

# Infusion Mash Tun | 20 Gallon

## Quick Reference Guide



## Principle of Design

The Ss Infusion Series Mash Tuns are designed for the infusion mash method. In an infusion mash process, a fixed amount of strike water volume is heated to a specific temperature, and then the grain is introduced into this water. The temperature difference of the grain and water will balance out to a new temperature, which is ultimately the mash rest temperature.

The Ss Infusion Mash Tun has better thermal properties than plastic coolers typically used for homebrewing. The improved thermal properties provide better controlled temperatures during the duration of the saccharification starch conversion process. Holding a consistent mash rest temperature will insure you are making the wort you intended to produce. Slight variations in mash temperature can change a normally dry finished beer into a cloy sweet disappointment. Controlling your mash temperature should be at the top of your priority list when it comes to the mashing process.

Your Ss Infusion Mash Tun is configured with a 5 degree sloped bottom and a small diameter center run-off tube. Like everything we do at Ss Brewtech, there's a purpose behind both of characteristics. The bottom is sloped at 5 deg to allow fine particles of grain to collect and "stick" to the surface. However, the 5 deg slope will allow you to gather every last drop of precious wort. We designed a small diameter run-off tube to create a higher velocity in the tube, even at low flow rates. This high velocity flushes any fine particles of grain from the tube during the vorlauf process.

---

## Notes on Efficiency

Efficiency of your system depends on many variables such as water chemistry, PH, and grain bill contents to name a few. Most of the variables are not a direct result of the Mash Tun itself. However, to improve your brewhouse efficiency, be sure to mill your grist properly, balance your water chemistry so that your mash PH is within the preferred limits of 5.3-5.7, and most importantly run-off the wort slowly.

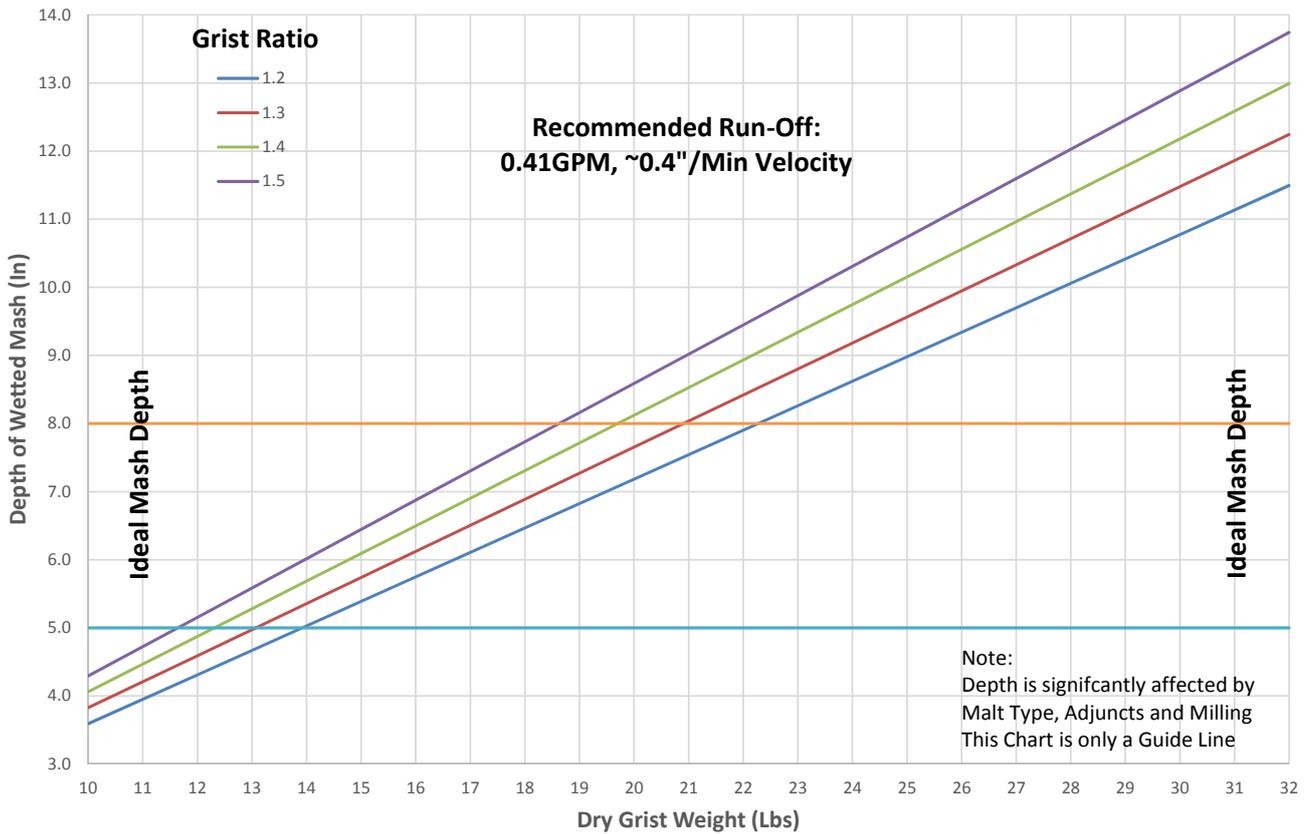
The Ss Infusion Mash Tun is designed to operate with a run-off velocity up to 1.5 inches/minute. Which is equal to about 1.4 gallons per minute of run-off. You can increase your efficiency by slowing down the run-off. Yet, run-off rates at less than 0.5 inches/minute are generally consider to be slower than necessary. Lastly, run-off rates greater than 1.5 inches/minute will be less efficient and could run the risk of a stuck sparge.

