



**BRÄU**  
SUPPLY



**Unibräu**  
all in one

**Brewing System**  
Instructions

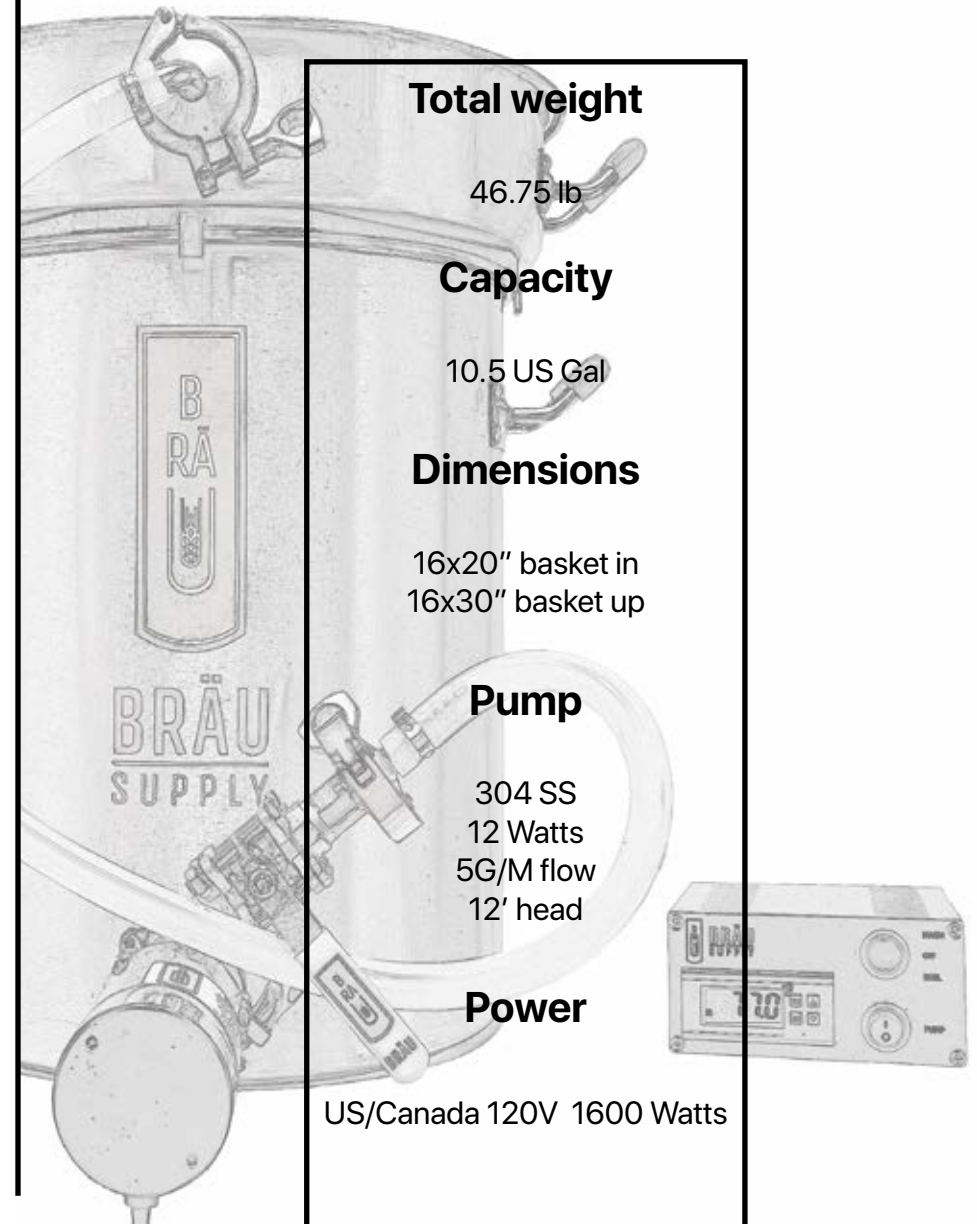


## Safety



- Please read all of the instructions before using the Unibräu.
- Always unplug the unit before cleaning, and during storage.
- Always plug this unit into an approved GFCI receptacle for your own safety.
- Never immerse the power cord/plugs in water or other liquid.
- The kettle reaches temperatures of up to 212° F (100°C) and should be handled with caution. Never move the unit while in operation.
- Always place the unit on a suitable surface designed to handle high temperatures.
- Never turn the unit on without adequate liquid covering the brewing element. Failure to do so can result in element failure and in extreme cases fire.

