

	Operating instructions Heaters GHT 450W	OP1110 Version : 1 Date: June 2022 Language : EN
--	--	---

GHT450 ELECTRIC HEATERS

CONTENTS

- 1. AREA OF APPLICATION**
- 2. FEATURES**
- 3. SAFETY**
- 4. INSTALLATION**
- 5. START-UP**
- 6. MAINTENANCE, CLEANING AND RECYCLING**

Ind.	Modifications	Nom	Date	Ind.	Modifications	Name	Date
0	Edition originale	P. Bonnehon	09/20	+	Original issue	P.B.	09/20
1	Adaptation pour le Cluster NEC	C.Machillot	06/22	+	Adaptation to NEC Cluster	C.M.	06/22

AIR LIQUIDE Netherlands	Achtseweg Zuid 151F 5651 GW Eindhoven Tel +31 20 795 6621 E-mail: contact.nl@airliquide.com	page 1/4
-------------------------	---	----------

1. AREA OF APPLICATION

Heaters are designed for heating up high and low pressure compressed gases. They prevent valves and pressure regulators fitted downstream from icing.

They are particularly recommended for CO₂ and mixtures of gases containing CO₂.

2. FEATURES

- Bursting disk pressure : 255 bar (±15 bar)
- Voltage (supply): 230 V ac 50 Hz
- Power: 450 W, (± 10%)
- Electric protections: IP 65
- Regulation temperature: 45°C-65°C (GHT6)
- 60°C with thermostat 25°C-30°C (GHT3)
- Thermal protection with fuse : 110°C(GHT6) - 50°C (GHT3)
- Coil: Ø 6 x 1 copper
- Connections (I/O): brass (same standards on both sides: M and F)
- Housing: stainless steel
- Operating and storage temperature: - 30°C to + 50°C
- Fittings:
 - for cylinders: inlet/outlet adapted to the national valve outlet standard
 - for manifolds, adapted to AL block-valves inlet (M16x1.336SI F) and on anti-flapping fitting on flexible hose side.

• The table hereafter gives flow rate examples with CO₂ stored at 10°C.

The heaters will allow a gas temperature of 0°C (32°F) at the outlet of a pressure regulator preset at 5 bar and located downstream.

Type of heaters	Flow rate max.	
	CO ₂ gaseous	CO ₂ liquid*
GHT6 CO2	30 m ³ /h	10 kg/h

* CO₂ cylinder with plunging pipe

Compressed gases::

GHT6EX-450 N ₂ O	Pmax=50 bar	30 m ³ /h
GHT6EX-450 O ₂	Pmax=200 bar	20 m ³ /h



3. SAFETY

This equipment works with gas under pressure.

To maintain this equipment and in case of abnormal variations in performances refer to the «Maintenance» chapter.

If the connected heater must be installed between an upstream HP shut-off valve and a downstream regulator, do not close this HP shut-off valve to let the calories be evacuated upstream in case of no flow.

In case of burst risk opening, check the possible root causes on the installation before changing the disk with a spare

DIRECTIVE ATEX 2014/34/UE

The equipment are in the scope defined in points a), b) and c) of article 1§1 of the ATEX Directive: consequently, they shall bear the CE marking.

The equipment are capable of causing an explosion through their own potential sources of ignition: then, they can not be installed in ATEX zone 1 or 2.

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

4. INSTALLATION

4/1 Cares to be taken before assembly:

- If the electric cable is damaged, see § Maintenance.
- The installation must be in accordance with the protection index (IP) defined in § Features.

4/2 installation:

- 450 W heaters are designed to be fitted on O₂, inert gases and O₂/CO₂ gas cylinders. They may also be fitted at the inlets of change-over units or collectors.
- Make sure that the inlet connection matches the outlet connection of the cylinder valve.
- In case of non-gas-specific I/O, the installer must assure the adequacy gas/heater.

	Operating instructions Heaters GHT 450W	OP1110 Version : 1 Date: June 2022 Language : EN
--	--	---

- Screw in tightly the connection nut of the heater on to the cylinder valve.
- Install the downstream distribution (pressure regulator or other).

NOTE: Handtighten the connections equipped with O-rings, other connections with other types of seals are to be fitted by means of a wrench. For safety reasons while using the equipment, oil or grease should be strictly prohibited while mounting.

4/3 Electric connection:

It must be carried out only by authorized personnel.

Respect the regulation in force or turn to a qualified professional.

The earth wire must absolutely be connected to the earth. Allow for an omnipolar cut-off device having a contact opening distance of at least 3 mm.

Electrical cable: 3G 1.5² - length 1,5m.

5. START-UP

- Switch on (3 minutes) before setting the gas flow of the heater.
- Pressurize and make sure that there is no leak at the inlet and outlet connections (For instance with a non-fat foam reagent).
- After each utilization, the heater must absolutely be disconnected from the electric source.

WARNING:

In case of flows higher than normal, be sure to carry out one of the two following handlings:

- Stop gradually the flow or
- cut the mains supply of the heater 2 to 4 minutes before the abrupt cut-off.

6. MAINTENANCE, CLEANING AND RECYCLING

The safe use of this product requires the following regular precautions:

- Monthly check of the good overall aspect and absence of leaks. Annual check of the good working conditions. Change the diaphragm of the bursting disk every other year..

There is no other possible maintenance of these devices. The dismantling without damage of this material is impossible:

- If the electric cable is damaged or in case of important malfunction, in order to avoid any danger, the equipment should be returned to us for repair.
- Discarding:
- after 10 years in normal working conditions (8 h / day) or storage.

AIR LIQUIDE Netherlands	Achtseweg Zuid 151F 5651 GW Eindhoven Tel +31 20 795 6621 E-mail: contact.nl@airliquide.com	page 4/4
-------------------------	---	----------