



Installations- und Bedienungsanleitung
Gewächshausheizung
Frosty 2500 / Frosty4500



GB

1. General

After unpacking and before starting up, ensure that the apparatus and all the accessories are complete and in good order. In case of transport damage, please contact the responsible distributor or the manufacturer immediately. Keep packaging material (polybags, polystyrene, nails etc.) out of reach of children, since such materials can pose a hazard. This also applies to any objects small enough to swallow.

All gas appliances must be installed by a competent installer i.e. CORGI registered engineers

2. Safety and hazard notes

- If you are unsure about the operation, safety or connection of the apparatus, please consult a qualified technician.
- Disconnect the apparatus from the gas supply if it will not be used for an extended period.
- The apparatus is not suited for use in areas used for animal husbandry.
- These operating instructions are part of the apparatus and should be kept in a safe place. The apparatus must be accompanied by these operating instructions should it be passed on to third parties.
- In industrial facilities, the Accident Prevention Regulations for Electrical installations and Operating Materials of the Industrial Employer's Liability Insurance Association should be observed.
- Please contact the manufacturer or a qualified technician should you be unsure about the proper connection or should any questions arise that are not dealt with in the operating instructions,.
- The apparatus must be disconnected from the gas cylinder before opening the cover or removing components.
- Never store or use flammable materials or spray near the apparatus. **Fire hazard!**
- Do not use the apparatus in a flammable atmosphere (e.g. close to combustion gas or spray cans). **Explosion and fire hazard!**
- Do not cover the heater. **Fire hazard!**
- Never dry flammable objects in front of the apertures. **Fire hazard!**
- The enclosure heats up during operation. Install the apparatus in a manner preventing accidental contact. **Risk of burning!** The apparatus cools down only gradually after switch-off.
- This apparatus may not be operated by persons (including children) with limited physical, sensory or mental faculties, nor by persons who are not sufficiently experienced or adequately knowledgeable in the use of the product, unless such persons are supervised or instructed in the use of the apparatus by a person responsible for their safety.

3. Notes on operation

- The apparatus is designed for heating and CO₂-enrichment of greenhouses.
- The apparatus must be set up on a stable, heat-resistant and non-flammable surface.
- Attention! Although deburred, the enclosure may still have sharp edges. **Risk of injury!**
- A 30 cm minimum distance from flammable components must be maintained. A 60 cm distance is recommended at the front and on top. The gas connection may not be run on or over the apparatus.



10. Warranty and servicing

We offer a 2-year unlimited manufacturer's guarantee (effective from the date of purchase) on all Bio Green products. Damage caused by external forces is excluded from this guarantee, as are improper use and non-observance of cleaning and servicing as described in these operating instructions.

Limitation of liability

Bio Green is not responsible for damage to plants or sooting of the heater caused by inadequate air supply.

Important note

The apparatus may only be opened and repairs may only be carried out by authorised specialists, in due consideration of the applicable instructions for repair. Only original components may be fitted.

The guarantee for proper operation and operating safety can only be honoured if the apparatus is properly installed and handled. This also applies in respect of statutory provisions governing equipment safety as well as applicable accident prevention regulations.

Please advise your dealer of any damages during the term of the guarantee. Depending on the fault, your apparatus will be exchanged, repaired or replaced. A CORGI-registered servicing company is authorised to perform repairs after the guarantee period. Cleaning tasks are charged for.

During periods of non-use in the summer, the apparatus should be stored in a closed container (e.g. plastic bag) to protect it from spiders and insects, since these may block the gas apertures, which must then be cleaned.

The cylinder valve must always be closed when the apparatus is stored. Protect the gas cylinder from direct sunlight. Do not run the hose past hot areas.

11. Technical data

Gas type: liquid gas propane/butane

Category:	<ul style="list-style-type: none"> I_{3B/P} - 50 mbar I_{3B/P} - 30 mbar I_{3B/P} - 37 mbar I₃₊ - 28-30/37 mbar 	Please refer to the nameplate on the side of the heater for the category and operating pressure settings of the apparatus.
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Nozzle diameter:	2.5 kW	Ø 0.64 mm at 50 mbar
	2,35 kW	Ø 0.73 mm at 30 mbar
Rated heat output (H _s):	4.5 kW	2 x Ø 0.64 mm at 50 mbar
	4,25 kW	2 x Ø 0.73 mm at 30 mbar
Rated heat output (H _s):	2.5 kW / 2,35 kW	4.5 kW / 4,25 kW
Gas consumption:	190 g/h / 180 g/h	350 g/h / 320 g/h

Technical and colour changes reserved.

- a) Place the apparatus on an approx. 30-40 cm high pedestal to prevent the CO₂, which sinks to the floor, from extinguishing the flame.
- b) Open a means of ventilation near the apparatus to allow sufficient oxygen to reach the pilot flame.

What if the gas consumption is too high?

The following energy-saving hints are worth remembering:

- a) Please inform yourself about the minimum temperatures for your plants to survive through winter. Do not set the thermostat higher than necessary. Each additional degree means unnecessary gas consumption. Heating is expensive if the external skin of your greenhouse is made of normal glass, due to the high thermal conductivity. A glass house should be insulated with air cushion foil. This, as a rule, reduces energy costs by up to 30 %.
- b) Energy costs may be further reduced by turning off the pilot flame during the day.

What if the apparatus leaks?

