BrewBuilt®

LOW RIDER

Digital Gas BrewSculpture™ Manual

TABLE OF CONTENTS

PAGE 1.....What's Included & Assembly Requirements

PAGE 2.....Brewsculpture Anatomy

PAGE 3–4.....Assembly and Set Up

PAGE 4–5.....The Digital Control System

PAGE 5.....Set up for Brewing & Programming Control Panel

PAGE 6.....Set Up For Mashing

PAGE 7.....Set Up For Sparging

PAGE 8.....Boiling, Whirlpooling, Chilling & Transferring

PAGE 9.....Testing Your Digital System

PAGE 10.....Safety Information & Cleaning and Sanitizing

PAGE 11–12.....FAQ & Tips and Tricks

WHAT'S INCLUDED

- Stainless Steel Single-Tier Stand with wheels, handle, and pump mounting bracket **x 1**
- Pumps with pre-assembled fittings **x 2**
- Touch Screen Control Panel & Mounting Hardware **x 1**
- Boil Kettle with Whirlpool Assembly **x 1**
- Mash Tun Kettle with False Bottom Screen **x 1**
- Hot Liquor Tank Kettle **x 1**
- Sparge Arm Assembly with Float Switch/Temp Probe **x 1**
- Copper Heat Exchanger **x 1**
- Tubing Setups **x 6**

ASSEMBLY REQUIREMENTS

Most items should have come assembled; however some of them may require adjusting or assembling. If any items appear to be missing, please notify our customer service department.

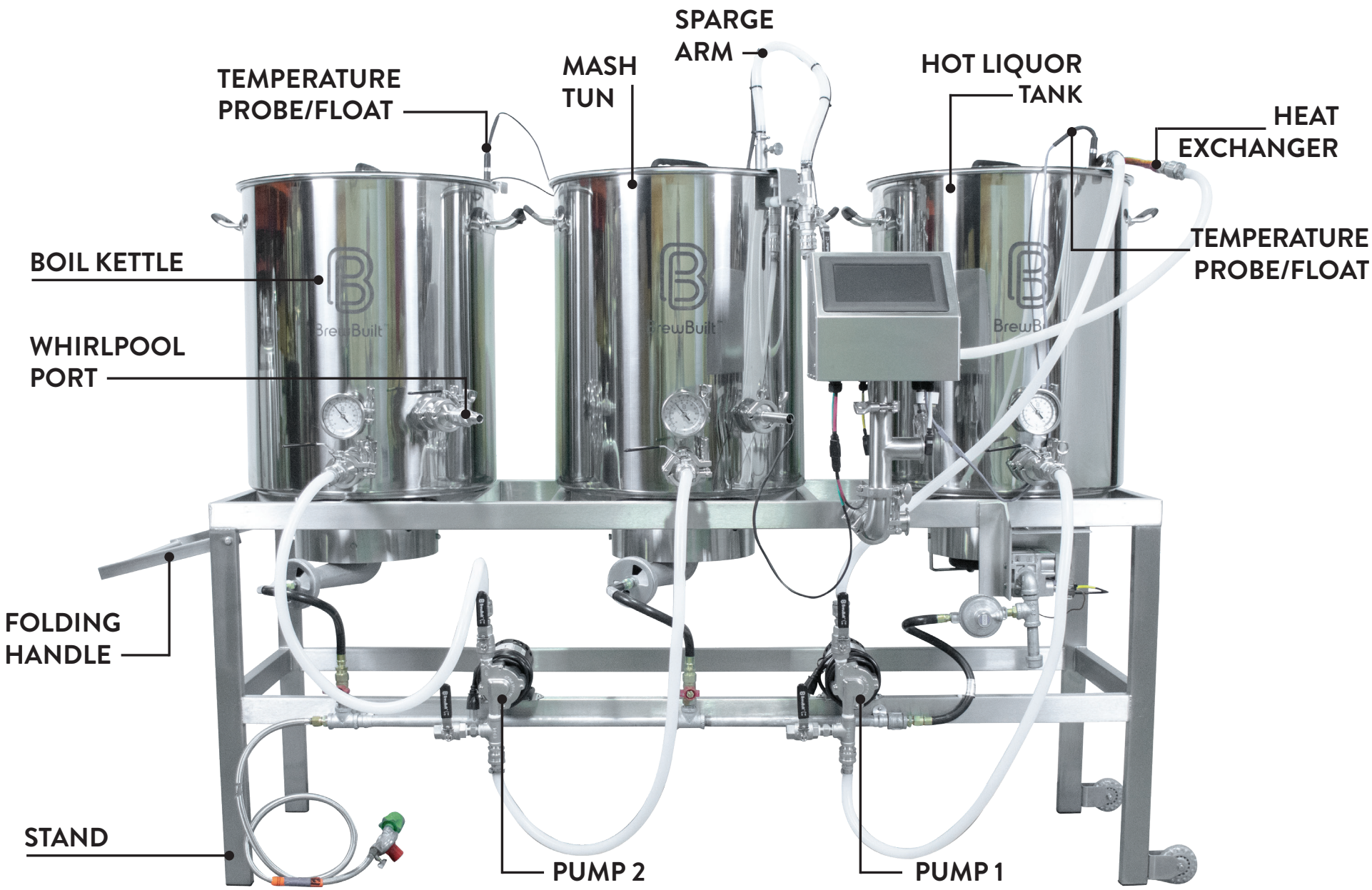
TOOLS FOR ASSEMBLY:

