



# InfuSsion

— Mash Tun —

## Quick Reference Guide

## Stainless Steel Prep

**Pre-Clean:** Prior to first time use, thoroughly wash all surfaces of the mash tun, including all valves and fittings, with Tri-Sodium Phosphate (TSP) in hot water, mixed to the manufacturer's recommendations. Scrub with a soft terry cloth, and after the initial TSP wash, rinse thoroughly and dry all surfaces.

**Passivation:** It's good practice to periodically passivate all stainless steel equipment with an acid based solution to establish a uniform passive oxide layer that will maximize corrosion resistance. Following the pre-clean step, fill the mash tun with Star San at a concentration of 1 ounce per gallon at 70-80°F for 30 minutes. **Moving forward, for best stainless performance, passivation should be performed at least once a year or anytime you believe you may have inadvertently scratched the surface.**

**Cleaning and Sanitizing:** As part of a regular cleaning regimen after use, wash the interior surfaces of your mash tun with an alkali cleaner such as PBW at a ratio of 0.75 ounce per gallon.

## What's in the Box

- Infusion Mash Vessel
- Lid with Gasket
- False Bottom
- False Bottom Gasket
- ½" Ball Valve
- Thermowell Assembly
- LCD Thermometer
- Silicone Feet

20 Gallon Specific Parts
<ul style="list-style-type: none"><li>• Manometer Assembly</li><li>• Recirculation Bulkhead</li><li>• Silicone Recirculation Port</li></ul>



## Mash Tun Assembly

**Installing the False Bottom:** Begin by removing the mash tun from the box and accessing the false bottom located directly beneath the vessel, sandwiched between the layers of EPE foam. Locate the black silicone false bottom seal and begin to slowly work it onto the outer edges of the false bottom so that the flanged side (smooth side) is orientated up, or on the same side as the false bottom's lifting handle.

Install the assembled false bottom into the vessel, double checking the smooth side of the flanged seal is facing upward and making uniform contact with the inner mash tun wall.

**Installing the Thermowell and LCD Thermometer:** Begin by removing the included locknut from the thermowell assembly. There will be two O-rings found on the threaded portion of the fitting. Remove one of the O-rings and retain it as a spare, the thermowell only requires ONE O-ring to form a liquid tight seal.

Next, feed the thermowell through the 17 mm punch found just below the Ss Brewing Technologies logo on the front of the Chronical. The O-ring should be seated against the interior sidewall of the vessel, as shown. Lastly, thread the locknut onto the fitting from the exterior and tighten.

Once the thermowell is in place, install the included batteries into the LCD thermometer, then install the LCD assembly into the included silicone boot. Lastly, feed the thermoprobe into the thermowell, and seat the silicone boot as close to the thermowell's lock nut as possible.

**Installing the Ball Valve:** Begin by wrapping the mash tun's outer bulkhead coupling threads with Teflon tape or another food grade thread sealant. Then locate the ball valve from the accessory kit, using an adjustable wrench, thread the valve onto the bulkhead. Time the connection so that the ball valve's handle is perpendicular to the outer mash tun wall. Take care not to overtighten, snug the ball valve down to achieve a liquid tight seal.

**Installing the Recirculation Bulkhead (20 Gal Only):** Locate the recirculation bulkhead from the accessory kit. Remove the locknut and ensure that one red silicone O-ring is installed in the O-ring groove next to the bulkhead's main body. Insert the bulkhead into the pre-drilled upper recirculation port, and thread the locknut onto the bulkhead so it makes contact with the inner mash tun wall. The O-ring will create a liquid tight seal on the outer surface of the inner mash tun wall. Lastly, the black silicone flange will make contact with the outer mash tun wall, as shown. For maximum heat retention, the accessory kit will include a silicone boot to seal the recirculation port when the recirculation feature is not in use.

**Installing the Feet:** Locate four of the silicone feet from the accessory kit. On a flat non-marring surface, place the mash vessel on its upper rim, allowing easy access to the underside. Locate the four pre-drilled holes, and insert the flanges located on the silicone feet into the holes.

## Operation and Best Practices

The Infusion Series Mash Tuns are designed specifically 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 during mash-in. The temperature difference of the grain and water will balance out to a new temperature, which is ultimately the mash rest temperature.

A typical mash rest will last 60 minutes, during which time the vessel will retain heat as a result of the double wall insulation. The improved thermal properties provide better controlled temperatures during the duration of the saccharification starch conversion process. Holding a consistent mash rest temperature will ensure 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.

Although not a necessity, a pre-heat step is recommended to establish temperature uniformity within the vessel so that the insulation does not inadvertently draw heat away from the grist. This will suppress unwanted temperature variations or heat loss during the duration of the mash rest. To perform a pre-heat step, heat 10 gallons of water to 160 degrees, transfer to the mash vessel, and allow temps to stabilize over 15 minutes.

The Infusion Mash Tun is configured with a gradually sloped 5-degree bottom to allow fine particles of grain to collect and “stick” to the outer surface. Furthermore, the sloped bottom is a zero-deadspace design, which will ultimately maximize wort collection. Lastly, the small diameter center drain tube is designed to create a high velocity run-off, even at relatively low flow-rates. This high velocity quickly flushes any fine particles of grain from the tube during the vorlauf process.

**Notes on Efficiency:** Extraction efficiency is dependent 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 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 considered 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. We have included a chart to help you understand the optimum grain depth. A grain bed which is too thin, will not properly filter mill finings 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 grist.

**Using the Manometer (20 Gal Only):** 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 wort is being drawn through the grain bed, based on the difference in liquid 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 with little effort 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.

## Retrofitting a Recirculation Bulkhead

10 Gallon Mash Tun owners can retrofit the recirculation bulkhead by using the *Drill Bit Kit for Re-Circ Bulkhead* available on SsBrewtech.com. Installation instructions can be found in the Mash Tun section of our FAQs on the website.

Please measure twice as Ss Brewtech is not responsible for any damage to your Mash Tun during modification.

## **USE THE FOLLOWING WITH CAUTION:**

- Stainless steel scrubbing pads or Scotch-Brite pads. If used too aggressively, abrasive pads can damage the surface and/or finish of the stainless.
- Oxalic Acid cleaners such as Bar Keeper's Friend, Kleen King, or Revere Ware Stainless cleaners on the etched volume markings or etched logo. They may cause the markings to fade.

## **NEVER USE THE FOLLOWING:**

- Chlorine bleach or chlorine based products. Chlorine can cause pitting of stainless steel, or pin holes through the surface which cannot be repaired.
- OxiClean or other peroxide cleaners in combination with hard water. These can cause calcium carbonate to precipitate onto the surface. If this happens re-passivate your Chronical.

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*If you have any further questions about your Ss Brewtech gear go to our website and take a look at our extensive knowledgebase in the FAQ section. Over the years it has become a treasure trove of information. If after searching our FAQs, you still can't find an answer to your specific question, please email us at [support@ssbrewtech.com](mailto:support@ssbrewtech.com).*



