

HOGGETOWNE ALE WORKS 3-VESSEL ALL-GRAIN UPGRADE KIT INSTRUCTIONS

Welcome to the world of all-grain brewing, giving you ultimate control over your beer! All-grain brewers save an average of 30% on the cost of ingredients per batch and employ many of the same procedures that commercial breweries use to make their delicious craft beers.

Note: All-grain brewing is rife with old English and German terminology. Don't let this confuse you – sparging, for example, may sound like something difficult, but it simply means rinsing the grain with water. We try to clarify these terms in this document, and, of course, during our brewing classes.

Kit components:

- 1 Bayou Classic stainless steel kettle with spigot, thermometer, and heat shield
- 1 Bayou Classic bulkhead kit with spigot for installation in a beverage cooler
- 1 Bayou Classic stainless steel filter screen for installation in the converted beverage cooler

Other required components which you may or may not own already:

- A 10-gallon round beverage cooler for conversion into your mash tun – the second vessel of your all-grain system. We recommend the orange Home Depot coolers. A five gallon cooler will work if you make beers below 1.060 in original gravity
- A pot or kettle at least 5 gallons in size. This is the third vessel of your new all grain brewery, and will serve as your Hot Liquor Tank (HLT) – a vessel to heat up your sparge water. Extract brewers should already be in possession of such a pot. If not, we have inexpensive stockpots in sizes ranging from 20 to 40 quarts to choose from.
- Wort chiller (50-ft copper immersion chiller or Blichmann Therminator plate chiller recommended).
- Outdoor propane burner (unless you have a very powerful kitchen stove or an electric heating system for your brewery). We recommend propane burners with BG-12 or BG-14 burner elements, since jet burners and cup-style burners may result in wort scorching and excessive soot production, respectively. The Bayou Classic SQ-14 is a very popular unit with homebrewers. Alternatively, consider a custom-built Xtreme Industries brew stand.
- A long-handled stirring spoon, mash paddle, or mash rake. Stainless steel or wood preferred.

- Optionally, you may also want to purchase a pair of ½” stainless steel hose barbs to mount on the outside ports of your spigots, which allows you to connect ½” high-temperature thick-wall silicone tubing for easy draining of mash tun’s and kettle’s contents. Do not use PVC tubing for high-temperature applications, as it will soften greatly at mash/sparge temperatures and may not be food safe for this application.
- Also recommended, but not required, is a ½” stainless street elbow for installation into inside port of the kettle’s bulkhead coupling. This will maximize the volume of wort transferred to the fermentor.
- Ingredient kit, chlorine-free water, and (optional) rice hulls. We recommend using 8 oz of rice hulls for each all-grain batch as “cheap insurance” against annoying stuck lauters (difficulty draining the liquid from the mash tun). Rice hulls are flavorless and simply provide pathways for the wort to drain from the kettle. When using wheat and rye in any significant quantity, rice hulls are a must – 12 oz to 1 lb is recommended in these cases!

Preparing your new all-grain brewery:

Step 1: Rinse the spigots, bulkhead fittings, filter screen, kettle, and beverage cooler with warm soapy water or a brewery cleanser (PBW or B-Brite) to remove any oils that may be left behind from manufacturing. Gently wipe down the thermometer probe as well. Do not submerge or pour water over the thermometer dial, as it may not be waterproof. Let dry.

Step 2: To assemble your boil kettle, follow the thermometer, bulkhead, and spigot installation instructions provided in the kettle box. Remember to apply Teflon tape to the threaded nipple, and ensure that the silicone seals are compressed against the kettle walls from both sides using the provided grooved hex nuts. The spigot is mounted on the outside of the kettle, whereas the smoothly machined coupling goes on the inside. An optional ½” street elbow can be screwed into this coupling with the opening facing downward to act as a dip tube. Tighten all connections using the provided wrenches, being careful not to overtighten (this can damage the silicone o-rings and gall the threads).

Step 3: To convert your beverage cooler into a mash tun, remove the cooler’s spigot by unscrewing the plastic nut on the inside of the cooler. You may need a wrench for this. Replace the cooler’s plastic spigot with your bulkhead fitting and stainless ball valve, installing them the same way as you did for the kettle in step 2. Finally, screw the stainless filter screen into the machined coupling on the inside of the bulkhead. This will act as your mash filter.

Step 3: Leak-test your kettle and mash tun by filling them with water and watching for water dripping from the thermometer and bulkhead mounting holes. If leaks occur, verify that all connections are installed correctly and have been tightened. In the very unlikely event that you

see more than one drop per minute emerging from either mounting hole in your kettle, please return the kettle to the store with your purchase receipt for service or replacement. If your mash tun leaks, acquire some food-grade clear silicone and place a bead around the leaky spot on the inside of the mash tun.

Using your new all-grain brewery:

As equipped, your new all-grain system is suitable for 5-gallon batches of all-grain brews using the so-called batch sparge method.

For general all grain brewing instructions, please refer John Palmer's *How To Brew*, the Basic Brewing *Stepping Into All Grain* DVD, or another current brewing resource. Alternatively, register for one of our all-grain brewing classes for a nominal fee.