---

## Run-Off and Grain Bed Depth

While grain depth plays a very minor role in efficiency, it has a very direct effect on the quality of your run-off. On the following page, we have included a chart to help you understand the optimum grain depth. Please note, this is just a guide, there are many variables which will affect the actual grain depth. A grain bed which is too thin, will not properly filter milling fines from the run-off. A grain bed which is too thick, will require you to run-off slower to avoid a stuck sparge due to the weight of the grain.

## 20 Gal Mash Tun - Approximate Mash Depth



### Using the Manometer:

The purpose of a manometer in a mash tun application is to monitor the pressure differential both above and below the false bottom. The manometer offers a visual representation of how fast you are drawing wort through the grain bed, based on the difference in level between the two tubes. When wort is run-off too quickly it creates a pressure differential within the grist, and can actually compact the grain bed, typically resulting in a stuck sparge.

While grists consisting of 100% barley are rarely at risk; wheat, rye or oat blends will compact more easily because they do not have a comparably rigid grain husk. While lautering, if you observe the difference between the upper and lower manometer tubes approaching  $\frac{3}{4}$  inch, you are running-off too quickly. Ideally, the difference should be zero to  $\frac{1}{4}$  of an inch.

### First Time Cleaning:

Before you use your system, you will need to clean off manufacturing oil residue with TSP (recommended) and warm soapy water followed by a fresh water rinse. Be sure to disassemble the ball valve and clean all internal parts where manufacturing oils may be present.

If you are having a hard time cleaning sufficiently with TSP and soap, try using denatured alcohol first, followed by warm soapy water and then a final rinse with fresh water. In a pinch vodka works great too, but it's much better in a mixed drink!

## Sanitation:

Although a strict sanitation regimen is not a requirement for any mash tun, it's a good practice to clean and sanitize the Infusion Mash Tun as you would normally sanitize any piece of brewing equipment.

---

## Post use Cleanup:

After you have finished your mashing, put your spent grain to good use; Combine

- 4 Cups spent grain from your mash 2 Cups flour
- 2 large eggs
- 1 Cup natural peanut butter

Shape them into treats, honestly your dog won't care what they look like! Bake at 350F for 30 minutes, the 250F for another 30 minutes

While you're baking the treats, use PBW or other caustic cleaner as directed by the manufacturer to remove any proteins. NEVER use chlorine based product on Stainless Steel. For stubborn stains, you can use Bar Keepers Friend. But never let it touch the etched logo or volume markings.

