



# INSTRUCTIONS

DESIGNED BY  
BREWERS  
— FOR —  
BEER  
LOVERS

**THE FINEST CRAFT BEERS ARE  
MADE FROM HOPS, MALTED GRAIN  
AND YEAST. THE GRAINFATHER  
OFFERS YOU INFINITE  
POSSIBILITIES JUST LIKE THE  
PROFESSIONAL BREWER.**

**THIS INSTRUCTION BOOKLET WILL  
GUIDE YOU THROUGH EVERYTHING  
YOU NEED TO BREW YOUR FIRST  
BEER FROM GRAIN AT HOME.**

**PLEASE ALSO TAKE A MOMENT TO  
VISIT OUR WEBSITE AND YOUTUBE  
CHANNEL FOR SUPPLEMENTARY  
INSTRUCTIONAL MATERIAL.**

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# SAFETY INFORMATION

The Grainfather has been developed for small batch beer brewing. Please only use it for its intended purpose.

## GENERAL SAFETY NOTES

- Read all instructions before using the Grainfather.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- This appliance is intended to be used in household and similar applications such as staff kitchen areas in shops, offices and other working environments; farm houses and by clients in hotels, motels and other residential type environments; bed and breakfast type environments; catering and similar non-retail applications.
- Always unplug the unit before cleaning, during storage or in the event of a fault.
- To protect against fire, electric shock and injury, do not immerse cord/plugs in water or other liquid.
- The boiler, lid and pipes reach temperatures up to 100°C (212°F) and therefore must be handled with caution. Never move the unit while it is in operation.
- The handle on the side is only meant for transportation once the Grainfather is empty and in a cooled, non-use state.
- Save these instructions for future reference.

## DISPOSAL

Please protect our environment by properly disposing of the unit. Electronic devices should not be disposed of as household refuse. Take note of the recycling symbol on any plastic parts before disposing. Please use proper facilities when disposing of the unit. More information regarding this can be found from your local or district municipal administration.



# TECHNICAL SPECIFICATIONS

## TOTAL WEIGHT

10 kg

## CAPACITY

30 L

## DIMENSIONS

733 mm x 386 mm

## STAINLESS STEEL GRADE

304

## MAGNETIC DRIVE PUMP

6 Watt, 1,800 RPM

## POWER

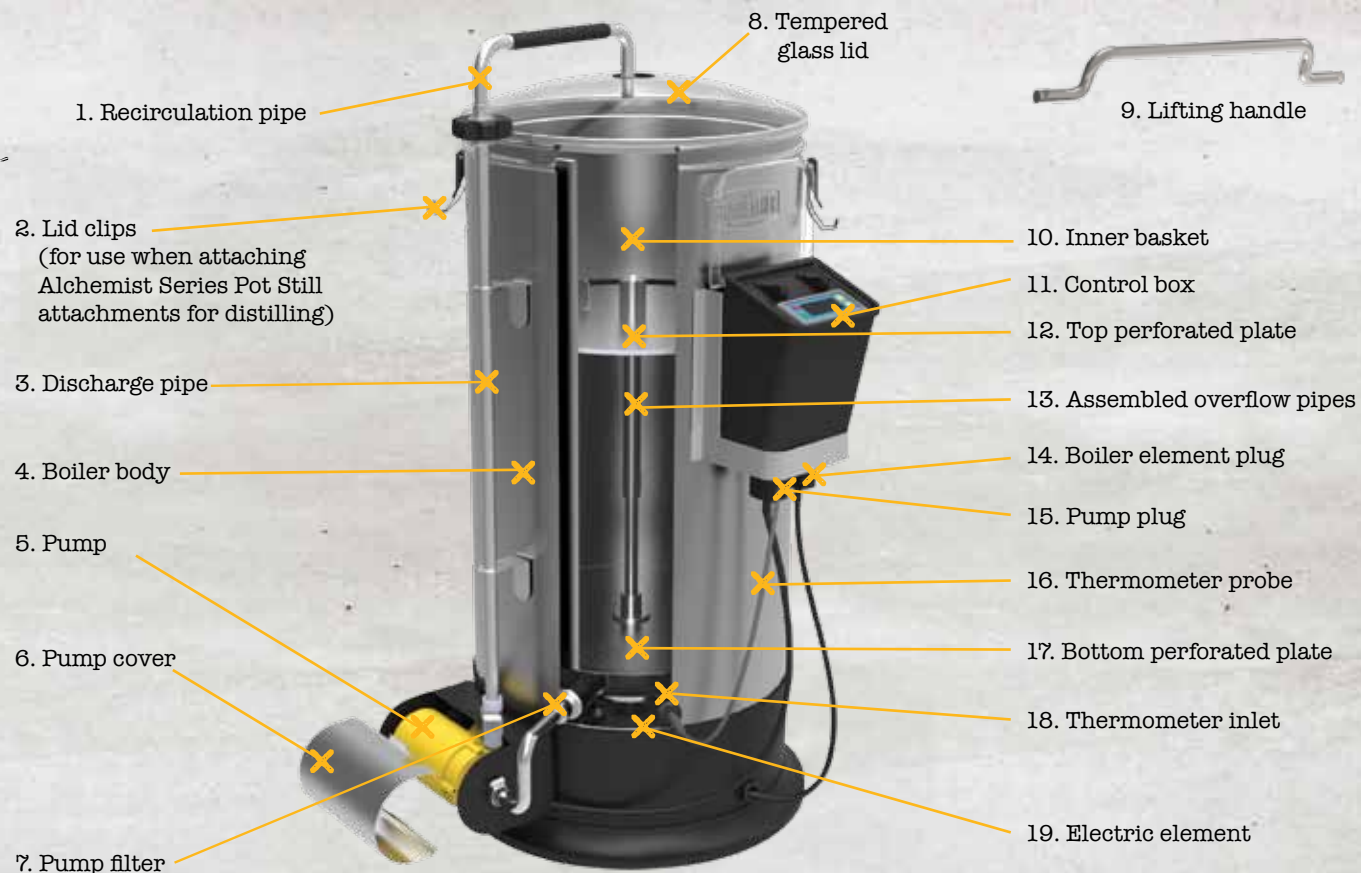
NZ/AU/UK 220-240V 2,000 Watts  
US/CANADA 120V 1,600 Watts

