BRÄU SUPPLY

Unibräu

all in one

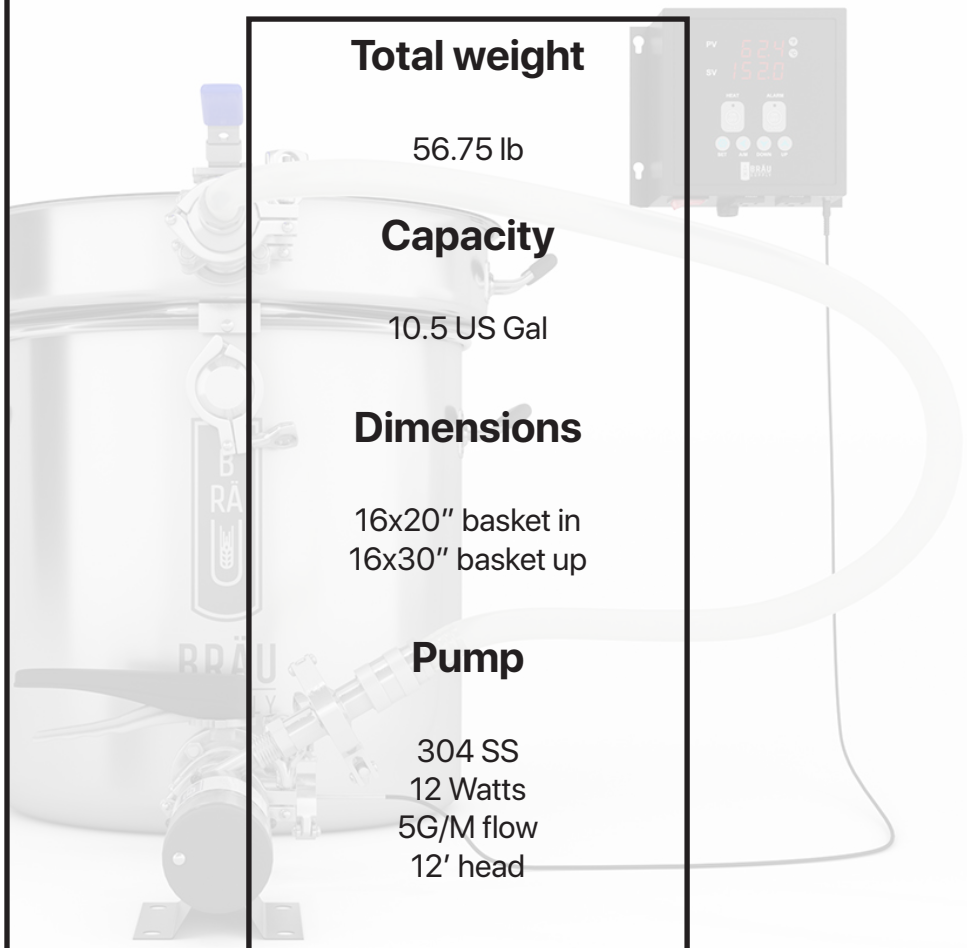
Brewing System

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 you own safety.
- Never immerse the power cord/plugs in water or other liquid.
- The kettle reaches temperatures of up to 212º F (100ºC) 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



Total weight

56.75 lb

Capacity

10.5 US Gal

Dimensions

16x20" basket in
16x30" basket up

Pump

304 SS
12 Watts
5G/M flow
12' head

Power

US/Canada 120V 1650 Watts
US/Canada 240V 5500 Watts
International 240V 2000 Watts