## Technical Specifications



# Unibräu System Contents

- Stainless brew kettle, retention ring and screws, grain basket and grain basket lid.
- Your choice of brewing controller, with sensor, cable and power cord. Extra C14 power cord (240V 30A system only).
- Brewing element with detachable power cord. (seperate power cord not included with 240V 30A system).
- Brew pump with stainless head.
- Qty 6 - 1.5" tri-clamp compatible clamps and gaskets.
- 1.5" tri-clamp compatible female NPT adapter.
- 1.5" tri-clamp compatible male NPT adapter.
- 3 piece ball valve.
- 1.5" tri-clamp compatible barb adapter.
- Qty 2 - 1.5" tri-clamp compatible 90° barb adapters.
- 2' and 3' length of 1/2" silicone tubing.
- Plate chiller assembly - 2 worm gear hose clamps, faucet adapter, red PVC tubing, blue PVC tubing with female garden hose connection.

# getting started

Unpack the Unibräu from the box and lay out all of the components.

Tools required are a wrench, a slotted screwdriver or socket set, and a wrench and teflon plumbers tape.

## Important to read before you begin brewing

- Read P.12 for how to clean your unibräu and other equipment. This is important to do before your first use to remove any residual oils from the manufacturing process.
- Read P.7 and choose whether you are brewing with a full volume mash or adding a sparge step.
- Setup and brewing videos are available @ [brausupply.com](http://brausupply.com) under the "learn" header.
- The kitchen counter may seem the most logical choice of placement for the Unibräu system, but due to the heavy lift when removing the grain basket, we recommend brewing on the floor, or on a stand lower than 30" (60cm) high. Placement near GFCI receptacles, adequate ventilation, and a water supply will be necessary.

## Grain basket

Place the retaining ring on the kettle. With either a wrench or a 4mm allen key, insert and tighten the enclosed machine screws into the 4 threaded holes on the retaining ring. Tighten until snug only.

## Assembling the pump



Wrap the pump threads and male Tri-clover fitting threads 4 times in a clockwise direction with teflon plumbers tape. Thread the female tri-clover compatible fitting onto the pump inlet. Thread the male tri-clover compatible fitting onto the ball valve. Ensure the fitting is threaded onto the handle end of the ball valve. Now, thread the ball valve onto the pump outlet. Tighten all of the connections with a wrench, to ensure a watertight seal.



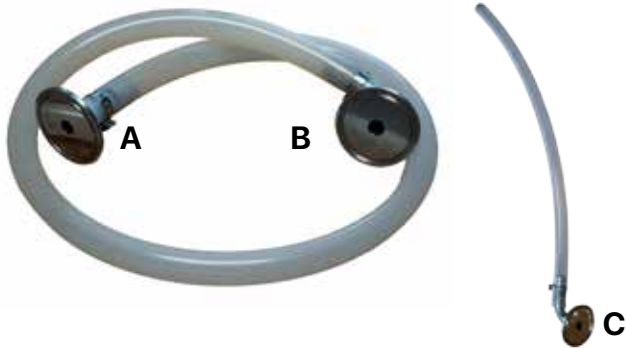
## Make tri-clover compatible connections to kettle

Attach the pump, the water heating element, and the temperature sensor to the 3 ferrules on the kettle using a silicone gasket for each connection and a tri-clover compatible clamp.



## Attach the discharge and circulation tubing

Attach end 'A' of the discharge tubing to the ball valve tri-clover ferrule. Use a gasket and clamp. Attach end 'B' to the outside tri-clover ferrule of the grain basket. Attach end 'C' of the circulation tubing to ferrule on the inside of the grain basket.