fig. 1



# ANATOMY

# SCHEMATICS



## OVERFLOW ASSEMBLY

20. Overflow inlet



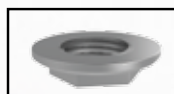
21. Overflow top pipe



22. Overflow bottom pipe



23. Overflow bottom nut



## CHILLER CONNECTION

24. Knob



25. Barbed nipple



26. O rings



## DISCHARGE PIPE CONNECTION

27. Hose clamps

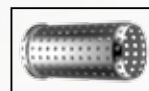


28. Screw & nut



## MISCELLANEOUS

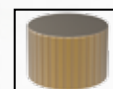
29. Pump filter



30. Silicone reticulation hose



31. Brass cap



32. Tap adaptors



33. Recirculation pipe O rings



34. Overflow pipe lids



# UNPACKING AND ASSEMBLING THE GRAINFATHER

**UNPACK THE GRAINFATHER FROM THE BOX. LAY OUT ALL OF THE COMPONENTS.**  
**TOOLS REQUIRED FOR ASSEMBLY: PHILLIPS HEAD SCREWDRIVER.**

## ASSEMBLING DISCHARGE PIPE

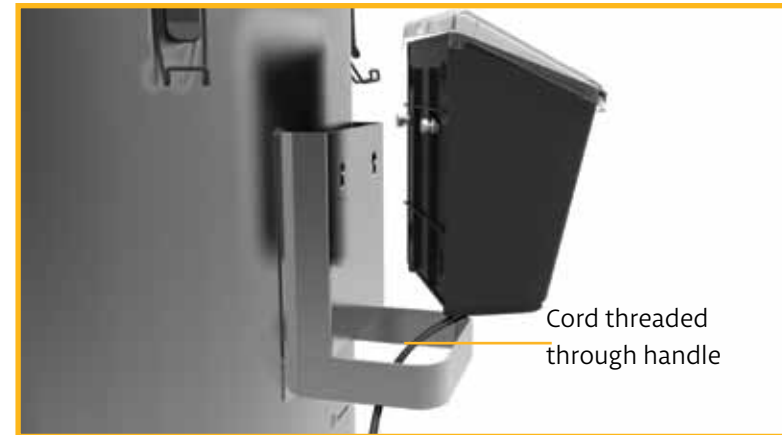
### ASSEMBLE DISCHARGE PIPE



Unpack the discharge pipe (3). Drop it down through the holed bracket on the side of the boiler. Push the bottom of this pipe into the fitted silicone tube on the pump outlet. Attach the hose clamp (27) and tighten it around the silicone hose. Now take the screw and nut (28) and connect this to the top bracket to secure the discharge pipe to the bracket.

**WARNING:** Never operate the unit without first fitting the brass cap (31) or recirculation pipe (1) to the discharge pipe (3).

## ASSEMBLING CONTROL BOX



Unpack the control box (11) from its carton and lock it in place. The studs on the back of the control box go into the holes in the metal bracket. Feed the cords from the control box through the handle.



Plug the cord from the pump into the pump inlet underneath the control box, do the same for the plug coming from the boiler. The plug exiting the pump is the pump plug, the plug exiting the boiler base is the heating element plug.

# ASSEMBLING THE INNER BASKET

**1**

## INSTALLING THE PUMP FILTER



Fit the pump filter (29) into the cup inside the base of the boiler body (4). Push in until it is secure.

**2**

## INSERT THERMOMETER PROBE



Fit the thermometer probe (16) into the thermometer inlet (18).

**3**

## INSTALL BOTTOM PERFORATED PLATE



Push the bottom perforated plate (17) all the way down into the inner basket (10). Push down on the sides to ensure it is level.

**4**

## INSTALL BOTTOM OVERFLOW PIPE



Place the overflow bottom pipe (22) into the hole in the bottom perforated plate (17). Secure the pipe by screwing on the overflow bottom nut (23).

**5**

## INSTALL TOP OVERFLOW PIPE



Push the overflow top pipe (21) over the overflow bottom pipe (22). Make sure the wire springs are facing down.