Unibräu System Contents

- Stainless brew kettle and lid, retention ring and screws, grain basket and grain basket lid
- SV1 brew controller with sensor, cable and power cord. Controller operating instructions provided on a seperate document inside of the controller box.
- SV240 controller and patch cable included with the 240V system.
- Brewing element with detachable element power cord.
- Brew pump with stainless head.
- Qty 9 - 1.5" tri-clamp clamps and gaskets.
- Qty 1 - 1.5" tri-clamp cap.
- Qty 2 - 1.5" tri-clamp female NPT adapters.
- Qty 2 - 1.5" tri-clamp male quick disconnect adapters.
- Qty 2 - 5/8" barb female quick disconnect fittings.
- Qty 1 - 3 piece 1.5" tri-clamp ball valve.
- Qty 1 - 1.5" tri-clamp butterfly valve.
- Qty 1 - 1.5" tri-clamp compatible 90º barb adapter.
- 5' length of 1/2" silicone tubing.
- 50' coil in coil counterflow chiller.
- Water connection kit with two 8' long braided tubing, 2 quick disconnect male and female fittings and a faucet adapter.

Unibräu system accessories and add ons:

The modularity of the brewing system allows you to add virtually limitless accessories and options to customize the brewing system to your own personal needs.
Below is a list of available accessories:


Hopblock filter plate and dip tube


120V element upgrade kit


Whirlpool arm kit


Steam condenser


Sparge arm kit


Nylon mesh bag

Getting Started

Important to read before you begin brewing

- Read P.13 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.8 and choose whether you are brewing with a full volume mash or adding a sparge step.
- Setup and brewing videos are available @ 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 lifting 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.

Tools Required:

- tubing cutter or sharp scissors
- adjustable wrench

Grain basket

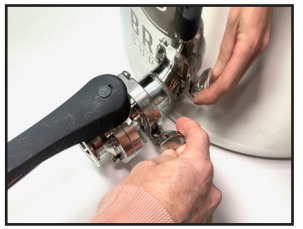
Place the retaining ring on the kettle. Insert and tighten the enclosed machine screws into the 4 threaded holes on the retaining ring. Tighten until snug only.

Assembling the pump

Wrap the pump threads at least 4 times in a clockwise direction with teflon plumbers tape. Thread the two female 1/2" NPT tri-clamp fittings onto the pump inlet and outlet. Tighten all of the connections with a wrench, to ensure a watertight seal.

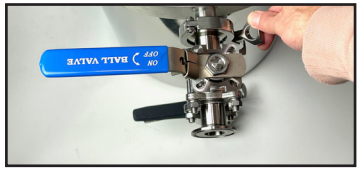
Make tri-clover compatible connections to kettle

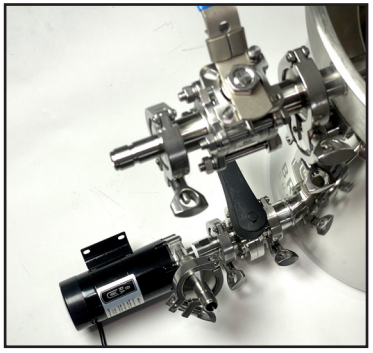
Attach the butterfly valve, the water heating element, and the temperature sensor from the electric brew controller to the bottom 3 ferrules on the kettle using a silicone gasket and tri-clamp for each connection. Attach the 1-1/2" tri-clamp cap to the upper kettle ferrule using a silicone gasket and clamp.



Insert grain basket into kettle

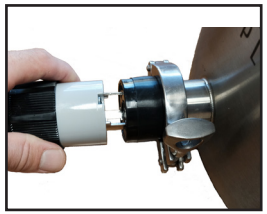
Attach the ball valve to the grain basket using the tri-clamp and gasket. Attach the pump to the butterfly valve on the kettle. Attach the male QD adapters to the pump and ball valve. Adjust the pump to the right to allow full port opening of the butterfly valve.





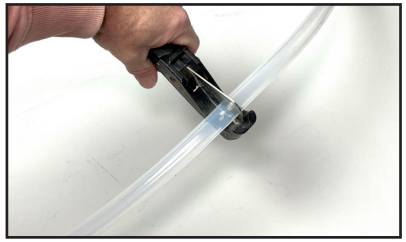
Mount Controller

Mount the temperature controller either to the wall or securely place on your counter-top keeping it away from your wort. Plug into a suitable GFCI outlet. Follow the programming instructions in the controller manual.



