apparatus
- ✓ Crushing
  - By the rollers and the apparatus when moving it

2.2 RECOMMENDATIONS

We recommend that you should always wear your individual protection equipment whenever you use the apparatus.

2.3 MATERIALS IN DIRECT OR INDIRECT CONTACT WITH THE USER

- ✖ . Stainless steel
- ✖ . Aluminium alloy
- ✖ . Brass
- ✖ . Copper
- ✖ . Cadmium plated steel
- ✖ . Polycarbonate
- ✖ . Polyurethane foam
- ✖ . Klegecell

2.4 CHARACTERISTICS

2.4.1 Long endurance

	GT 2	GT 3	GT 7	GT 9	GT 11	GT 21	GT 35
Useful capacity	2	3.7	7.1	9.3	12.2	21.5	33.6
Weight empty (KG)	1.9	4.5	7.2	8.2	9.2	13	15
Weight full (KG)	3.5	7.5	12.9	15.7	19	30.4	43
Daily evaporation (L/d) (1)	0.08	0.11	0.11	0.11	0.09	0.09	0.09
Dynamic endurance (day) (1)	25	33	65	84	130	225	350
Neck diameter (mm)	30	50	50	50	50	50	50

(1) *These values are given for apparatuses tested without any internal equipment. They are given for guidance and are arbitrary, and valid for generally observed usage conditions. They can vary depending on manufacturing tolerances and local atmospheric conditions.*

2.4.2 High capacity

	GT 14/6	GT 14/9	GT 18	GT 26	GT 38	GT 40
Useful capacity	13.5	13.5	17.5	26.7	37	40
Weight empty (KG)	9.5	9.5	10.5	14.8	19	24
Weight full (KG)	20.4	20.4	25	36	49	57
Daily evaporation (L/d) (1)	0.24	0.24	0.26	0.29	0.15	0.29
Dynamic endurance (day) (1)	57	57	69	90	245	140
Neck diameter (mm)	80	80	80	80	80	80

(1) *These values are given for apparatuses tested without any internal equipment. They are given for guidance and are arbitrary, and valid for generally observed usage conditions. They can vary depending on manufacturing tolerances and local atmospheric conditions.*

3 TRANSPORT AND HANDLING INSTRUCTIONS

The apparatus may be handled by forklift truck according to standard practice, **only** when it is in its packaging.

Never use a forklift truck to handle the apparatus when it is not in its packaging, always move it by:

- Carrying it with the handles or the strap, or
- Rolling it on its bottom plate fitted with rollers (See §Accessories/Options). The bottom plate with rollers can only be used over short distances.

The apparatus can be transported full. It must always be transported respecting the instructions imposed by national and international regulations in force (particularly the ADR instruction P203), respecting the following recommendations:

- Never stack different apparatuses.
- Before transport, each apparatus must be inspected to detect any defects and to assure that they are working correctly.
- Due to the potential risk of the oxygen content being modified, persons and apparatuses must be transported separately whenever an elevator or a hoist stops for a certain time between two floors, unless appropriate safety precautions have been taken.
- During transport and regardless of the type of transport, always keep devices immobile in the vertical position, and do not apply shocks to them or drop them. The outside enclosure or the suspension system of the inside container could be damaged, degrading the insulation properties and causing permanent damage.
- Forbidding the transport with non dedicated vehicle:

  A non dedicated vehicle is defined as a vehicle which satisfies at least one of the following specification.

  - Vehicle without a leak-tight separation partition between the driver's cab and the gas transport compartment (s)
  - Vehicle in which the gas transport compartment is not continuously ventilated
  - Vehicle for which the design and compatibility of the materials and equipment used have not been specially designed with regard to the properties of the transported gases.

- Vehicle which does not include a stowage and strapping systems appropriate to each type of gas container intended to be transported.
- ...Vehicle without a fire extinguisher.

4 SERVICING AND MAINTENANCE

We recommend the following preventive/remedial servicing and maintenance operations, based on analyses of maintenance done on our cryogenic apparatuses over several years:

4.1 SERVICING OF THE APPARATUS

This chapter should be read by competent and qualified authorised persons to do servicing work.

Servicing is required to assure that the equipment remains under normal operating conditions. The operator of the apparatus is responsible for it.

These operations must be carried out with non-abrasive, non-cutting and blunt tools so as to avoid damaging the surfaces concerned.