# PLUMBING THE COUNTER FLOW WORT CHILLER



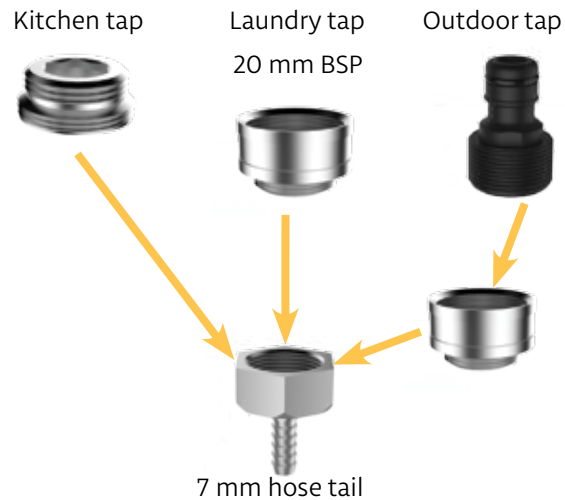
Your counter flow wort chiller will come with 4 hoses already connected to connections A B, C and D.

**NOTE:** The cold water from your tap flows one way and the hot wort flows the other way.

## INSTALLING THE COOLER CONNECTIONS

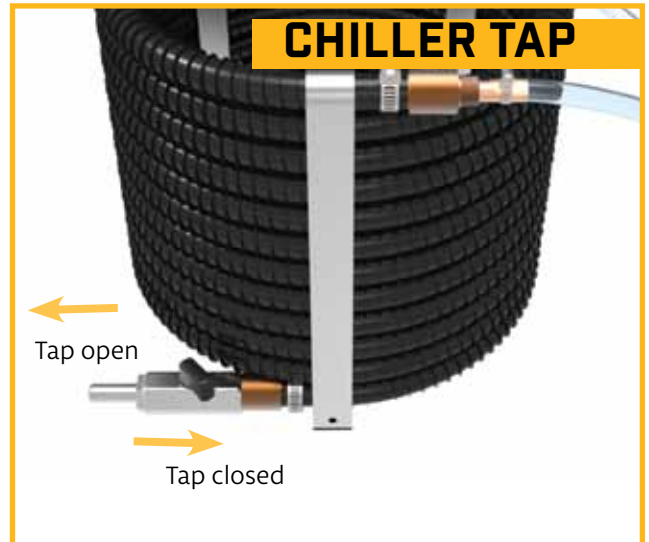


From the bag with the chiller connections, place one of the O rings (26) over the bottom end of the barbed nipple. Take hose clamp from connection D (but leave hose attached). Take the free end of hose A (shortest hose) and push hose clamp (taken from connection D) onto the end. Push the barbed nipple (25) through the hole in the plastic knob (24). Push hose A with the hose clamp onto the barbed nipple with plastic knob and secure.



Make sure you are brewing within reach of a water source. Follow the above diagram to set up the tap adaptors. Connect the end of hose B to the 7 mm (0.3 in) hose tail (32).

## CHILLER TAP



When the wort is being chilled. Adjust the tap to change how fast the wort flows through the chiller. The slower the wort runs through, the cooler it will come out.