Plug the twist lock end of the power cord from your brew controller onto the brewing element. Be aware the first time connecting can require strength to push together. The connection twists to the right. If you are using the 240V system the power cord is attached. Otherwise plug the other end of the power cord into the heat output of the controller.

Attach recirculation and discharge tubing

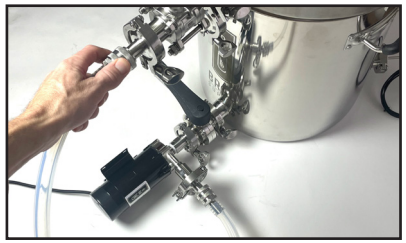


Cut tubing into a 3' length and 2' length.

Holding the 2' length of tubing, press the 5/8" barb fitting into the tubing. No hose clamp is needed. This will make the discharge tubing.

⚠ The trick to pressing the fitting in is to push fitting in on an angle inside the tubing.

Attach the discharge tubing to the inside of the grain basket using a tri-clamp and gasket.

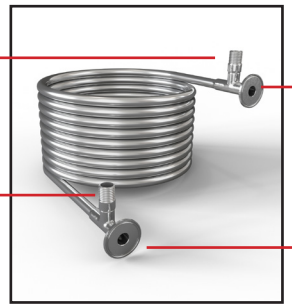


Press the female QD barb adapters into each end of the 3' piece of silicone tubing. This will make the recirculation tubing.

Attach the recirculation tubing to the male QD adapters on the pump and ball valve.

Plumbing the counterflow wort chiller

Your counterflow chiller requires you to connect the water connection kit to the chiller.
The water connection kit includes quick disconnect adapters and is pre-assembled. The male quick disconnect adapter needs to be threaded onto the counterflow chiller threaded NPT fitting. Use teflon tape on the pipe threads, wrapping at least 4 times in the direction you will be tightening the fitting. Use a wrench to ensure a leak free seal.



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

Chiller connections

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

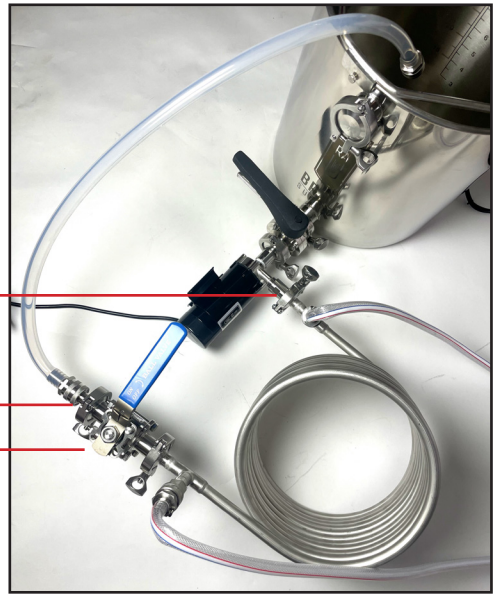
You may have to source your own faucet adapter to make the necessary connections if our adapter does not fit.

Here is an example of how to plumb the chiller:

Chiller connected directly to the pump with a tri-clamp and gasket.

QD male adapter added to connect recirculation tubing.

Ball valve attached to outflow of chller using tri-clamp and gasket.



Operating Instructions

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

120V Brewing

To operate the SV1 brewing controller, follow the enclosed instructions in the controller box. It is advisable to follow the self tuning instructions in section 4.2.4 of the SV1 manual. To do this accurately perform the self tune with your initial strike water in the kettle.

240V Brewing

If brewing in 240V with the SV240 controller and the SV1, switch the SV1 into ON/OFF mode. Instructions are in section 5.3 of the SV1 manual. The SV240 controller regulates the output power of the brewing element expressed in a percentage of total output. The SV1 controller manages the temperature setting. To raise temperature quickly try setting at 100. To hold temperature reduce output to between 20-40.

