



URBAN EST 1981 WINERY & CRAFT BREWING SUPPLIES

How to Use a Mash Tun

Upgrading from a BIAB (Brew in a Bag) system to a mash tun can be a really special improvement. If done right, efficiency, clarity, and precision can be improved dramatically from a BIAB system. Using a mash tun is a fairly different experience from using BIAB, this sheet instructs brewers how to get the most out of their new mash tun!

What is a Mash Tun?

A mash tun is insulated chamber where grains and water mix to create a wort. The point of a mash tun is to maintain a consistent temperature throughout the mash process. Typically mash tuns in the home brew sphere are coolers. Often they have had modifications made to make mashing easier. Things like spigots, false bottoms, bazooka screens, and temperature gauges can be added.

We sell two types of mash tuns at our shop. Both are standard vertical coolers that have been retrofitted for mashing. One has a bazooka screen, and the other has false bottom. Both have a standard ball valve spigot, and no temperature gauge. Both work great for mashing, and our instructions are based on using either one of these. These instructions are for making a 5.5 gallon batch of beer. The mash tuns we carry can easily be used to make up to 11 gallons of beer.

Required Equipment:

- Mash Tun, Brew Pot, a second pot that can hold 10L (can be a standard household pot), Stainless steel spoon or paddle

Tips on Using a Mash Tun:

- Temperature is extremely critical. Please follow the directions very closely when it comes to temperatures.
- We like to use a ½" Stainless Steel Barb connected to 2-3' silicone tubing to quickly and safely move hot liquid from one place to another. This should cost less than \$10 to procure.
- When draining liquid out of the mash tun, there is always liquid below the level of the spigot. Be sure to tilt the mash tun in the direction of the spigot to get the last half gallon or so of liquid out.
- We find using a mash tun in this fashion leads to a 75-80% efficiency, so be sure to factor those numbers into your recipe planning. (The recipes we provide typically are based around 73% due to BIABs lessened efficiency.)

Instructions

Preparation

- 1) Heat up 6 gallons of water in your brewpot. We want to get the temperate up to 170°f before we can start to mash.
- 2) Wash out your mash tun with warm water. Make sure water is run through the spigot on the bottom. Then screw in the bazooka screen or install the false bottom in the cooler.
- 3) Get the grains prepared (ie, make sure they are milled), have a thermometer close by, and something to stir the grains with.
- 4) How much water vs grain should be in the mash? We recommend going with 1.2-1.6L per pound of grain. For example, if we're making a batch of beer that has 11lbs of grain we would want to put somewhere between 13-17.6L of water in there. We're aiming for an oatmeal like consistency. Generally speaking, we like to add 4 gallons (15.5L) of mash water for the majority of our recipes.
- 5) Temperature: This is the most important part of using a mash tun.
 - a. Depending on the beer recipe, we want to mash somewhere between 150-155°f. It is absolutely essential that we do not go any higher or lower than this range. It can have profoundly negative effects on a batch of beer.
 - i. *In some instances a recipe will call for a two step mash where the initial mashing temp is sub 150°f. This is a fine process, but is more of an exception rather than a rule. Mash within the 150-155°f range unless your recipe specifically calls for something different.*
 - b. In order to hit the 150-155°f temperature range we need to strike the grains with water that is hotter than the targeted range as the water will cool down when it makes contact with the grain. The ideal temperature for this is 165-170°f.

The Procedure

Step 1: The Mash

- 1) Fill your mash tun with $\frac{1}{4}$ of the grains you will be mashing.
- 2) Begin to pour in the water from your brewpot into the mash tun. Start with just 1-2 gallons. Begin to stir the grain into the water. Once the first load of grain has been stirred add more grain. Then add more water and continue to alternate until all the grain is in the mash tun along with 4 gallons of strike water.
- 3) Stir everything around, it should have the consistency of oatmeal.
- 4) Take a temperature measurement. It should be between 150-155°F, if it is too hot, add a little cold water until it comes down. If it is too cool, add a little more hot water.
 - a. Typically, a beer mashed at 150°F will ferment a bit better but will be thinner, a beer mashed at 155°F tends to be fuller bodied. Plan your mash temp depending on how you want your beer to be.
- 5) Once the temperature is in range, close the lid and set a timer for 60 minutes. Remember, the beer has to be between 150-155°F unless otherwise stated, a deviation will drastically change your beer for the worse.

Step 2: First Runnings

- 1) During the 1 hour mashing process, heat up another 4 gallons of water to 180°F. This will be our sparge water.
- 2) After the 1 hour mashing process is done, it is time to extract the first runnings from the mash tun.
- 3) Open the valve on your mash tun and let the liquid flow into the second pot (using the stainless steel barb and silicone tubing makes it safe and easy to transfer the liquid out). Try to avoid stirring the grain if possible. If you do need to move the grain the best tip is to stab down with your paddle and then twist it. This will break up the grains a bit and allow for the liquid to flow through better.
- 4) Typically, only half of the mash water will be extracted. A lot of the water is consumed inside the grain. If 4 gallons of water was added then it is pretty normal to get about 2-2.5 gallons of mash water. This is perfectly normal.
- 5) After you have drained the first runnings out of the tun, pour them back over the grain. Rinsing the grain with the mash water helps extract more of the sugars and will help with clarity far down the road. Let the water drain through the grain again. Make sure you are tilting the mash tun forward to get that last half gallon out of the bottom.
- 6) After the first runnings have been collected, take note of how much was collected (should be somewhere in the 2-2.5 gallon range) then put them aside and prepare to sparge. Feel free to heat the first runnings up, just don't let them get higher than 180°F until the sparge water has been added.

Step 3: The Sparge

- 1) Now we need to add the sparge water to strip a lot of the sugars still on the grain.
- 2) How much sparge water to add? It is time for some math. Our goal is to have 5.5 gallons of wort in our fermenter at the end of the day. During the course of boiling the wort we will lose anywhere from 0.5-1 gallon of wort. Meaning, we need to have anywhere from 6-6.5 gallons of wort in the pot after sparging. So, if we have 2.5 gallons of first runnings then that means we will need 4 gallons of sparge water. Unlike with the first runnings, none of the sparge water is consumed by the grain.
- 3) We want to sparge the grain with water that is 170°F, to get this temp we will need to strike the liquid at 180°F
- 4) Begin to pour the 4 gallons of sparge water (that is 180°F) into the mash tun with the grain. Aim the water on the side walls of the mash tun and let it cascade into the grain. Direct contact with hot water can extract unwanted tannins.
- 5) Once all of the water is in, open the valve in the mash tun and let the sparge water come out of the tun into a pot. When the sparge water is all out, pour it over top of the grains and repeat the process again. Once that is done, do a final rinse with the water.
- 6) To sum up, the sparge water will be circulated three times through the grains. Rinsing the grains helps extract the sugars and helps with clarity.
 - a. To get an idea of how much sugar has been extracted, try a piece of grain. It should be veeeerrrry dry.
- 7) Now, combine the first runnings and the sparge water together and you should have 6-6.5g of wort!
- 8) Bring it to a boil and begin to add the hops according to your recipe.

Summing It All Up:

- Strike the grain between 165-170°F to mash at 150-155°F. Do this for an hour. Empty the mash tun and rinse the grains with the mash water once. You should get about 2-2.5 gallons from this.
- Strike with sparge water at 180°F. Add enough sparge water so that the total volume of first runnings and sparge will be between 6-6.5 gallons. Rinse the grains with the sparge water two more times. Proceed to the boil stage!