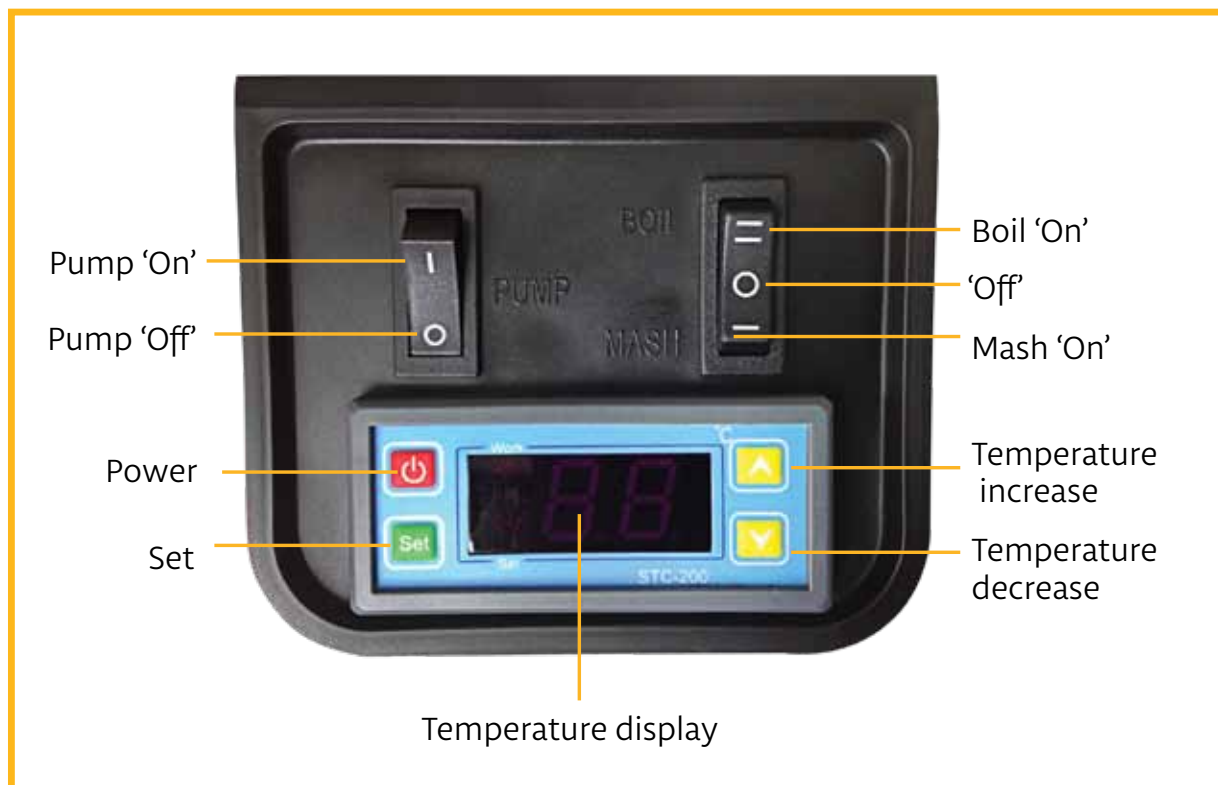
# OPERATING INSTRUCTIONS

## IT IS IMPORTANT TO CLEAN AND STERILISE THE EQUIPMENT BEFORE BREWING

Clean the Grainfather before the first use to remove any processing oils used in manufacturing. Fill the Grainfather with 7.5 L (1.98 US Gal) of water, add 30 ml (1 oz) of the Grainfather High Performance Cleaner. This cleaner is suitable for cleaning both stainless steel and copper and will remove proteins and other buildup from brewing. Its high strength also makes it perfect for doing the first clean to get rid of any manufacturing oils and grease.

Fit the assembled mash basket with top perforated plate, connect the counter flow wort chiller to the Grainfather and recirculate this through the pipework at 50°C (122°F) for 15 minutes. Remove the chiller and fit the brass plug to the pump discharge pipe.

Empty out the cleaning solution then add 7.5 L (1.98 US Gal) of water. Circulate this through the pipework and chiller. Ensure all surfaces have been rinsed with clean water before you start your brew.



# CONTROLLER OPERATION

## SETTING THE GRAINFATHER TO MASH

1. Push the switch to the 'Mash' position.
2. Press the 'Set' button and hold down for 3 seconds.
3. Use the up/down arrows to input desired temperature.
4. Push and hold the 'Set' button again for 3 seconds. The screen will display the temperature the unit is at. Once it reaches your input temperature it will maintain that temperature until reset.

## SETTING THE GRAINFATHER TO BOIL

1. Set the switch to the boil position. The device will bypass the temperature controller and come to the boil.
2. When the unit comes to the boil it may beep. If so, you can stop the beeping by pressing the 'Power' button.
3. Be very attentive as the mash comes to the boil, as you need to stir the "hot break" into the wort to ensure it doesn't boil over. This helps remind you to stir and pat down any foam during the initial stage of boiling to prevent a boil over.

## LOCATION



Mounted in the plastic base is the element variation switch. This switch controls the heat supplied by the element. This switch should be set to 'Normal' except during the mash stage.



When the switch is set to 'Mash' the element is reduced to 500 watts.

When set to 'Normal' it runs on 2,000 watts.

Set the switch to 'Mash' once grain is added and you are wanting to keep the temperature very stable. Switch to 'Normal' during "ramp up" between rests and when you are looking to boil.

# ELEMENT VARIATION SWITCH

This feature helps maintain a steady temperature in the Grainfather during mashing. Because we have used a very robust element to spread the heat evenly to avoid scorching, there is a lot of latent heat in the element when it reaches its input temperature. Using just 500 watts to maintain the temperature reduces any temperature overrun.

# MAKING THE BEER

## **READ BEFORE STARTING YOUR BREW**

**BEFORE STARTING, READ PAGE 11 FIRST TO CHOOSE YOUR METHOD OF SPARGING.**

**IF YOU ARE DOING A SMALL GRAIN BILL UNDER 4.5 KG (9.9 LB), FIRST READ THE INSTRUCTIONS ON PAGE 14 BEFORE DOING THE MASH.**



## 1

### MASH WATER CALCULATION

$$\begin{aligned} &(\text{Grain weight in kg} \times 2.7) + 3.5 \\ &= \\ &\text{volume of mash water to add to boiler} \end{aligned}$$

Use this calculation to work out how much water you need for the mash.