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

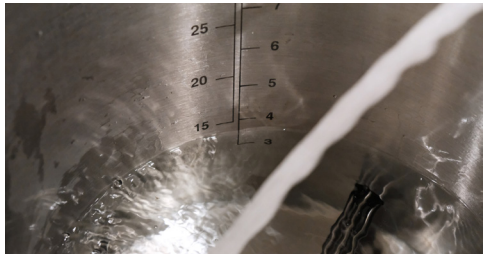
EXAMPLE: (13 lb of grain) (13 x 0.313) + 2

= 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. If you're brewing 10 gallon batches you can use the same formula but divide your grain weight in half. follow the formula and subtract a gallon just like the 5 gallon formula. Now double it. Losses are nearly the same in both sizes of kettle.

2

Add strike water



Add the calculated amount of cold clean strike water into the kettle.

3

Set mash temperature

Set the desired temperature of your mash and turn the heat on. If mashing with a large grain bill, you can set the temperature 4C (7ºF) 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 both valves . 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 heat and the pump then remove the lid. Slowly add the grain to the grain basket, stirring well to thoroughly wet the grain and avoid dry clumps. Allow the grain bed to 'set up' for around 5 minutes prior to recirculating the wort with the pump. This helps to prevent channeling and a stuck sparge.

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. The temperature of the wort should now have dropped to your desired mash temperature due to the grain addition. If you haven't done so, adjust the temperature setting on the controller down to your mash temperature and turn the heat on.

7

Adjust recirculation

Throttle the ball valve to match the recirculation rate, ensuring the liquid level does not rise more than an inch. 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. The perforations near the top of the grain basket are there to avert any overflow but your watchful eye will ensure you avoid a spill, or worse a blown element. 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	40C-50C (104º-122º F)	15-30 minutes
Saccharification rest	60C-71C (140º-160º F)	45-90 minutes
Mash out	75.5 (168º F)	10 minutes

Sparging and Lautering

BIAB method

When the mash is comlete, shut off the pump, close the ball valve and lift up the grain basket. Turn the grain basket 90º 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 90º 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 100C (212ºF) and may read 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

Set to boil

Increase the temperature of the controller setting to over 100C (212º F) in order to get to a boil. Because it is a PID controller, simply changing the setting to exactly boil temperature will ensure that it "just" gets to a boil, and won't keep it rolling. Alternatively you can switch the controller to manual mode in section 4.2.3 of the instruction manual.

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.

Depending on how much power you are brewing with, you may want to reduce the output at this stage to prevent boilover.

Pro Tip: When brewing with two 1650W elements, reduce ouput of second element to around 30%.
When brewing with 5500W reduce to 25%.

3

Add hops

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

4

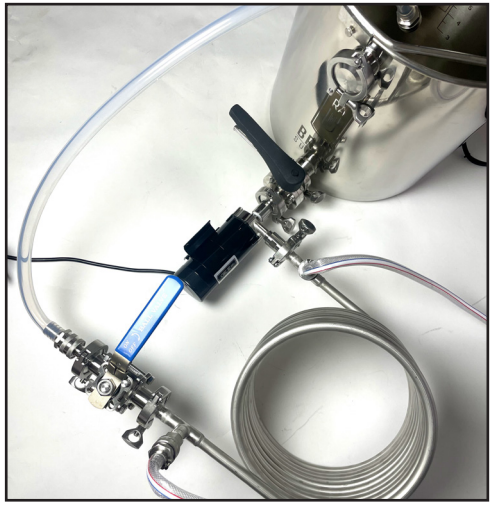
OG

Take a pre-boil gravity reading.

