Installation and operating instructions for CO_2 generator 4 kW for liquefied gas (LPG) CO_2 generator 4 kW for natural gas

1. Technical data

This appliance has a 230 V solenoid valve, which allows, for example, a remotely controlled CO_2 controller to be installed for CO_2 regulation.

	Natural gas	Liquefied gas (LPG)
Max. nominal heat input:	2.7 kW	4.5 kW

Nozzle specifications:	Natural gas G20	Natural gas G25	LPG G30	LPG G30
Pressure	20 mbar	25 mbar	30 mbar	50 mbar
Nozzle size	1.1 mm	1.1 mm	0.73 mm	0.64 mm

The appliance can be used with the following gas types and pressure levels:

Category	Pressure (mbar)	For use in:
II 2H3 B/P	20, 28-30	DK, FI, SE
II 2H3 B/P	20, 50	AT, CH
II 2H3+	20, 28-30/37	ES, GB, GR, IE, IT, PT
II 2L3 B/P	25, 28-30	NL
II 2E+ 3+	20/25, 28-30/37	BE, FR
II 2ELL 3 B/P	20, 50	DE

Coming soon: the water-cooled ICEPACK, which cools away the heat generated by the flame. It can be retrofitted on top of the CO_2 generator.

2. Important information

The text of these instructions must be observed during installation and commissioning of the appliance.

- The appliance is intended exclusively for use in greenhouses.
- The appliance must be screwed onto a sturdy, non-flammable, horizontal surface.
- In damp rooms the appliance may only be connected to RCD-protected sockets. Maximum fuse rating 16 A.
- The appliance must never be sprayed with water.
- Any modification to the appliance may be dangerous.
- In the event of a gas leak, the gas supply must be shut off immediately.
- After use, the valve of the gas cylinder must be closed.
- The gas cylinder must be positioned so that the gas hose cannot come into contact with hot parts of the appliance.
- The gas cylinder must be secured to a stable point.

3. Installation of the appliance

To install the appliance, the two supplied brackets must be screwed, depending on the application, to the underside (as a free-standing appliance, see Fig. 1a) or to the back (as a wall-mounted appliance, see Fig. 1b) of the housing. The distance between the holes for wall mounting is 328 mm. The appliance can also be used in a suspended position (see Fig. 1c). To do so, slightly loosen the screws securing the protective grille, fold the suspension eyes upwards, and then retighten the screws firmly.

Fig. 1a

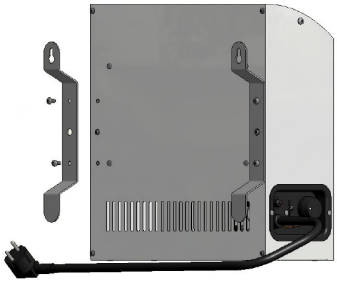


Fig. 1b

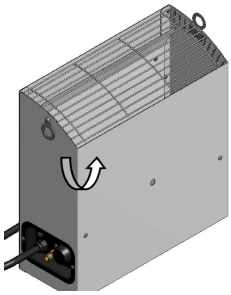


Fig. 1c

Suitable chains or cables can now be attached to the suspension eyes. Make sure the appliance is installed vertically and in accordance with the applicable fire safety regulations.
The clearance above the appliance must be chosen so that unobstructed air circulation is ensured and the temperature rise of combustible materials (max. 20 °C) and of non-combustible materials (max. 50 °C) above ambient (room) temperature is not exceeded. The user is responsible for providing appropriate protection against impact and falling.

The appliance must be connected in the following order: both feet have two mounting holes that serve to fix the appliance securely to the floor, to prevent it from being knocked over or tipping over. The installation surface or wall mounting must be chosen so that even air circulation in the room is ensured. The minimum distance to combustible objects is 30 cm.

If not included in the delivery, you will need a standard pressure regulator of 1.0 kg or 1.5 kg, corresponding to a set pressure for 11 kg or 5 kg gas cylinders respectively, in order to connect the appliance.

4. Propane gas (LPG)

It is advisable to connect the appliance to an 11 kg LPG cylinder. We recommend using the appliance with a two-cylinder installation, which automatically switches over to the reserve cylinder as soon as the cylinder is empty.
If the installation is used with 33 kg cylinders, please contact your gas supplier.

5. Methane gas (natural gas)

Before connecting, check that the appliance is set for the gas type available at the installation site. Check whether the setting of the appliance on delivery matches the gas type available.
If this is not the case, the appliance must not be put into operation.
Conversion of the appliance to another gas type is only permitted if carried out by or on behalf of the manufacturer.
An approved connection fitting (gas shut-off valve) must be installed at an easily accessible point in the gas supply line (natural gas only).