## 2

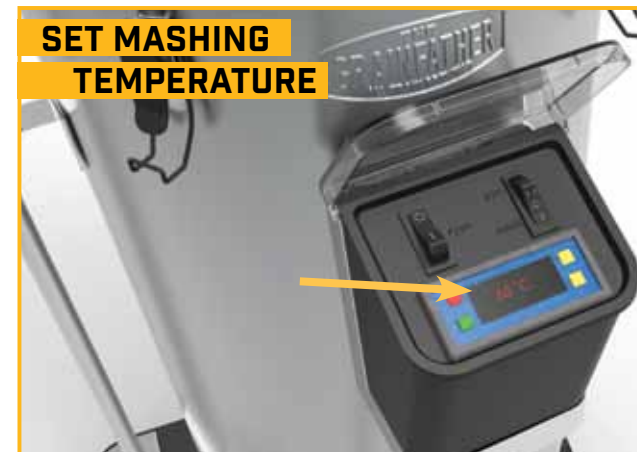
### ADD WATER TO THE BOILER



Add the required amount of mash water to the boiler body (4). Make sure the inner basket (10) is removed so that the scale on the side of the boiler is visible.

## 3

### SET MASHING TEMPERATURE



Input the temperature you want to mash at making sure the 'Mash'/'Boil' switch is in the 'Mash' position. Ensure the element variation switch is in the "Normal" position.

## 4

### REPLACE THE INNER BASKET



Replace the inner basket (10) making sure the overflow top pipe (21) is fully extended.

## 5

### COVER OVERFLOW TOP PIPE



Place one of the overflow pipe lids (34) on the opening of the overflow top pipe (21). This stops any grain from entering the pipe.

## 6

### ADD GRAIN



Once the control box indicates the correct mash temperature (from your recipe), slowly add the grain to the inner basket (10), stirring well to avoid any dry clumps.

7

### INSTALL TOP PERFORATED PLATE



Fit the top perforated plate (12) until it reaches the top of the grain bed, it should just rest against the grain, do not compress the grain.

8

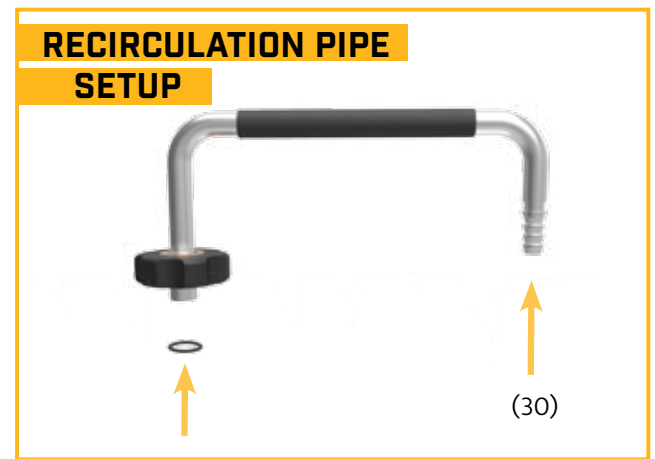
### INSTALL OVERFLOW INLET



Fit the overflow inlet (20) onto the overflow top pipe (21) and press down until it fits into the hole in the top perforated plate (12).

9

### RECIRCULATION PIPE SETUP



Take one of the recirculation pipe O rings (33) from the small clear bag and place it over the bottom of the recirculation pipe (1) and push the plastic knob down over the O ring. Then put the silicone recirculation hose (30) over the barbed end of the recirculation pipe.

10

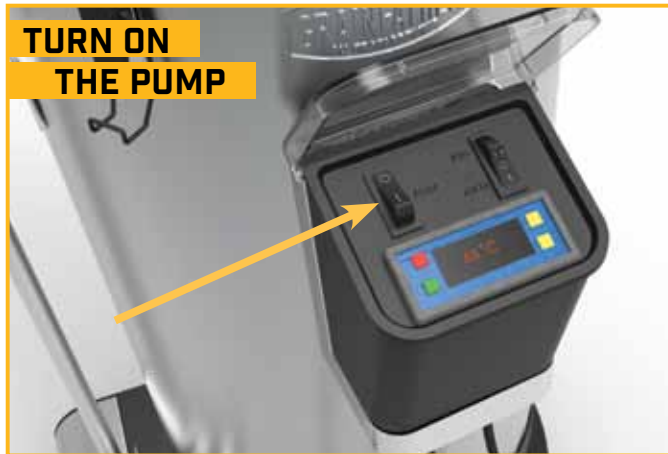
### ATTACH THE RECIRCULATION PIPE



Place the tempered glass lid (8) on the boiler and screw the recirculation pipe (1) onto the discharge pipe (3). Make sure it is threaded on correctly. The silicone hose should go through the hole in the glass lid and rest on the perforated plate.

11

### TURN ON THE PUMP



Switch on the pump. The wort flowing through the recirculation pipe should fill up on top of the top perforated plate.

The grain will be at a colder temperature than the water, it is normal for the temperature to drop. It will heat back up to temperature. Once it heats back up to temperature switch the element variation switch to 'Mash.'

12

### NOTES

## MASH OUT

When mash time is complete set the element variation switch to 'Normal' and ramp the temperature up to 75°C (167°F). Continue to recirculate for 10 minutes.

## OPTION 1

### HEATING URN



Sparge option 1 is a separate heating vessel to heat up the sparge water. Keep in mind that you will need the Sparge water heated while you are mashing.

## OPTION 2

### STAINLESS STEEL FERMENTER



Sparge option 2 is an option if you have a stainless steel fermenter. Before starting the mash, bring the required amount of sparge water to the boil in the Grainfather. Then use the recirculation pipe to pump this water into the fermenter. Seal the fermenter and when you are ready to sparge the water should be cooled to 75°C (167°F). To moderate the water temperature in the fermenter, boil more water in a kettle and add.

