

# Mash Temperature Stabilization System (MTSs)

## QUICK REFERENCE GUIDE

### Principle of Design

The MTSs is designed for use with Ss Brewtech's InfuSsion Mash Tun. During extended mash periods or in relatively cold ambient temperatures, even in an insulated vessel like our InfuSsion Mash Tun the mash will naturally drop in temperature. With the MTSs you will be able to provide better controlled temperatures during the mash scarification process. Holding a consistent saccharification temperature will insure you are making the beer and flavor profiles you planned to produce. The MTSs is a low wattage silicone heater pad, which is bonded to the underside of the 5 degree sloped bottom on your Mash Tun using a strong adhesive backing on the heater pad. The heater is controlled with a 12 volt digital temp controller. You simply set your target temperature and the heater will cycle on and of to maintain your set point.

### Notes on Use and Effectiveness

The effectiveness of your heater is limited to the wattage it is designed to provide. This system is NOT designed to rapidly heat your strike water or to be used for step mashing. The system is designed to stabilize your mash temperatures.

In extremely cold conditions, the heater may not be able to provide enough heat to off-set the cold weather. We suggest you use your MTSs in ambient temperatures where you (as a person) are comfortable.

Although the heater is not sized to rapidly heat your strike water up from room temperatures, it can be used in the following ways:

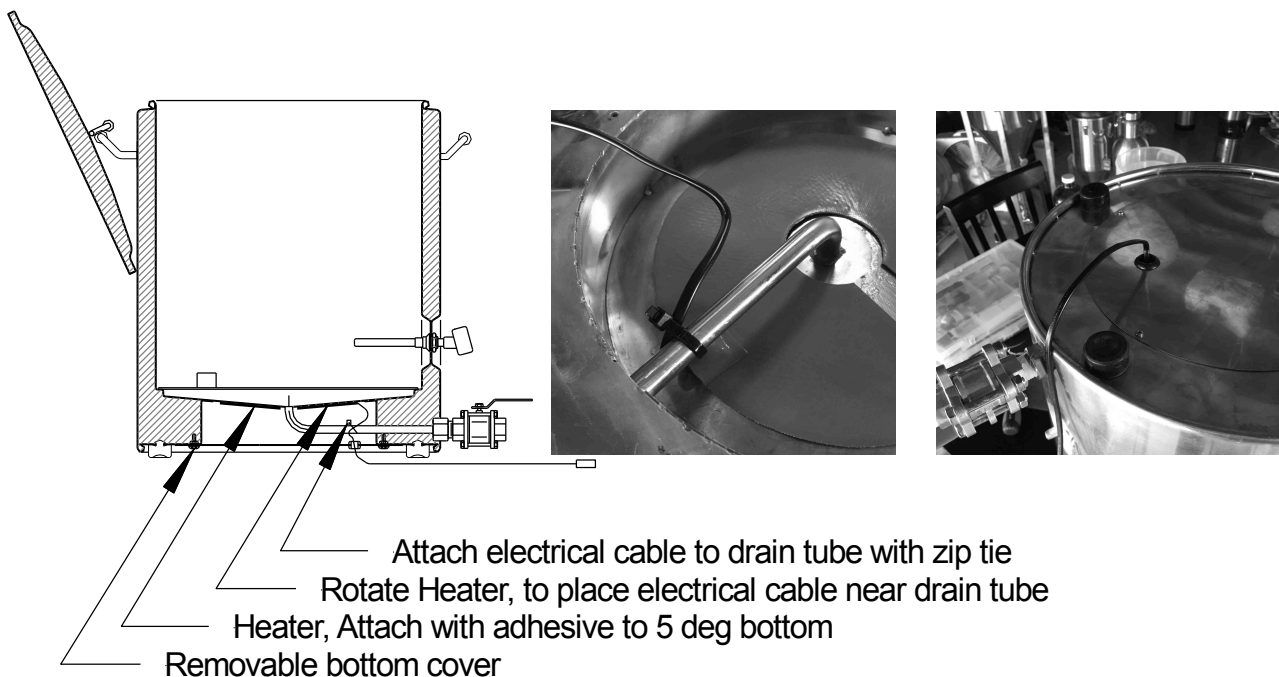
- Fine tune your strike water the last several degrees to get it dialed in
- Maintain your strike water temperature while you are preparing your grist or balancing your water chemistry

If you are attempting to increase the temperature of your strike water, the heating rate will depend on the volume of water in the tun. For a typical strike water volume (approx. 5gals), the heater will increase strike water temps by roughly 5F / hour.