The greenhouse heater types Frosty 2500 / Frosty 4500 are safe, tested and certified not only under European CE directives but also DIN DVGW [*German Technical and Scientific Association for Gas and Water*] standards. We have noticed, however, in our > 30 years of experience with gas equipment, that customers make the same handling mistakes time and again. When exchanging cylinders, the operator often does not check for cylinder – pressure regulator gas tightness. Leak detection spray or soap water should be used to check for gas leakage after every cylinder exchange. The slightest bubble formation indicates a leaky connection.

8. Tips for reliable operation

When taking the apparatus out of operation in summer, always store it in a bag, carton or similar, to protect it from spiders and insects. These tiny creatures are attracted by the aromatic substances in the gas and often block the gas passages with the dirt they bring in. The heater then stops working and must be cleaned by a specialised gas company, at a cost.

9. Cleaning, repairs and disposal

- Do not use abrasive or caustic or cleaning agents.
- Before cleaning, switch off the apparatus and allow it to cool down for about 30 min. before starting to clean.
- Clean the enclosure with a damp (not wet) cloth, vacuum cleaner or feather duster.
- Never submerge the apparatus in water.
- Take the devices to be disposed of only to a suitable waste disposal point.
- The apparatus may only be repaired by authorised specialists. Please therefore contact the manufacturer or distributor in this regard.
- **Attention!** The guarantee shall be null and void in cases of improper repairs.
- Incorrect repairs may pose a hazard to the user and to others.

- In a greenhouse, position the apparatus where good air circulation is ensured.
- We recommend installation approx. 20-30 cm above the floor.
- This apparatus is not suited for orchid and succulent rearing, since some orchids and succulents cannot tolerate CO₂ enrichment. If you are not sure whether your greenhouse plants can handle CO₂ enrichment, ask a gardener.
- **Attention!** The enclosure heats up when in operation! Allow to cool down before transporting.
- **Attention!** Close the cylinder valve immediately in case of uncontrolled gas leakage.

4. Assembly and connection of the heater to the gas cylinder

Depending on application, screw the two supplied brackets to the bottom (upright heater, see Fig. 1a) or to the back (wall heater, see Fig. 1b) before connecting the apparatus. The distance between mounting holes is 328 mm for the Frosty 4500 wall heater and 228 mm for Frosty 2500.



Figure 1a



Figure 1b

Before connecting the apparatus, check that the local supply (gas type and gas pressure) matches the settings of the apparatus. The specified values for the apparatus are shown on its nameplate. This apparatus is not connected to a waste gas draw off. It must be set up and connected according to the locally applicable installation requirements. Especially ensure suitable ventilation.

a) The following parts are required to connect the apparatus:

- Customary liquefied gas cylinder 5 kg or 11 kg
- Preset pressure regulator (conforming to the standard and certified) to match the specific cylinder, with a gas flow rate of at least 1.0 kg/h
The supplied pressure regulator is not designed for commercial use.
- Hose (conforming to standard and certified) of adequate length (approx. 80 cm), type as per national specification.
- Leak detection spray
- Spanners size 14 and 17

b) Connecting the apparatus:

1. Screw the union nut of the pressure regulator into the cylinder valve thread, anticlockwise and by hand. Do not use tools since these may damage the cylinder valve seal and cause leakage.
2. Connect the hose to the pressure regulator outlet thread anticlockwise, using a suitable SW 17 spanner. A second suitable spanner must in this respect be used on the pressure regulator flats to prevent the latter from turning and avoid undue torque application. Sealing is ensured by tightening the connection, using the tool described above.
3. The other end of the hose is screwed to the threaded connecting nozzle of the apparatus. Counter using a second SW 14 spanner on the flats of the threaded connection nozzle. The hose must be secured if connected via a hose barb.
4. Check all connections for leaks – with cylinder valve open and gas cock closed. Tightness is ensured if no bubbles appear.

5. Initial operation

1. Using the controls (**Figure 2, position 3**), set the continuously adjustable thermostat to the desired temperature.

Thermostat adjustable range

The selectable temperature range is between 2°C and 25°C.

Adjustment is continuous.

To prevent e.g. frost in the greenhouse, the thermostat should be set in the lower third of the arrow indicator.

2. The temperature sensor, that is being mounted to the bottom edge of the rear panel, has to be folded outwards. Thus the temperature outside the device can be taken.
3. Open the cylinder valve.
4. Press down the Start key (**Figure 2, position 1**) to the end stop. The pilot flame and main burner are ignited by pressing the piezo element (**Figure 2, position 2**) once or twice. Keep pressing down the Start key for about another 15 seconds after the gas ignites to allow the thermo element to reach the necessary temperature.



Figure 2

6. Shutting down

Close the cylinder valve to switch off the heater.

7. Troubleshooting

Only CORGI registered gas dealers or manufacturers of heating apparatus may carry out maintenance and servicing.

What if the pilot flame does not ignite although the spark is visible at the tip of the ignition gap?

The pilot burner is blocked due to residues of small creatures or other dirt particles. Clean the pilot burner and ignition gas nozzle.

Servicing procedure:

- a) Remove the ignition gas hose
- b) Unscrew the ignition gas nozzle from the burner tube
- c) Clear the burner pipe with a long, thin object (e.g. a cotton bud) and then blow out with compressed air.
- d) Also use compressed air to blow out the ignition gas nozzle from both sides.

What if the pilot flame burns, but extinguishes again when the ON button is released?

This is due to the same cause as described above – dirty pilot burner; remediation as above.

What if the pilot flame, or the main burner, extinguish after an extended period?

If your greenhouse is well sealed, the minimum air exchange volume may not be possible, the maximum permissible CO₂ concentration is therefore exceeded and the device switches off automatically.



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