# 1

### SPARGE WATER CALCULATION

$$(28 - \text{mash water volume}) + (\text{grain bill kg} \times 0.8) = \text{sparge water volume}$$

Use this calculation to work out how much sparge water you need (assuming you want to collect 28 L (7.4 US Gal) preboil).

# 2

### BLOCK DISCHARGE PIPE



After the 10 minute mash out, switch the pump off, remove the recirculation pipe (1). Block the discharge pipe with the brass cap (31). This prevents wort exiting the discharge pipe in case the pump is accidentally switched on.

# 3

### LIFT THE BASKET



Fit the lifting handle (9) into the holes of the inner basket. Lift the inner basket and twist it 90 degrees to rest it on the support ring located at the top of the boiler.

# 4

### LOCK BASKET AND SPARGE



Allow the mash liquid to drain into the boiler, gently press the top perforated plate down (12) until it comes to rest against the grain. Gently pour the prepared sparge water over the grain. Keep the water level approx 10 mm (0.4 in) above the plate at all times for an even sparge. **NOTE:** Discard the used grain responsibly, it can make great compost or chicken feed.

## BOILING

### OPTIONAL EXTRA

#### SECOND GRAINFATHER BOILER



Purchase a second boiler and make a second brew concurrently. Once you have finished mashing your first brew, you can use the mash basket in your second boiler and start a second brew. This way you don't need a second grain basket or counter flow wort chiller and can make two different brews in about six hours.

1

#### SWITCH TO BOIL

After all of the sparge water has drained through the grain, remove the basket and set the controller to 'Boil'.

Make sure the element variation switch is set to 'Normal.'

NOTE:

**The controller will read 'O' then 'HH' when it reaches boil.**

**As the wort comes to a boil, the proteins will foam up. You will need to gently stir the foam for 5 - 10 minutes until it stops foaming.**

2

#### ADD HOPS AND TAKE READINGS

NOTE:

**Give the wort a good stir before taking the preboil SG reading.**

While the wort boils, add your hop additions as instructed on your recipe. Boil times are usually between 60 - 90 minutes.

1

#### CONNECT THE WORT HOSE



After boiling refit the tempered glass lid (8). Rest the counter flow wort chiller on the glass lid. Screw the plastic knob (24) onto the discharge pipe (3). Insert the 'cold wort out' hose (connection D) into the hole in the tempered glass lid (8). Turn the pump 'On' to recirculate the wort back into the boiler to sterilise the inside of the coil. Recirculate for at least 5 minutes.

2

#### CONNECT THE TAP WATER HOSE



The two long hoses on the chiller (connection B and C) are the cooling water hoses. Connect hose B to your tap adaptor. Hose C is where the water drains out. This will come out hot as the water flows through the chiller.

3

#### PUMP WORT INTO FERMENTER



Turn the cooling water on. Once the 'cold wort out' hose runs cold switch the pump 'Off' and place it inside the clean and sterilised fermenter. Adjust the chiller tap to control the temperature of the wort flowing into the fermenter. Always try to keep the fermenter sealed. Add yeast as instructed on recipe.

## CHILLING

1

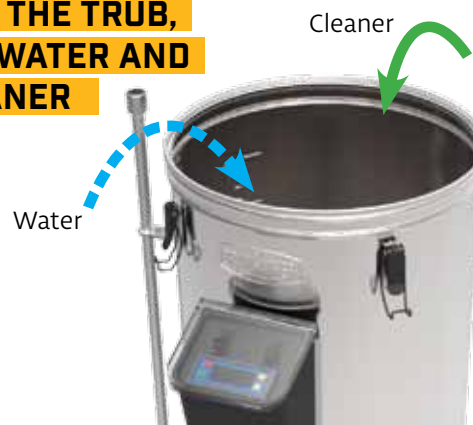
## YOU WILL NEED



The Grainfather High Performance Cleaner is a CIP cleaner specially formulated to work with hard and soft metals that the Grainfather and the chiller both have.

2

## EMPTY THE TRUB, ADD WATER AND CLEANER



Empty out the trub by tipping it down a drain. Remove the pump filter and rinse it, replace it again after rinsing. Fill the boiler up with 7.5 L (1.98 US Gal) of water. Add 30 ml (1 oz) of cleaner.

3

## RECIRCULATE THROUGH THE CHILLER



Connect the counter flow wort chiller as you would normally. Set the controller temperature to 55°C (131°F). Place the 'cold wort out' (connection D) hose from the chiller through the hole in the glass lid and let the cleaner recirculate through the chiller for 5 minutes.

4

## RECIRCULATE



After 5 minutes remove the chiller and connect the recirculation arm. Recirculate the cleaner for another 10 minutes.

5

## RECIRCULATE CLEAN WATER



Empty the cleaner and fill the boiler with clean cold water. Scrub the bottom and sides of the boiler with a soft brittle brush. Make sure to recirculate water through the chiller and recirculation pipe. Do not leave any water sitting in the copper pipe of the chiller. Dry all surfaces before storing.