Cooling

1

Sanitize counterflow chiller



Prior to the last 5 minutes of the boil, connect the counterlow wort chiller to the pump as shown in the diagram in "chiller connections". Connect the recirculation tubing to the outflow of the chiller and hang over the kettle edge. The ball valve can be added to control the flow of the wort when transfering to your fermenter. Turn the pump on and recirculate the wort for 5 minutes to sanitize the counterflow chiller.

⚠ Hold the recirculation tubing for the entire 5 minutes while sanitizing the chiller using oven mitts!

2

Water connections

Connect to faucet

To drain

Make the water connections to your water source. Use the included faucet adapter if necessary. Secure the drain tubing to avoid costly spills.

3

Pump wort

Open the faucet connected to the chilling water. Close the ball valve and move the recirculation tubing from the kettle to your fermenting device. Slowly open the ball valve and allow wort to flow through the chiller. The ball valve flow control allows temperature adjustment. The slower the flow, the cooler the wort.

4

Aerate

Let the wort splash into the fermenter to aerate the wort. If your water temperature is warmer than yeast pitching temperature, you will need to source other chilling options. Pre-chilling the incoming water might be necessary. Google is a great resource for ideas on how to accomplish this.

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

The sooner you clean the system and chiller, the easier it will be to remove the sticky wort and grain residue!

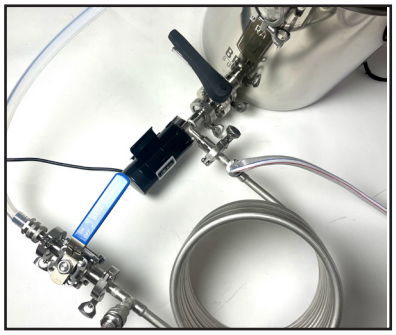
1

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 sytem.

2

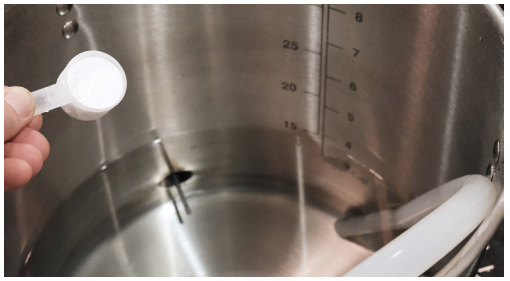
Recirculate



Disassemble the brew system and wash with soap all the components, except the temperature sensor which can be carefully rinsed at the probe end, and wiped dry. Assemble like you would when chilling the wort.

3

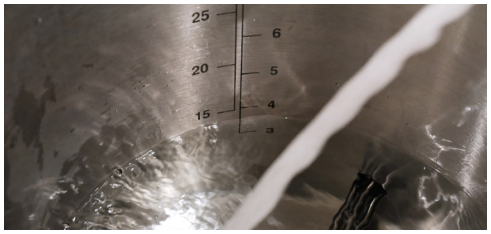
Fill and Recirculate



Fill with 3 Gal of hot water, and add 1.5 Tbsp of PBW. Heat system to 70C (150ºF) and recirculate the pbw through the chiller and into the kettle. Run the pump for at least 20 minutes.
Let the hot water and PBW do the magic, don't use abrasives anywhere especially on the polished brewing element.

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

1. 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	1-2 weeks in fermenter, 2-3 weeks in bottles or keg	60º-72º 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	74º-78º F for 10-14 days transfer to keg or bottles and condition for one month
Lagers	3 weeks in fermenter, 1 month lagering in keg	60º for fist 48 hours 45º-55º F for 2 weeks 67º for 48 hours 32º-36º lagering for 1 month
Kölsch	2 weeks in fermenter, 1 month lagering in keg	60º-65º F for 10-14 days transfer to keg or bottles and 32º-36º lagering for 1 month
Saison	1-2 weeks in fermenter, 2-3 weeks in bottles or keg	65º-95º 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.

2. Seal the lid, half fill an airlock with water and push it in place and ferment.

3. 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) x 131.25 = ABV%

Example (1.061 - 1.016) x 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 β-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 7º-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.