## Assemble the controller

Unpack the controller from the box, and place beside the Unibräu system. Plug the cord from the pump into the pump inlet. Plug the element power cord into the outlet marked "heat". Align the 3 prongs of the other end of the element power cord to the water heater element and plug in. This is a twist lock connection. Plug the power cord into the controller and to a GFCI outlet in your home.



**Do NOT** plug the power cable from the controller in unless you are sure that the switch is in the OFF position!

Carefully clip the straps of the temperature sensor cable using scissors, and uncoil. Plug the un-marked end of the sensor cable into the probe, holding it by the end and making sure the pins are aligned. Do the same with the other end, and plug it into the controller.



# Plumbing the counterflow plate chiller

Your counterflow chiller requires you to connect the tubing to the chiller. Slip a hose clamp over the blue tubing and connect the tubing to the 'water in' barb. Do the same with the red tubing and connect to the 'water out' barb. The cold water flows one way and the hot wort flows the other, exchanging the heat from the wort to the cold water. Use a slotted screwdriver or a wrench and socket to tighten the hose clamp until it is leak free.

Disassemble the discharge tubing (end B) at the mash basket and connect to the "wort in" side of the counterflow chiller. Do the same with the recirculation tubing (end C) and connect to the "wort out" side of the heat exchanger.



Make sure you are brewing within reach of a water source.

Make the necessary connections to your tap. Attached to the heat exchanger is a garden hose connection. If necessary connect the faucet adapter.



You may have to source your own faucet adapter to make the necessary connections if our adapter does not fit.





# Operating Instructions



Do not switch the controller on unless there is sufficient water to cover the water heating element.

## Controller operation

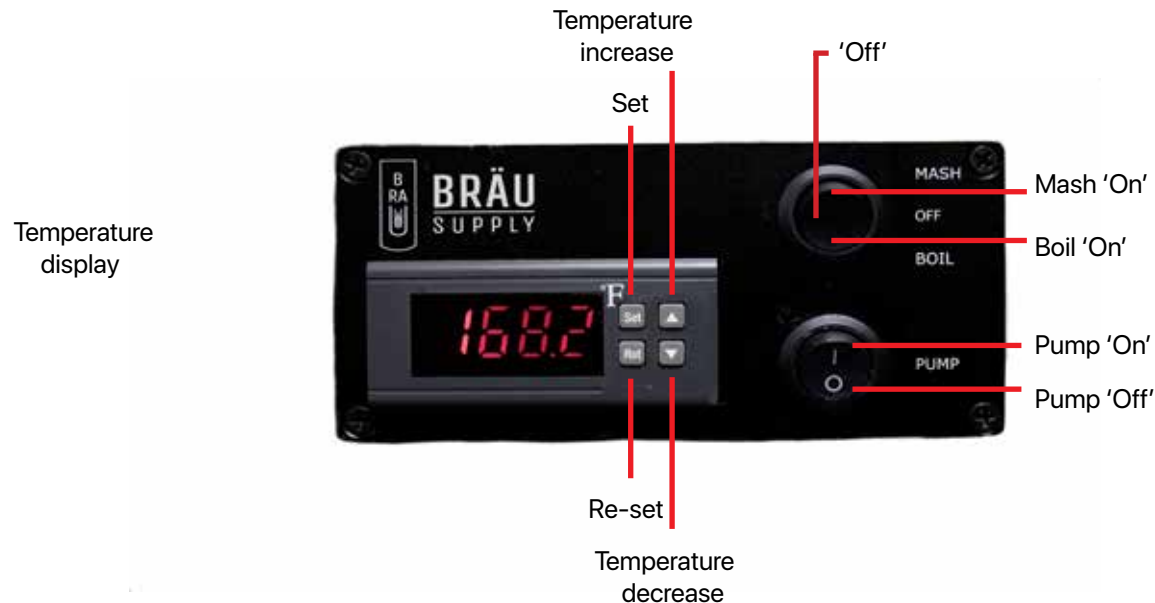
### Mash mode

1. Push the switch to the 'mash' position.
2. Press 'set' and use the  or  arrows to input the desired temperature.
3. Press 'RST' to set temperature and return to current temperature display. Once the set temperature is reached, the controller will maintain the set temperature until reset.