# ADDITIONAL INFORMATION

## FINAL VOLUME IN FERMENTER

If you collect 28 L (70.4 US Gal) after sparging, you will lose between 8 and 10% during boiling and a further 2 L (2 US Gal) in the Grainfather leaving you with approximately 23 L (6.1 US Gal) in the fermenter.

### IF YOU COLLECT TOO MUCH WORT

Then you can boil for longer. This will mean you will boil off more water, giving you a higher OG.

### IF YOU DON'T COLLECT ENOUGH WORT

Top up the boiler with water.

#### NOTE:

The longer you boil for the more water you will boil away. This will give you a higher OG, meaning you will have a higher ABV percentage beer, but less volume of it.

## GRAIN BILL SIZES

The Grainfather can handle grain bills of up to 9 kg (19.8 lb).

### SMALL GRAIN BILLS BELOW 4.5 KG (9.9 LB)

If you are brewing a small grain bill below 4.5 kg (9.9 lb), you will need to add a little more mash water.

1. Fill the boiler with the same amount of initial mash water based on the calculation of 2.7 L (2.7 US qt) of water to 1 Kg (2.2 lb) of grain.
2. Add the grain and mix it in.
3. Fit the top perforated plate and overflow pipework. Depending on how small your grain bill is, the top perforated plate may not go down all the way and rest on top of the grain. This is fine, make it go down as far as it can.
4. Fill the unit up with additional water until the water level is just above the perforated plate. Take note of the additional water you used for when you do your sparge calculation.

## GRAIN

It is important that the grain used for brewing is crushed to the correct consistency. If the grain is not crushed enough, not enough of the starches will be available for the enzymes to work. If the grain is over crushed, water will not be able to correctly flow through the grain and this can cause a 'stuck' mash.

## DISTILLING

The Grainfather is also great for making whiskeys, and other spirits from grain. Once you have made your spirit wash and fermented it, the Alchemist Series Alembic Condenser and Dome Top can be fitted to the top for distilling. Instructions for distilling are included with the alembic units. The clips on the boiler are for securing the Alembic Dome top and condenser.

Be aware that in New Zealand it is legal to distil your own spirits and liqueurs for personal consumption. However please note that in certain countries alcohol distillation may be illegal and you may require a licence. Ask for advice or contact your local Customs & Excise Department.



# BREWING CALCULATIONS

1

## GRAIN BILL

The following instructions will show you how to work out the efficiencies and alcohol percentage of the beer.

This example is based on a grain bill of 6 kg (1.58 lb) and 28 L (7.39 US Gal) in the boiler before starting the boil.

You will be taking two gravity readings with every recipe you make.

Preboil SG - reading after sparging.

OG - reading of wort after boiling and what you get in your fermenter.

2

## WORKING OUT EFFICIENCY

In this example the pre-boil SG is 1.051

$$\text{SG} \times \text{preboil volume} = \text{A}$$

$$\text{grain weight} \times 290 = \text{B}$$

$$\text{A} \times 100 / \text{B} = \text{efficiency}$$

**EXAMPLE**     $51 \times 28 = 1428$   
                   $6 \times 290 = 1740$   
                   $1428 \times 100 / 1740 = 82\%$

When working out your OG efficiency, simply substitute in the volume of beer you get into the fermenter, and also the SG reading that you get from the wort in the fermenter.

3

## FG

After the beer has finished fermentation (when the airlock stops bubbling), you can take the FG reading. This is your final gravity reading and you can use this to work out the alcohol percentage of the beer.

## ABV

$$(\text{OG} - \text{FG}) \times 131.25 = \text{ABV}\%$$

### EXAMPLE

$$(1.051 - 1.011) \times 131.25 = 5.25\%$$

## GRAIN WEIGHT AND ABV

In general the ABV of the beer will be similar to the kilograms/pounds of grain. However the ABV will depend on how you mash and ferment, but this can be used as a quick guide to think about before making a beer.

5 kg (1.32 lb) Grain	5% ABV
6 kg (1.58 lb) Grain	6% ABV
7 kg (1.85 lb) Grain	7% ABV

## CALCULATING STANDARD DRINKS

Amount of drink in litres (Vol) x ABV (%) x density of ethanol at room temperature (0.789).

### EXAMPLE

For 500 ml (16.9 oz) of beer which is 5% ABV.

$$0.5 \times 5 \times 0.789 = 1.97$$

This is approximately two standard drinks.

## PLEASE BE A RESPONSIBLE HOST

Always calculate your beer's alcohol percentage and make your guests aware of this. Drink high alcohol percentage beer with caution.

Advise any friends that you are sharing your drinks with that the alcohol content of the beer may be higher than they are used to.

# COMPLETING YOUR BREWERY SETUP

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## STAINLESS STEEL FERMENTER

Perfect for fermenting your wort. It is made of high grade 304 stainless steel, designed with a seamless interior making it easier to keep clean and sterile while fermenting. It will look great sitting next to your Grainfather.



## STILL SPIRITS ALCHEMIST SERIES ALEMBIC CONDENSER AND DOME TOP

Turn the Grainfather into a still to distil fine craft whiskeys, vodkas or other spirits made from grain using the Grainfather.



