GRAINFATHER

CHEERS, NICE TO MEET YOU

Fermenter and airlock not included.

GCA INSTRUCTION MANUAL

G SERIES

I'M THE FERMENTATION MIDDLEMAN

THANK YOU FOR CHOOSING THE GRAINFATHER GCA

Get started by following these instructions on how to connect and use your GCA. We recommend reading the following safety information before use. Please also find enclosed, information on heating and cooling performances, advice for fermenting at low temperatures, and how to clean and store your Glycol Chiller Adapter (**G**CA) Kit.

SAFETY INFORMATION

1. Read all instructions before use.
2. Only power the appliance with a **G**C2 or **G**C4 Glycol Chiller.
3. Do not use the appliance for any purpose other than the intended use.
4. Do not let the cord hang over the edge of a table or touch a hot surface.
5. Do not use the appliance if the cord or connector is damaged. Return appliance to your nearest retail service provider for examination, repair, or adjustment.
6. Do not place the appliance on or near a hot gas or electric burner, or a heated oven.
7. Always ensure that the heating pad is properly adhered to the fermenter. If it is loose, it may overheat and become dangerous.
8. Do not let the heating pad contact skin. Scalding may occur.
9. Do not immerse cords, connectors or the heating pad in water or other liquid.
10. If the appliance malfunctions, contact your retailer or the Grainfather Customer Service team.
11. Children should be supervised to ensure that they do not play with the appliance.

NOTE: Not following the safety information above could result in serious injuries and may void your warranty.

ANATOMY DIAGRAM & PARTS LIST

1. Rubber bung (customised to fit the cooling coil)
2. 5m cooling coil
3. 6mm diameter temperature probe
4. Heating pad (with hook and loop tape strips)
5. 2 x 2m (6.5ft) hoses (with insulation)
6. Grainfather Glycol Chiller Adapter (**G**CA), including 3-pin power cord and temperature probe

Fermenter and airlock not included.

NOTE: Also included are 2 x hose clamps and 4 x rubber bung stoppers (for cooling coil & hoses when not in use).

COMPATIBILITY OF THE GCA

PRODUCT

The Grainfather Glycol Chiller Adapter (**G**CA) is designed to be used with the Grainfather **G**C2 or **G**C4 Glycol Chillers. It allows you to connect the **G**C2 or **G**C4 to most other fermenters in the marketplace for accurate fermentation temperature control. Plus, with wireless connectivity, you can control your fermentation via the free Grainfather App.

HEATING

We recommend using the **G**CA Heating Pad (4), however, other heaters that have the following specifications may also be compatible:

- 12 V
- Max 30 W
- DC plug (5.5 mm OD [outer diameter] x 2.5 mm ID [inner diameter], plug length 11.5 mm)

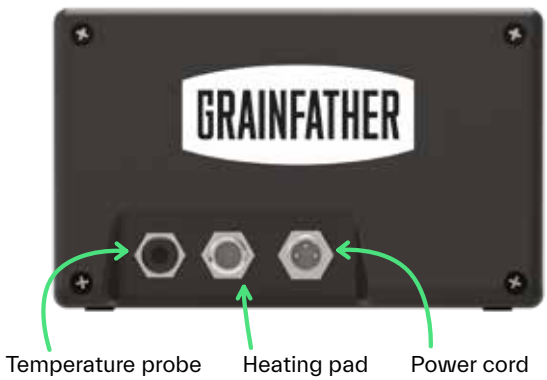
COOLING

We recommend using the 5 m cooling coil (2) (outer diameter 9 mm to fit the Glycol Chiller hoses). Any fermenter lid that has a 1.5" ferrule is compatible, or if practical, you can drill or cut a 35 mm hole in the lid. If your fermenter already has cooling capability such as a mounted immersion coil on the inside, then simply connect the hoses to your fermenter's cooling solution.