The temperature may fluctuate by a degree on the controller. This is normal and will not affect the quality of the mash process.

### Boil

1. Set the switch to the 'boil' position.
2. When the unit comes to a boil it will beep to alert you for your safety. Press the 'RST' button to stop the beeping.
3. Exercise caution as the wort comes to a boil and stir the wort to prevent a boil over.



# Mashing

- 1** Select one of the strike water calculations below. We recommend to start with 'BIAB method' to begin with, and recommend sparging if the total volume of water + grains = more volume than the kettle volume.

## Strike water calculation - BIAB method

### 60 minute boil formula

(Grain weight in lb x 0.073) + 7.3 US Gal

=

volume of mash water in US Gal to add to kettle

EXAMPLE: (11 lb of grain) (11 x 0.073) + 7.3

=8.103 US Gal

## Strike water calculation - sparge method

### 60 minute boil formula

(Grain weight in lb x 0.313) + 2 US Gal

=

volume of mash water in US Gal to add to kettle

EXAMPLE: (13 lb of grain) (13 x 0.313) + 2

= 6.069 US Gal

These formulas are designed to give you 6.25 gallons of wort post boil. If you are brewing 5 gallons, subtract a gallon from your final calculation. The 0.25 gallons is the loss to trub from your boil and fermenter losses, giving you 5 gallons in your keg.

**2**

## Add strike water



**3**

## Set mash temperature



Set the desired temperature of your mash and push the switch to 'mash'. If mashing with a large grain bill, you can set the temperature 7° higher than your mash temperature to compensate for the cooling effect of adding the grains.

**4**

## Replace the grain basket



Replace the grain basket, and open the ball valve attached to the pump. Ensure that the recirculation tube inside the grain basket is secure in the basket. Switch on the pump. The water should begin recirculating. Put the lid on to preserve the heat.



## Mashing

**5**

### Add grain



Once the set temperature has been reached, shut off the pump and remove the lid. Slowly add the grain to the grain basket, stirring well to thoroughly wet the grain and avoid dry clumps.

**6**

### Turn on the pump



Open the ball valve 1/4 turn. Switch the pump on to begin recirculation. Observe the liquid level in the grain basket.

**7**

### Adjust recirculation



Throttle the ball valve to match the recirculation rate, ensuring the level does not rise more than a few inches. It is important to observe and adjust this phase, as you do not want to risk exposing the heating element, and too much liquid on top of the grain bed unnecessarily compacts the mash, leading to a stuck sparge. Stir in regular intervals during the mash process.

Below is a table which describes the steps used in a step mash. You can use just the saccharification rest, or all steps, based on your recipes needs.

Steps	Temperature	Time
Beta glucanase rest	104°-122° F	15-30 minutes
Saccharification rest	140°-160° F	45-90 minutes
Mash out	168° F	10 minutes

## Sparging and Lautering

### BIAB method

When the mash is complete, shut off the pump, close the ball valve and lift up the grain basket. Turn the grain basket 90° so that it rests on the support ring. Allow the liquid wort to drain into the kettle. Using your mash spoon, you can squeeze the grains to release more of the liquid. Disconnect the discharge tubing at the grain basket attachment once it's cool enough to touch, and hang over the edge of the kettle. Remove the grain basket and dispose of the spent grains.



## 1

### Sparge method

#### Formula

7.32 - mash water volume in US gal + (grain lb. x 0.12)

=

sparge water volume in US Gal

Example: 7.32 - 6.069 + (13 x 0.12)

=

2.81 US Gal sparge water

Use the above formula to determine how much sparge water you need. This assumes a pre-boil volume of 7.32 US Gal for a finished batch of beer of 6.6 Gal. This volume accounts for shrinkage, and losses to trub with the goal of 6 Gal into your fermenter. If you are brewing a 5 Gal batch, simply subtract a gallon from the final number.