- Flat Head Screwdriver (Hose Clamps)
- Phillips Head Screwdriver (Pump Head)
- Crescent Wrench (Quick Disconnects, Ball Valves)
- Plumber's / Teflon Tape (Any Male Pipe Threads)
- Extension Cord (Needed For Control Panel)
- 15 AMP 115V GFCI protected outlet for the pumps and control panel

TOOLS FOR MAINTENANCE:

- Line Brush (Tubing Assemblies)
- White Scrub Pads (Cleaning Kettles and Frame)

BREWSCULPTURE ANATOMY



ASSEMBLY AND SET UP

Assembling the system requires only a single crescent wrench. All threaded parts should be pre-taped with Plumber's Tape for your convenience. Parts should be tightened until snug, but not with excessive force applied.

With all of the included items and tools in front of you, you're ready to setup your BrewSculpture. Let's start at the right of the BrewSculpture, and work our way to the left…

ASSEMBLING THE HOT LIQUOR TANK

The hot liquor tank is the vessel that will heat and store your sparge water, which is used to rinse all of the sugars from the grains in the mash tun, and into the boil kettle after you've finished mashing. This kettle will be placed on the right side, and will need five items installed on it.

1. Install the ball valve onto the male-threaded fitting on the bottom front of the kettle.
2. Install the Thermometer into the female-threaded port on the exterior of the kettle.
3. Insert the copper Heat Exchanger into the Hot Liquor Tank, taking care to avoid damaging the Thermometer's probe.
4. Install the Float Switch/Temperature Sensor in the Hot Liquor Tank by hanging it over the kettle's rim. Remove the silicone plug from the kettle lid's notch to accommodate the sensor's bracket.

ASSEMBLING THE MASH TUN

The **middle kettle** location is where you'll position your mash tun. Your mash tun is where all of the grains will be during the mashing and sparging process. The Mash Tun installs on the center burner on the stand.

Your Mash Tun Includes:

- A ball valve and quick disconnect combination
- Thermometer with probe (the probe will protrude into the grain bed)
- Perforated false bottom screen & silicone gasket
- Stainless steel maximizer
- Stainless steel sparge arm assembly

1. Wrap the bottom coupler on the kettle with plumber's tape and install the ball valve quick disconnect combination.
2. Install the supplied silicone seal around the outside of the perforated false bottom screen.
3. Place the perforated false bottom screen with gasket into the kettle with the single-handle side facing upward. **NOTE:** It is important that the screen rests flat on the bottom, with minimal gapping between the screen and the sides of the kettle.
4. Screw the maximizer into the **inside** of the bottom coupler with the bend in the tube aimed down toward the bottom of the kettle.
5. Screw the thermometer into the outer top coupler using 3–4 wraps of plumber's tape.

The stainless steel sparge arm assembly will be installed after we've doughed-in to the upper lip of the kettle and tightened in place.

ASSEMBLING THE BOIL KETTLE

The left kettle location is going to be where your boil kettle goes. With this kettle in front of you, we'll want to install four things:

Your Boil Kettle Includes:

- Two ball valves and quick disconnects
- 3"x 2" Thermometer with probe
- Stainless steel whirlpool/maximizer
- Whirlpool Return

1. Thread the first ball valve on to the bottom kettle coupler.
2. Thread the thermometer into the top coupler.
3. Thread the whirlpool/maximizer into the inside of the bottom coupler's threads, inside the kettle (no plumbers tape required).
4. The second ball valve will install on your whirlpool coupler, and the ½" MPT x 3/8" Barb elbow will install to the inside of this coupler, facing sideways.

INSTALLING THE PUMPS

Your pump assemblies should come with mounting brackets already mounted to the frame.

1. Install the Pump Assemblies by sliding the pump's bases into the brackets on the front lower crossbar of the frame, above the gas manifold. Your pump should be installed so the "inlet" faces down towards the ground and the pump "outlet" faces up. **NOTE**: The pump outlet will be labeled on your pump head with the word "out".
2. The pumps will need to be plugged into the power box on the control panel, rather than into the wall. Make sure the "Pump" indicator on the control panel is **NOT** on prior to plugging in, to avoid running the pump dry!

WHEELS AND CONTROL PANEL

The wheels and control panel should come pre-mounted. If these are not included or installed, please call our customer service department.

You will need to connect the cables from the kettles to the control panel. The connections are color coded as follows:

- Green: Mash Tun Temperature Sensor
- Red: Mash Tun Float (Sparge Arm)
- White: Boil Kettle Temperature Sensor
- Blue: Hot Liquor Tank Temperature Sensor/Float Switch Combo
- Yellow: Digital Hot Liquor Burner
- Connect the Right Pump to the outlet lead labeled PUMP 2 and the Left Pump to the outlet lead labeled PUMP 1.