GCA ASSEMBLY

SETUP

1. Connect the temperature probe (3), heating pad and power cord (6) to the **G**CA as per the diagram below.



2. Take the other end of the power cord and connect it to the desired channel on the Glycol Chiller.

TEMPERATURE PROBE SETUP

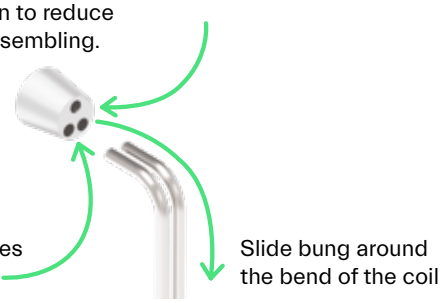
1. Attach the temperature probe to the middle of your fermenter using electrical tape. For accurate readings, we recommend adding some insulating material over the probe (like neoprene or bubble wrap), or installing the Grainfather Thermowell (sold separately) onto your fermenter.

NOTE: Do not submerge the temperature probe in your wort as it is not waterproof.

COOLING COIL SETUP

1. Due to the manufacturing process, it is important to clean the cooling coil prior to use. Although the internal part of the coil will not come into contact with your wort, we recommend running a cleaning solution through the coil to remove any remaining manufacturing oils.
2. Sanitise the cooling coil and rubber bung (1).
3. Once clean, insert the top of the coil through the 1.5" ferrule (or drilled/cut hole) on your fermenter lid. Then complete the assembly by inserting the rubber bung as per the diagram below.

NOTE: We recommend wetting the bung with sanitiser solution to reduce friction while assembling.

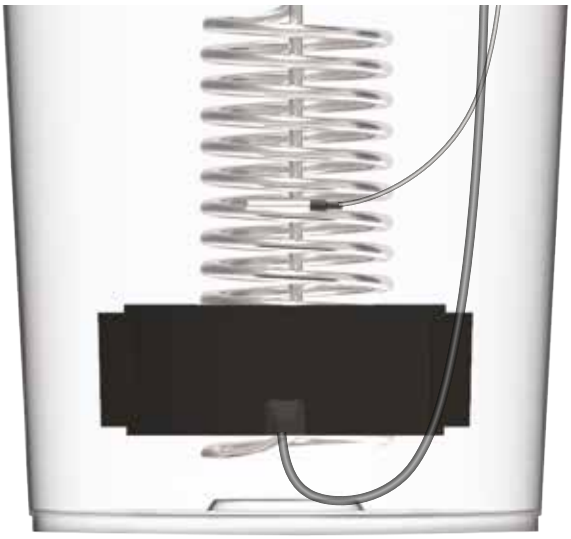


4. Secure the coil onto the lid by pushing the rubber bung into the 1.5" ferrule. You can now fit these onto your fermenter.
5. Push the clamps onto the hoses (5) and connect the hoses to the pipes of the cooling coil so there is about 1 cm of overlap. Use a screwdriver to tighten the clamps on the overlapped section.
6. Connect the other ends of the hoses to the channel of the Glycol Chiller that your **G**CA is connected to.

HEATING PAD SETUP

1. Attach the two hook and loop tape strips to the two hook and loop tape regions on the pad.

2. Remove the protective film from the back of the hook and loop tape strips and firmly attach the pad to the desired (clean and dry) location on the fermenter.



HOW TO USE THE GCA

1. Fill your fermenter with your wort.

NOTE: Ensure that the wort covers the cooling coil.

2. Secure the lid and ensure that the rubber bung and airlock are still tightly in place.

3. Ensure that the **G**CA is turned on and connect it to the Grainfather App as per the instructions on page 7.

MENU CONTROLS

SESSION

This submenu manually controls your fermentation profile. If you already have a fermentation profile active, you can stop/finish the session from this menu without opening the app.

SAVED PROFILES

These are the saved fermentation profiles on the **G**CA. You can access these directly on the **G**CA without being connected to the Grainfather App or a brew session.

There are two default profiles that are already saved onto the **G**CA – lager and ale.

NOTE: These steps are fully editable, so you can customise these. The maximum number of steps that you can use is 7.

CREATING PROFILES

This section allows you to build two additional custom fermentation profiles. These can be saved onto the **G**CA without being connected to the app or wireless internet.

WIRELESS CONTROL & APP INTEGRATION

CONNECTING THE GCA TO THE APP

1. When you first turn on the **G**CA, you will be greeted with the connection setup screen. If you do not see this screen, then you can press the 'SET' button on the controller and go to Network Config > Add New Network. Once on the connection setup screen, you will need to open the Grainfather App on your mobile device.

2. Within the app, navigate to the equipment screen. The equipment screen shows all the brewing and fermenting equipment that you have already set up on your account.