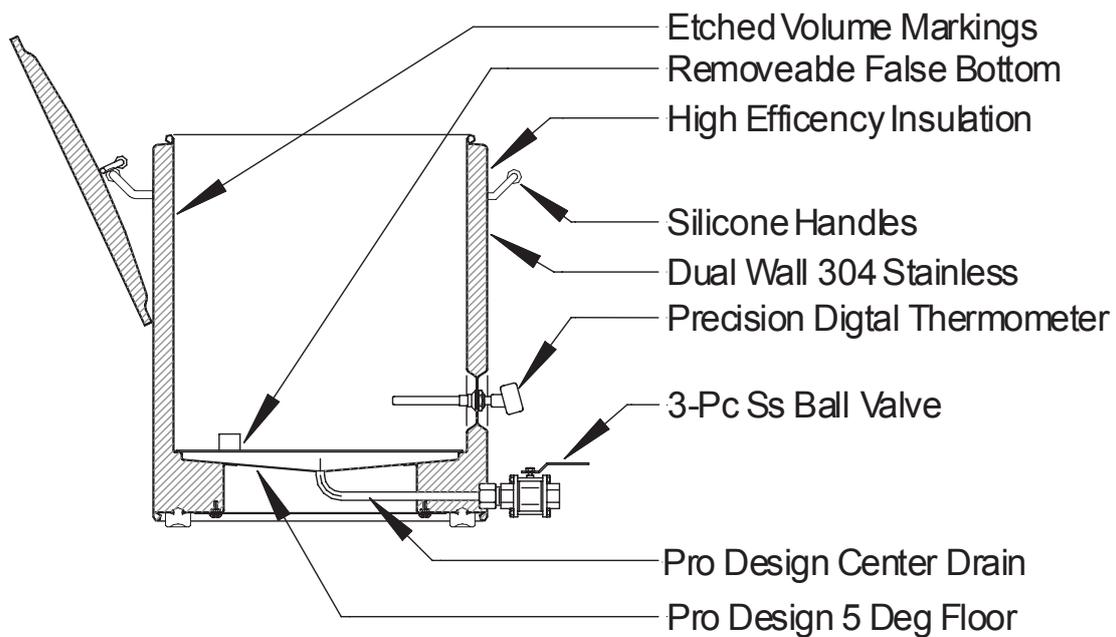
---

## Assembly:

Before you mash - System Assembly

1. Assemble the ball valve to the threaded coupling using a small amount of teflon tape or other food grade thread sealant. There is no need to over tighten the valve, because the pressure on it is minimal, just be sure that it will not turn by hand or leak.
2. Install the thermowell in the front of the unit. One O-ring goes on the INSIDE of the Ss Mash Tun, the second O-ring is a spare, retain it in a safe place. Finally, tighten the nut on the outside of the Ss Mash Tun.
3. Next install the batteries into the digital temperature gauge. If you happen to have other Ss digital temp gauges, mark this one for use with your mash tun. The included gauge has been specially tuned to provide a high degree of accuracy at typical mash temperatures.
4. Place the digital temperature gauge into its silicone boot. Next, place the temperature sensor into the thermowell. Be sure the sensor goes all of the way into the bottom of the Thermowell, and push the silicone boot onto the thermowell.
5. If you purchased the optional Ss Heater or Ss Sparge Arm, follow the instructions you received with those optional components.

Please reference diagram on following page:



## MTSs- Mash Temperature Stabilization System

The Ss Infusion Mash Tun is MTSs Heater Ready. With the optional MTSs Heater, you can control your mash temperature to the close tolerances of  $\pm 1^{\circ}\text{F}$  throughout the complete mashing process without a complicated RIMS or HERMS systems. Most brewers don't track the temperature losses during their mash process. In actual use, plastic coolers used for infusion mashing, can lose up to  $10^{\circ}\text{F}$  in temperature during the course of the mashing process. As brewers, we all understand the importance of mash temperature and how they relate to the enzymatic actions of a saccharification mash rest. A shift of 2-3 degrees can activate an entirely different balance of enzymes and turn your dry IPA into a sweet mess.

### Principle of Operation

The Stabilization Heater is a low voltage 12VDC, 60-watt heating system. The high quality silicone heater pad is designed to be bonded to the underside of the 5-degree floor. This provides a large area to evenly distribute heat into the vessel.

The heater is controlled by the provided electronic temperature controller with a thermo-probe placed into the thermowell of the Ss Mash Tun. During the saccharification process, as the temperature naturally decays, the system will automatically turn the heater on and off to maintain your desired mash rest temp over the entire duration of the mashing process.

The Ss Infusion Mash Tun, outfitted with the MTSs eliminates the need to "pre-heat" your mash tun. The heater will do the work to maintain the mash temperature. Although the heater is not sized to efficiently "heat" your strike water from room temperatures, it can be used to fine tune your strike water the last several degrees to get it perfect. Just remember to reset the controller from strike water temps to Mash Temps!

Lastly, in the event your calculations were slightly off, and you undershot your temperature, the system will automatically add heat to bring the mash to your intended temperature.