Keep in mind that it can take around 20 minutes to heat your sparge water. Time the sparge water to be ready when the grains are hoisted from the mash.

When the mash is complete, shut off the pump, close the ball valve and lift up the grain basket. Turn the grain basket 90° so that it rests on the support ring.

## 2

### Sparge method

Gently pour the sparge water over the grains trying to maintain around 1/2" of liquid over the grains. Allow the wort to drain into the kettle. Using your mash spoon, you can squeeze the grains to release more of the liquid. Disconnect the discharge tubing at the grain basket attachment once it's cool enough to touch, and hang over the edge of the kettle. Remove the grain basket and dispose of the spent grains.

# Boil



The temperature reading during boil will not always read at 212°F and often reads less. This is due to the sensor placement which is optimized for accurate mash temperature and variations in altitude. If the water has any movement to it, you have reached boil.

**1**

## Boil



Switch the controller to boil. The controller will begin to beep as the wort approaches a boil. Press the 'RST' button to stop the beeping.

**2**

## Hot break



When approaching boil, the proteins coagulate and a foam will start to rise. This is called the 'hot break'. Use your brewing spoon to either stir or skim the break, to prevent a boil over.

**3**

## Add hops



Add your hop additions as per recipe instructions while the wort is boiling. Boil times are usually 60-90 minutes.

**4**

## OG



Take a pre-boil gravity reading.

# Cooling

**1**

## Connect tubing



After boiling the wort, connect the discharge tubing to the 'wort in' connection of the counterflow heat exchanger. Remove the recirculation tubing from the grain basket, rinse it free of grain, and connect to the 'wort out' connection of the plate chiller. Secure the discharge end into the boil. This can be achieved by squeezing it between the space of the retaining ring on the kettle and the kettle rim. Turn the pump on and recirculate the wort for 5 minutes to sanitize the counterflow chiller.

**2**

## Water connections

Connect to faucet



To drain



Make the water connections to your water source. Use the included adapter if necessary. Secure the red tubing into your drain.

**3**

## Pump wort

Turn your cooling water on. Adjust the flow of the recirculation wort so that the flow back into the kettle is cold. Shut the pump off. Now move the recirculation tube into your sanitized fermenter and turn the pump back on.

**4**

## Aerate

Let the wort splash into the fermenter to aerate the wort.



**5**

## Add yeast



Once you've filled your fermenter, add the yeast according to the packet instructions.

**6**

## OG



Take a gravity reading of the chilled wort.

# Cleaning

**1**

## Tools



PBW is a great cleaner and protects the stainless steel of your Unibräu system. A nylon bristle brush helps to remove stubborn gunk that can stick the brew system.

**2**

## Rinse and fill



Empty and rinse out the brew system, using the nylon brush to remove any loose particulates. Fill with 3 Gal of hot water, and add 1.5 Tbsp of PBW.

**3**

## Recirculate



Connect the counterflow wort chiller as you would normally, except reverse the wort connections so water flows into 'wort out' and out of 'wort in'. Turn the controller on and set the temperature to 135° F. Turn on the pump and recirculate the PBW solution for 20 minutes. You can wash the grain basket with soap and water while the cleaner is recirculating.

**4**

## Clean water rinse



Empty and rinse out the brew system, and refill with clean cold water. Turn the pump back on and rinse for another few minutes through the chiller and tubing.

**5**

## Empty and dry



Empty the system, and pump out as much water as you can out of the counterflow chiller. Dry all surfaces with a soft cloth. All the components can be stored inside the kettle.

# Fermenting and notes

- Now that you've transferred the wort into your fermenter and pitched your yeast, you'll want to maintain the appropriate fermentation schedule depending on your style of beer and the strain of yeast used.