We recommend doing a so-called "water brew" the first time you use your system. This means that you'll be doing a practice run of your all-grain brew day using plain water, with no added ingredients. This will help you learn the routine of your brew day using your new all grain system and ensure every component is functioning as it should. Always place the heat shield between the heat source and the spigot of your kettle to protect the silicone seals.

Basic Overview:

All-grain brewing consists of several distinct processes: Heating the strike (mash) water, mashing, heating the sparge water, recirculation (vorlauf), lautering, sparging, boiling, chilling, fermenting, packaging, and conditioning. The final three steps are identical to what you have been doing for your extract batches.

1. The strike water refers to the water that you will infuse and steep the grains with. This is typically heated to 12-14 degrees above your desired mash temperature in your hot liquor tank. The amount of strike water to use is determined by the amount of grains in your recipe. Generally, 1.5 quarts of water per pound of grain is a great amount to shoot for, but you may use as little as 1.25 quarts or as much as 2 quarts per pound, subject to your preference. For a beer with 10 pounds of grains, you would therefore use 15 quarts (3.75 gallons) of strike water, although a range between 12.5 quarts (3 .13 gallons) and 20 quarts (5 gallons) is acceptable.
2. Mashing refers to the act of steeping of the grains in your mash tun, typically between 148 and 158 degrees F, for 60 minutes. While this is procedurally very similar to steeping grains for extract batches, mashing uses a larger quantity of grain at a more specific temperature and using a more specific volume of water, and it doesn't usually use a grain bag. These conditions enable the enzymes that are naturally present in base grains such as Pilsner, pale 2-Row, Pale Ale, Vienna, and Munich malts to convert the starchy grains into sugars the

yeast can metabolize to create ethanol and CO₂.

Carefully pour the strike water into the cooler mash tun, then slowly add the grains while stirring constantly to prevent clumping (dough balls). Be sure not to strike the filter screen unnecessarily while stirring – use scooping motions parallel to the direction in which the screen is mounted. Let the mash rest for 2-3 minutes before checking its temperature. If the temperature is too high or too low, a small amount of ice or near-boiling water can be added and stirred in to correct it. Once the proper temperature is reached, we recommend wrapping the mash tun in a sleeping bag or blanket to minimize heat loss. Don't fret over the temperature too much – as long as the mash stays between approximately 148 and 158 degrees F, you will make beer. A slight variance in mash temperature is totally acceptable (The mash temperature controls the fermentability of the beer – lower temperatures produce dryer beers, higher temperatures more full-bodied and sweeter beers).

3. Heating the sparge water is simply heating up additional water in your hot liquor tank to rinse the grains after the mash has been completed and the sugary liquid (sweet wort) has been drained. 175 degrees F is the targeted temperature, and it should definitely not be warmer than 180 degrees. We recommend starting to heat up the sparge water approximately 20-25 minutes prior to the end of the mash to save time.
4. Recirculation, often called the vorlauf, refers to draining a little bit of the wort from the mash tun after conclusion of the mash into a large pyrex cup or other food-safe container and gently pouring this liquid back on top of the mash until the wort is free of large amounts of grain and husk material, which, if transferred to the boil in large amounts, can cause astringent flavors.
5. Upon completion of the recirculation step, open the spigot and drain the mash tun into your boil kettle. This is called lautering. Close the spigot again.
6. Pour the required volume of sparge water from your hot liquor tank into the drained mash tun on top of the grains. The amount of sparge water required is the difference between the volume of wort collected from the first runnings and the pre-boil volume specified on the recipe sheet. You can also estimate the required sparge volume using brewing software such as BeerSmith or any of the numerous free online calculators. Stir thoroughly, then recirculate and lauter again. You may choose to add all of your sparge water at once, or you may elect to split the sparge water into two batches, which would necessitate recirculating and lautering twice.
7. After sparge has concluded and all liquid has been drained from the mash tun, it is time to clean your mash tun thoroughly. Let your mash tun and hot liquor tank dry prior to storage.
8. Take a small sample of the wort in your boil kettle. Quickly chill the sample in ice water or the freezer to 60 degrees F and measure the pre-boil gravity with a hydrometer, or use a refractometer for an instant reading. Follow the recipe instructions for the boil. At this point, the brewing process is very similar to extract brewing, except with a larger volume of

liquid and without the luxury of being able to add cold top-off water after the boil. After turning off the flame, give the wort a good swirl to create a whirlpool, which will help gather most trub and hops in the center of the kettle, away from the spigot. Chill with your wort chiller and slowly transfer, via the spigot, to your cleaned and sanitized fermentor. It may take additional time to reach the proper temperature for aerating and pitching the yeast— always remember that it is better to wait until the wort is cool enough than to pitch the yeast well above proper fermentation temperature.

All of us at Hoggetowne hope you enjoy your new all grain brewing system, and wish you many successful batches. If at any point you have questions, please don't hesitate to give us a call: 352-367-4455.