After connection, all gas-carrying lines must be checked for tightness under operating pressure by applying a foaming agent or leak-detection spray. The connection is tight when no bubbles form.
Leak testing with an open flame is strictly prohibited.

Connecting and changing the LPG cylinder must be carried out in an environment free of ignition sources.
When connecting the gas cylinder, avoid twisting the gas hose.
After removing the protective cap and unscrewing the safety plug (**Caution!** Left-hand thread on the cylinder neck), place the gas cylinder in a stable position.

Check that the seal in the cylinder valve is present and in good condition.
Do not use additional seals!

The other end of the hose is connected to the gas inlet pipe of the appliance by means of a compression fitting with a double cone ring.

Slide the compression fitting, complete with double cone ring, onto the pipe up to approx. 1 mm from the stop.

Tighten the compression fitting with a spanner (17 mm AF), making sure to apply counter-pressure with a second spanner (14 mm AF) to ensure the fitting is gas-tight.
The pressure regulator is connected to the gas cylinder by screwing the union nut of the pressure regulator by hand onto the connection of the gas cylinder. **Caution!** Left-hand thread.
No tools may be used for this.
After connection, all gas-carrying parts must be checked for tightness under operating pressure, as described above.

6. Operation

The appliance is fitted with an electromagnetic valve that is switched on either manually, via a timer, or via a CO_2 controller. Therefore, before the appliance is put into operation on the gas side, the solenoid valve must be energised.

6.1 Commissioning

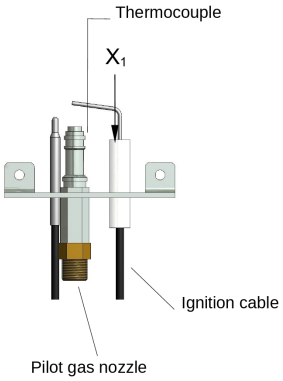
Open the cylinder valve fully by turning it anticlockwise.
Press the control knob in slightly and turn the "arrow" marking to high (large flame).
Press the control knob in fully and at the same time press the push button of the piezo igniter several times.
The pilot flame and the main burner are ignited by pressing the piezo element one or more times. After the flame has ignited, keep the control knob pressed for about another 15 seconds so that the thermocouple reaches the required temperature. The burner should now keep burning without the safety valve being held down. Otherwise, the ignition procedure must be repeated.
To reduce the burner output, gently press the control knob again and turn the "arrow" marking to low (small flame).

6.2 Shutting down

The appliance is shut down by closing the cylinder valve (by turning it clockwise).
For a longer shutdown, the electromagnetic valve must be disconnected from the power supply.

7. Troubleshooting

What if you have the following problems with the appliance?
(for maintenance or repair: see the section "Warranty and maintenance")



- The pilot flame will not ignite, even though the ignition spark jumps at the tip of the spark igniter?
The pilot burner is blocked by cobwebs or dust.
The pilot burner must be cleaned.
Procedure:

Instructions for the service company:
a) Remove the pilot gas line
b) Unscrew the pilot gas nozzle
c) Push a cotton swab through the burner and then clean it with compressed air.
The inside of the burner must be visibly spotless.

- The pilot flame does light, but goes out again after releasing the stainless steel pin (thermal safety device) or control knob A on the natural gas version?
This is the same defect as described above – contamination of the pilot burner – solution as already described.

- Leaks occur in the installation?
The greenhouse heating installation CO_2 Generator is a very safe installation, tested and approved not only according to European CE regulations but also according to DIN DVGW standards. Yet in our more than 30 years of experience with gas appliances, we keep seeing the same user errors.
When changing cylinders, the operator does not check the tightness of the cylinder–pressure regulator connection.
After every cylinder change, a leak test must be carried out with leak-detection spray or soapy water. At the slightest bubble formation, the connection is not tight!
Connecting the wrong gas cylinders: connecting a forklift gas cylinder to a heating or grill appliance. This is not permitted and leads to accidents. A forklift gas cylinder can be recognised by a collar for carrying and for protecting the cylinder valve. A heating gas cylinder has two separate carrying handles.
If you observe these points, you will have a safe, economical installation for heating your greenhouse for many years.

8. Warranty and maintenance

We provide a 1-year unlimited factory warranty (from the date of purchase) on all Bio Green products. This excludes damage caused by external force and improper use, as well as cleaning and maintenance work.

Warranty limitation

We are not responsible for contaminated pilot gas nozzles or for damage caused by contaminated pilot gas nozzles, since cleaning the pilot gas nozzles is part of maintenance. Liability is limited to the replacement of parts or of the appliance under warranty.

Our tip:

In summer, store the appliance in its original packaging to protect it against spiders, which lay their larvae in it during summer. Propane gas attracts spiders.

Important:

Bio Green is not responsible for damage caused by poor ventilation or insufficient air supply.

We hope you enjoy your new appliance.