*And of course always remember to re-set the controller from your strike water temp to your target mash temp.*

# MTSs ASSEMBLY INSTRUCTIONS

- ① Remove the bottom cover (4x screws) and the foam insert from the underside of the InfuSsion Mash Tun
- ② Peel off the adhesive backing from the heater pad. Slip the heater pad into position, and orient it so the attachment point of the electrical cable is near the drain tube
- ③ Using the supplied zip tie, attach the electrical cable to the drain tube as a strain relief
- ④ Replace the foam insert into the cavity
- ⑤ Place the silicone grommet in the bottom cover and route the cable lead through the the hole in the grommet
- ⑥ Reattach the bottom cover with the 4 screws
- ⑦ Set the mash tun upright
- ⑧ Plug the heater pad's cable lead into the digital ontroller where it is marked "Accessory" and plug the power supply in where it is marked 12VDC
- ⑨ You are now ready to go – prep your strike water as you normally would, turn the digital temp ontroller on, and set it to your desired mash temp. Mash-in and enjoy!



# OPERATING INSTRUCTIONS

## Intended System Use

- The MTSs is NOT designed to rapidly heat strike water from ambient temps or to be used for step mashing
- The MTSs is a low power heater, designed to help maintain your mash temperature at a desired set-point
- You MUST pre-heat your strike water to the value you calculated

## Getting Ready

- ① Preheat the Mash Tun with about 1 gallon of water at approximately 180F for 15 mins
- ② Empty the pre-heat water, and prep your strike water as you normally would
- ③ Insert the temperature sensor (from the controller) into the thermowell
  - *Be sure the probe is fully inserted to the thermowell*
  - Insert the Mash Tun's LCD thermometer into the thermowell and secure both with the thermometer's silicone mounting boot

## Setting the MTSs to Operate

- ① Toggle the main power switch to the ON position
- ② For first time use - check the calibration of the MTSs display
  - If the MTSs displays a temperature significantly different from the Mash Tun's digital thermometer – see “Advanced Settings” to calibrate the controller
- ③ Press (< 1 second) the “SET” button (more than 3 seconds puts the controller into the advanced settings mode)
- ④ While the SET light is on, press the Up/Down buttons to adjust to desired temp
- ⑤ Once you have the desired temperature selected, press the “SET” button again. This will set the controller to attain the desired temperature
- ⑥ When the controller goes into a heating mode, it will illuminate the “WORK” light

## Scarification

- ① Once you have your strike water at the proper temperature and volume, you can then mash in
- ② Sit back, have a beer and enjoy the magic of thermodynamics at work

***Note: If the MTSs controller display does NOT show “WORK” when the temperature is well below the set-point, your controller might be set to cooling mode - see “Advanced Settings” to change the controller to heating mode.***

# ADVANCED CONTROLLER SETTINGS

There are a number of advanced settings which can be changed on the controller. In general, you will not need to make any changes. But here they are, if you want to see what is possible.

These settings are accessed by pressing and HOLDING the "SET" button for more than 3 seconds.

## Selecting between Celsius or Fahrenheit:

Press "SET" and "▲" keys and hold them for more than 3 seconds to enter the menu display, the screen appears "F/C" code, press the "SET" key to display the working mode, press the "▲" or "▼" to adjust the display, C means Celsius mode; F means Fahrenheit mode. Press RST to save the setting and exit.

Factory Default = F

## Cooling, heating mode setting:

Press "SET" key and hold more than 3 seconds to enter the menu display, the screen appears "HC" code, press the "SET" key to display the working mode, press the "▲" or "▼" to adjust the display, C means cooling mode; H means heating mode.

Factory Default = H, for the MTSs and C for the FTSs

## Hysteresis settings:

Press "SET" key and hold more than 3 seconds to enter the menu display, with "▲" or "▼" key adjusted to the screen, appearing "D" code, press the "SET" key to display the hysteresis set value, press "▲" or "▼" key to adjust the parameters.

Factory Default = 1

## Temperature calibration settings:

Press "SET" key and hold more than 3 seconds to enter the menu display, with "▲" or "▼" key adjusted to the screen, appearing "CA" code, press the "SET" key to display the temperature calibration settings, press "▲" or "▼" key to adjust the parameters..

Factory Default = 0

## Delay Protection Setting:

Press "SET" key and hold more than 3 seconds to enter the menu display, with "▲" or "▼" key adjusted to the screen, appearing "PT" code, press the "SET" key to display the delay setting value, then press the "▲" or "▼" key to adjust the parameters.

Factory Default = 0 min

## Upper and lower limit settings:

Press "SET" key and hold more than 3 seconds to enter the menu display, with "▲" or "▼" key adjusted to the screen, appearing "HS" or "LS" code, press the "SET" key to display the upper or lower limit set value, Then press "▲" or "▼" key to adjust the parameters. HS means upper limit. LS means lower limit.

Factory Default = -44, +299