OPERATION	FREQUENCE (*)
DE-ICING THE LID AND THE NECK Eliminate ice that forms on the lid and the neck. You can melt the ice using a hair-dryer. Take care with all plastic parts (lid, outer panels, etc.) All ice and/or water must be recovered so that it cannot fall into the apparatus.	2 WEEKS
CLEANING THE OUTSIDE OF THE APPARATUS Important comment: **Cleaning is limited to the outside parts of the apparatus.** The use of acetone, solvents or any other very inflammable product, or chlorine-based liquid, is prohibited × Wipe plastic parts with a dry cloth and if necessary with a slightly damp non-abrasive sponge (do not use abrasive powder), or with impregnated towelettes. × Routine household products (slightly abrasive ammonia creams) can be applied with a sponge for the store part and for stainless steel parts. Then rinse with a cloth soaked with a small quantity of water, wipe and allow to dry.	5 WEEKS
CLEANING THE INSIDE AND DISINFECTING THE CONTAINER The medical apparatus can be disinfected if it is considered necessary. You must call upon an authorised company for this type of work. The operator is responsible for this work.	Depending on the need determined by the operator

(*) The frequencies given are for information and must be adjusted by the operator depending on how the apparatus is used

Like every other system, your apparatus may be subject to a mechanical failure. The manufacturer cannot be held responsible for any type of stored products lost as a result of this failure, even during the warranty period.

5 WASTE ELIMINATION METHOD

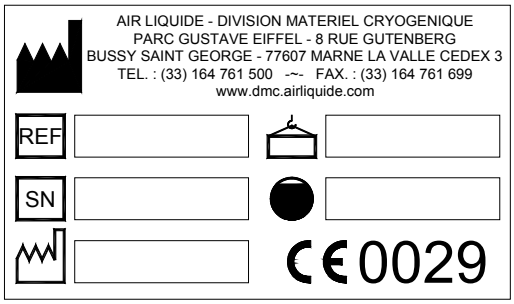
All waste caused by use of the cryogenic apparatus (tubes, packs, etc.) must be eliminated using appropriate waste treatment systems.

Please contact your distributor for further information.

6 METHOD OF ELIMINATING THE CRYOGENIC CONTAINER

Appropriate systems must be used to eliminate the apparatus and to protect the environment. The AIR LIQUIDE Cryogenic Equipment Division must also be informed of the reference and serial number of the eliminated apparatus to maintain traceability imposed by the CE marking.

These data are given on the identity label at the back of the apparatus.



7 SYMBOLS & ABBREVIATIONS

CE 0029	Conforming with directive 93/42/CEE June 14 1993, related to medical apparatuses		WARNING: Low temperature
	Manufacturer's name and address		COMPULSORY: Read the user guide
REF	Reference in the apparatus catalogue		COMPULSORY: Protect your hands using appropriate individual protection equipment
	Apparatus manufacturing date (WW/YY)		COMPULSORY: Protect your face using appropriate individual protection equipment
SN	Apparatus serial number		COMPULSORY: Keep the apparatus in an area that is sufficiently and permanently ventilated
	Net weight of the empty apparatus in kilograms		PROHIBITED: Do not touch parts that have been in contact with liquid nitrogen
	Volume of the device when full, in litres		

Apparatus means the Container + electronic equipment assembly already in your possession.

8 SPARE PARTS AND ACCESSORIES

The list in this chapter contains manufacturer's references for the proposed parts, so that you can write your part orders correctly.

AIR LIQUIDE declines all responsibility following:

- a modification of the apparatus and/or related equipment
- use of accessories/electronic apparatus not approved and referenced by the AIR LIQUID Cryogenic Equipment Division

8.1 SPARE PARTS

	GT
Cover for GT (from GT3 to GT38)	ACC-ALU-20
Curved handle	ACC-GT-102

8.2 ACCESSORIES/OPTIONS

	GT
Base with lockable rollers for GT 21 with attachment	ACC-ALU-8
Base with lockable rollers for GT 26,35,38,40,NATAL40	ACC-ALU-9
Cardboard outer packaging for GT 2/V 2	ACC-ALU-1
Cardboard outer packaging for GT 9/GT 14	ACC-GT-100
Cardboard outer packaging for V 5/V 12/GT 18	ACC-ALU-2
Cardboard outer packaging for V +/GT 21	ACC-ALU-3
Cardboard outer packaging for GT 35/GT 40	ACC-GT-101