3. To add a new device, tap on the '+' icon on the bottom right of the screen and select 'fermentation tracking equipment'.

4. Select 'Grainfather Glycol Chiller Adapter' on the list of equipment and once on the device setup screen, tap 'ready'.

5. Depending on your mobile device, you may be asked to approve certain permission(s) required to connect with the **G**CA. Accept all requests.

NOTE: The following steps vary for Android and iOS users. Please follow the relevant steps for your mobile device.

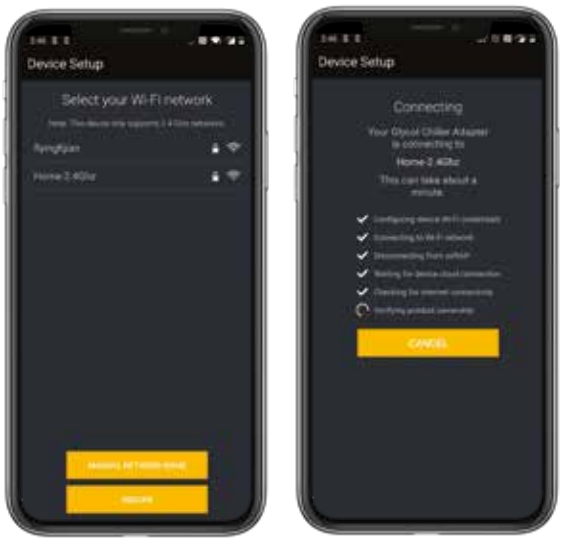
ANDROID

6. If setting up the **G**CA via an Android device, choose your controller in the list (See step 8 next).

iOS

7. If setting up using an iOS mobile device, follow the instructions on the screen and connect your mobile device to the **G**CA. Once the connection is established, you will receive a notification on your mobile device. Tap the notification to return to the Grainfather App. You will automatically return to the device setup screen.

8. After your phone has successfully connected to the **G**CA (Android and iOS), select your wireless network from the list and enter in your network password and then tap 'connect'. Once completed, your Grainfather Glycol Chiller Adapter is connected to the internet.



CLEARING GCA NETWORKS

If you're experiencing network issues or troubleshooting, you can use this function to remove your saved network and password.

GCA SETTINGS

CHANGING THE TEMPERATURE CONTROL

This menu allows the **G**CA to manage target temperatures. When the Glycol Chiller and the heating pad are connected, the default on the adapter allows both heating and cooling functions. In hot environments where the heating function is not needed, you can change to cooling only. When the environment is colder and the cooling function is not needed, you can change to heating only.

CHANGE UNITS

This is where you can change between Fahrenheit and Celsius, and select your preferred temperature units.

HYSTERESIS

This setting is for the narrowness or wideness of temperature control based on the target temperature. The default is 0.5°C (1°F) which means that once the fermenter has reached the target temperature, then the **G**CA will not restart cooling or heating until the fermenter temperature is more than 0.5°C (1°F) away from the target temperature.

NOTE: A low hysteresis will cause the heating and cooling functions to become more active. The lowest hysteresis that can be achieved is 0.1°C and 0.1°F.

LOWER TEMPERATURE LIMIT ALERTS

This setting allows you to override the lower temperature limit alert. We do not recommend changing this as temperatures lower than 6°C (43°F) may result in an uneven temperature distribution. The default setting is 'on' and will alert you when you try to set the temperature lower than the default setting. Please note that although you can disable this setting, you may still not reach lower temperatures as explained on page 10.

CALIBRATE TEMPERATURE

The temperature probes are NTC (Negative Temperature Coefficient) type temperature sensors. An NTC thermistor is a temperature sensor that uses the electrical resistance properties of ceramic/metal composites to measure the temperature.

This feature allows for an offset to be applied to the reading of the temperature probe if it is inaccurate. This should only be used if the temperature probe is compared to a certified calibrated thermometer which has a resolution of +/- 0.01°C or 0.01°F.

ABOUT

This menu gives the details about the device, and if connected to the internet it can check and install updates to the **G**CA.

Note: We recommend that you do not begin an update during fermentation to limit possible data and fermentation control issues. Ensure your unit is close to a strong Wi-Fi signal before updating your **G**CA. If the signal is weak, your **G**CA may show a blank screen or take a few hours to update. In this case, please leave the unit to update before taking any further action.