Beer Style		Fermentation temperature
Ales		60°-72° F for 10-14 days transfer to keg or bottles and condition for 1 month
Belgian	10-14 days in fermenter, 2 weeks to a month conditioning	74°-78° F for 10-14 days transfer to keg or bottles and condition for one month
Lagers		60° for first 48 hours 45°-55° F for 2 weeks 67° for 48 hours 32°-36° lagering for 1 month
Kölsch		60°-65° F for 10-14 days transfer to keg or bottles and condition for 1 month
Saison		65°-95° F for 10-14 days transfer to keg or bottles and condition for 1 month

We recommend researching more about fermentation and the yeast strain you are using for your particular recipe. Check out the 'learn' section on our website for more brewing information.

If you are a beginner <http://howtobrew.com> is a wealth of information.

- Seal the lid, half fill an airlock with water and push it in place and ferment.
- After 10-14 days most beers are fermented. You can use a hydrometer to measure the SG. When the SG stabilizes and reads the same for 2 days, your beer is ready.

## The Crush

We recommend an ideal crush size of between .039" and .045". In fact, with a recirculating system such as the Unibräu a coarser crush is recommended, closer to the 0.045" roller gap of your grain mill. With too fine of a grain crush, you may experience stuck mashes, and lost sugar conversion ability, because of the impeded flow through the grain bed.

## Final volume

The calculations provided in this manual will fluctuate for each user experience, and recipe style. We recommend taking notes, and observing how much liquid boils off during the boil, and adjusting the liquid volumes based on your own experiences.

### If you collect too much wort

If you collect too much wort, you can always boil for longer. This will give you more evaporation, raising the OG.

### If you don't collect enough wort

If you don't collect enough wort, you can add more water to the kettle, giving you the volume you need. This will lower the OG.

## Final Gravity

When the beer is finished fermenting, you can take a FG reading. This is your final gravity reading and you can use this to calculate the alcohol content of your finished beer.

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

$$\text{Example } (1.061 - 1.016) \times 131.25 = 5.9\%$$

# Glossary

**ABV:** The measure of alcohol by volume.

**Beta Glucanase:** used for reducing the viscosity of barley, malt, rice, rye, and other cereal grains, which have high  $\beta$ -glucan levels BIAB: "Brew in a bag"

**Counterflow wort chiller:** A heat exchanger with the wort flowing one way and the cold water flowing the other. The heat is transferred to the cold water from the hot wort, effectively chilling the wort.

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

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

**FG:** Final gravity. This is the SG reading when fermentation is finished.

**OG:** Original gravity. The gravity of the wort as measured right before fermentation.

**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:** an instrument for determining the specific gravity of a liquid, commonly consisting of a graduated tube weighted to float upright in the liquid whose specific gravity is being measured.

**Lauter:** process in brewing beer in which the mash is separated into the clear liquid wort and the residual grain. Lautering usually consists of 3 steps: mashout, recirculation, and sparging.

**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 167°F (75°C) and allow the wort to recirculate for 10 minutes. This denatures the enzymes and prepares the grain for sparging.

**Pitching:** a brewer's term meaning to add the yeast to the fermenter

**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 wort/beer. The higher the index, the more sugar that is present. Results are often displayed in degree brix and SG. Refractive index of water is 0 degree brix, and 1.000 SG. You only need a few drops so it is quicker and more convenient than using a hydrometer.

**Saccharification Rest:** 140-160°F (55-72°C). The most used temperature for the saccharification rest is 153°F (67°C). There are two enzymes in play here. The Alpha amylase enzyme 149-162°F (65-72°C) and the Beta amylase enzyme 131-149°F (55-65°C). Both favor different temperature ranges. Generally the higher the temperature the more unfermentable sugars in your mash, which increases the body.

**SG:** Specific gravity. The current measure of gravity reading. Referred to SG when measuring gravity between OG and FG readings.

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

**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.

**Strike Temperature:** The temperature of the water at the point when the grains are added to the water. The initial strike temperature is generally 7°-12°F above the target mash temperature.

**Trub:** This is the mixture of proteins and hops that remains 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.