## KEGERATOR

The ultimate way to serve your beer. Nothing is more professional and satisfying than having your own craft beer on tap and saving hours on bottling time!



## CO<sub>2</sub> CYLINDER

A full, high quality CO<sub>2</sub> cylinder to fit the cradle on the rear of your Kegerator. Finish the Kegerator off nicely and get pouring!

# GLOSSARY

**ABV**: The measure of Alcohol by Volume.

**Beta Glucan Rest**: 36–45°C (97–113°F). The beta-glucanases/cytases enzymes which are part of the cellulose enzyme family will carve up the beta glucans in unmalted grains like wheat, rye, oatmeal and unmalted barley. If these gums aren't broken up then the mash can become gummy and cause a stuck mash.

**Counter Flow Wort Chiller**: A heat exchanger that has the wort flowing one way and the cooling water flowing the other. The heat transfers from one liquid to another.

**EBC**: European Brewing Convention, Lovibond Scale. Used to determine the colour of a beer. The higher the number the darker the beer.

**Enzymes**: Complex proteins that break down starch into simple and complex sugars. Different enzymes activate at different temperatures. The mash temperature is adjusted to activate the correct enzymes to leave a range of simple and complex sugars in a mash. Yeast can only consume relatively simple sugars so more complex sugars formed in the mash will result in a higher FG and more body in the beer. Simple sugars get converted to alcohol.

**Ferment**: The action of yeast converting malt to alcohol and carbon dioxide.

**Fermenter**: A vessel to hold the brew. This can be either plastic, glass or stainless steel.

**Final Gravity (FG)**: The measurement of gravity at the end of fermentation.

**Grain Bill**: The grains used in a recipe. The bigger the grain bill the higher the alcohol percentage.

**Hop Addition**: The quantity and type of hops added to a brew. Hop addition time is expressed as minutes from the end of the boil.

**Hydrometer**: A glass float with a graduated scale. If the liquid is water at 20°C (68°F) then it will measure 1.000. If the liquid contains sugar (malt) then the hydrometer will float higher in the liquid and the measurement will be higher than 1.000. During fermentation the sugars are converted to alcohol and this reduces the gravity.

**IBU**: International Bitterness Units. Used to determine the bitterness level of a beer.

**Mash**: The mixture of grain and water. This is held at different temperatures throughout the process to activate different enzymes.

**Mash out**: This is to ramp the temperature up to 75°C (167°F) and allow the wort to recirculate for 10 minutes. This denatures the enzymes and prepares the grain for sparging.

**Original Gravity (OG)**: The measurement of gravity at the beginning of fermentation.

**Protein Rest**: 45–55°C (113–131°F). Some European malts are not fully converted by the malthouse. If they aren't the mash will benefit from a rest in this range. This helps improve the head retention and avoid chill haze.

**Refractometer**: An extremely useful tool to establish the Specific Gravity (SG) of the wort before and after fermentation. This instrument measures the refractive index of the sugars in the wort/beer. You only need a few drops so it is quicker and more convenient than using a hydrometer.

**Saccharification Rest**: 55–72°C (131–162°F). The most used temperature for the saccharification rest is 67°C (153°F). There are two enzymes in play here. The Alpha enzyme 65–72°C (149–162°F) and the Beta enzyme 55–65°C (131–149°F). Both favour different temperature ranges. Generally the higher the temperature the more unfermentable sugars in your mash, which increases the body.

**Sparge**: The action of rinsing the grain with hot water after mashing. This ensures all of the sugars are extracted from the grain.

**Specific Gravity (SG)**: The measurement of the density of a liquid. Measured with a hydrometer.

**Step Mashing**: This is to mash in separate stages. The steps generally start with a protein rest and end with a saccharification rest. This method is used to achieve different characteristics in a beer.

**Trub**: This is the mixture of proteins and hops that remain in the boiler after the wort is pumped out through the chiller.

**Wort**: The liquid formed when water and grain are combined and held at the correct temperature for the enzymes to produce malt.

**Whirlpool**: After boiling has finished the wort can be stirred gently in one direction to create a whirlpool so that hops and trub collect in the centre of the boiler. The wort can then be run off into the fermenter leaving the trub behind. This isn't really necessary with the Grainfather as the pump filter prevents this from being pumped into the counter flow wort chiller.

## LEGALITY

It is legal in most countries to brew your own beer at home, however it is illegal to sell any alcohol without a valid liquor license. Please drink responsibly and do not give alcohol to minors.

## GUARANTEE CONDITIONS

- Statutory guarantee conditions apply. The guarantee period is 12 months from the date of purchase.
  - A valid purchase receipt will need to be presented for any guarantee claims.
  - No guarantee will be given for any defects due to non-compliance of the operating instructions, improper handling and/or treatment of the unit.
  - Guarantee claims are excluded where any work has been performed on the unit by unauthorised parties. Should your product display any defects in the guarantee period, please contact us. For guarantee claims return the product to the dealer/agent of purchase.
- Please also get in contact with us and let us know what you think of this product by emailing our product development team at [info@grainfather.com](mailto:info@grainfather.com).



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