HEATING & COOLING PERFORMANCES WITH THE GC2 & GC4 GLYCOL CHILLERS

FERMENTER TYPE	MAX TEMPERATURE ABOVE AMBIENT	LOWEST MAINTAINABLE TEMPERATURE	AMBIENT CONDITIONS
30 L (7.9 US Gal) single wall plastic	Up to 6°C (12°F)	As low as 4°C (39°F)	20°C (68°F) <70% humidity
30 L (7.9 US Gal) single wall stainless steel	Up to 6°C (12°F)	As low as 4°C (39°F)	20°C (68°F) <70% humidity
70 L (18.5 US Gal) single wall stainless steel	Up to 5°C (10°F)	As low as 6°C (43°F)	20°C (68°F) <70% humidity
Up to 4 x 30 L (7.9 US Gal) single wall plastic	Up to 6°C (12°F)	As low as 6°C (43°F)	20°C (68°F) <70% humidity
Up to 4 x 70 L (18.5 US Gal) single wall stainless steel	Up to 5°C (10°F)	As low as 6°C (43°F)	20°C (68°F) <70% humidity

TARGETING TEMPERATURES LOWER THAN 6°C (43°F)

Non-uniform temperature distribution can happen when trying to reach temperatures lower than 6°C (43°F). The following information helps to explain exactly why this can happen.

When the temperature of beer decreases, its density increases and it therefore sinks to the bottom of the fermenter. This creates convection currents that help maintain the temperature across the fermenter with minimal temperature stratification. A problem arises when a target temperature that's lower than 6°C (43°F) is set and because beer is mostly water, it has similar properties when cooling. So, as water and beer approach freezing, their density will decrease instead of increasing, resulting in cool liquid floating to the top of the fermenter rather than sinking to the bottom.

The temperature at which the temperature density relationship inverts is the inversion point, which is somewhere around 1 - 4°C (34 - 40°F) for beer. If you set a target temperature that's below 6°C (43°F), the fermenter may reach the target temperature and even maintain a reasonable distribution of that temperature for some time. However, it is possible for the temperature of the beer in the upper region to become cooler than the inversion point. If this occurs, the beer in the upper region of the fermenter will become less dense and will no longer sink, causing it to become buoyant. This stops the natural convection current from distributing the beer evenly inside the fermenter. While the upper region continues to receive cooling from the coil due to the absence of the natural convection current, the lower region is deprived of cooling. This results in the lower region staying relatively warmer than the upper region i.e. creating a non-uniform temperature distribution. In extreme circumstances the beer at the top of the fermenter can freeze.

NOTE: The time of the onset of inversion will vary depending on your exact fermenter setup (e.g. fermenter geometry, cooling coil and temperature probe position), the beer style, ambient conditions and how low the target temperature is.

ADVICE FOR CLEANING & STORAGE

- Cooling coil: We recommend using the Grainfather High Performance Cleaner to clean your equipment. Follow the instructions on the packaging for how to use. If using another cleaner, please ensure that it is suitable for cleaning stainless steel brewing equipment.
- Heating pad: Simply wipe clean with a damp cloth.
- GCA: If necessary, wipe with a damp cloth but avoid contact with any electrical connections.
- The rubber bung stoppers can be inserted into the coil inlet and outlet, and the hoses, when not in use.

  NOTE: To ensure that these are effective, you'll need to use some force when pushing the bungs into the coil/hoses.
- Once you have cleaned your equipment, dry, reassemble and store.

IMPORTANT SAFEGUARDS

READ AND FOLLOW ALL INSTRUCTIONS

CAUTION - Risk of fires and electric shock.
- Do not immerse in water.

SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE

FOR HOUSEHOLD AND INDOOR USE ONLY

This device complies with Industry Canada license-exempt RSS standard(s) and FCC part 15. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence ainsi qu'á la section 15 du règlement FCC. L'exploitation est autorisée aux deux conditions suivantes :(1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

IC Radiation Exposure Statement: This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Déclaration d'exposition aux radiations: Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

SCAN AND EXPLORE THE FREE GRAINFATHER APP

RESOURCES: Check out our YouTube Channel for helpful videos. For more information, visit our Help Centre: **help.grainfather.com**

GET IN TOUCH ONLINE:
help.grainfather.com/hc/en-us/requests/new