CONNECT TO FUEL SOURCE

Finally, connect to your fuel source. Always ensure the main regulator and the valves for the individual burners are in the **OFF** position when the system is not in use.

THE DIGITAL CONTROL SYSTEM

Now that your BrewScultpure is assembled, let's take a moment to understand how the Digital Control system works to provide you with professional levels of control and automation.

HOW IT WORKS

The Digital Control system allows you to easily, accurately and automatically control Mash Step & Sparge temperatures as well as the Sparge process. Let's go over the key parts of the system and how they work together to provide this amazing degree of control and convenience.

TOUCHSCREEN CONTROL PANEL

The Touchscreen Control Panel is the centerpiece of our digital control system. The centralized controller is where the brewer programs in the desired Mash & Hot Liquor temperatures, as well as up to 5 Mash steps and 5 Boil additions. The controller receives information from the system's temperature probes and float switches, and is responsible for activating the Digital Hot Liquor Tank Burner as appropriate.

DIGITAL HOT LIQUOR TANK BURNER

The Digital Hot Liquor Tank Burner is responsible for turning on and off as directed by the Control Panel in order to maintain the correct

temperature in the Hot Liquor Tank. The Digital Burner is comprised of an electric solenoid valve which is activated by the control panel, and a pilot light which lights the burner when the solenoid is opened. As a safety feature, the solenoid valve has a thermocouple which detects the presence of the pilot light; if the pilot is not lit then the valve cannot open and supply gas to the burner.

TEMPERATURE PROBES

The system incorporates temperature probes in both the Mash Tun and the Hot Liquor Tank for temperature monitoring and system control. The probe in the Hot Liquor Tank is responsible for activating the kettle's burner to maintain the HLT temperature at the brewer's desired set point. The Mash Tun's probe monitors the Mash temperature and activates the recirculation pump as necessary to pass the sweet wort through a heat exchanger submerged in the Hot Liquor Tank.

FLOAT SWITCHES

Our system incorporates a pair of float switches to serve as safeguards. The Hot Liquor Tank's float switch is used as a cutout switch for the Hot Liquor Tank's digital burner. By deactivating the burner when the HLT's water level is low, our system prevents rising steam from causing inaccurate temperature readings, as well as keeps the HLT burner from super-heating the empty kettle or wasting fuel. The Mash Tun's float switch controls the system pump during sparging. By placing the float at the brewer's desired height above the grain bed during mashing, the system prevents both channeling of the grain bed and kettle overflow.

SETTING UP FOR BREWING & PROGRAMMING THE CONTROL PANEL

In this section we'll go over how to set up your BrewSculpture for each phase of the brewing process, including how to program your Digital Brew-house Control system. After that we'll go over an abbreviated "mock brew" process to make sure everything is working correctly before you actually dough-in for the first time!

LIGHT THE PILOT ON DIGITAL HOT LIQUOR BURNER

Once you have everything set up and plugged in, it's time to light the Pilot Light for the Digital Hot Liquor Burner. Please read through all of these steps before starting the process.

1. Locate the Combination Valve to the left of the actual burner
2. Turn the valve to the "Pilot" position. Press the knob inward and hold it in place to allow the gas to flow. With the knob pressed, light the pilot, and keep the knob pressed for a count of 30 seconds to heat up the thermocouple.
3. Release the knob and ensure that the pilot stays lit when the knob is released. If not, repeat the previous step until the pilot light stays lit when the knob is released.
4. Turn the Combination Valve's knob to the "On" position.

***Note:** *The Digital Burner will not light unless both A) the pilot light is lit and keeping the burner's thermocouple hot; and B) the float in the Hot Liquor Tank is connected to the Control Panel and in the "up" position, indicating that there is sufficient water in the kettle.*

SETTING THE HOT LIQUOR TEMP

1. From the main Control Panel screen, press "Edit HLT"
2. On the next screen, use the on-screen keypad to input your desired temperature and press the green "ENT" button to store the new value and return to the main screen.
3. Use your finger to move the HLT slider to the "HLT On" position to activate the burner.

As long as you have sufficient water in the kettle and the pilot is lit, you should see the on-screen indicator for the burner, as well as see and hear the flames.

SET UP FOR MASHING

1. To set up the system for mash recirculation, you'll need to connect the hoses as follows:
2. Install one of the 40" hoses running from the Mash Tun ball valve to the inlet side (bottom) of the Right Pump.
3. Install one of the 32" length hoses with both male and female Quick Disconnects running from the outlet side (top) of the pump into the inlet side of the heat exchanger (right side, w/ Female Quick Disconnect).
4. Install the other 32" length hose with both male and female Quick Disconnects running from the outlet side of the heat exchanger (left side, w/ Male Quick Disconnect) into the Sparge-Arm inlet.
5. To begin recirculating, start by making sure that the Sparge Arm ball valve and the Pump Outlet (upper) ball valve are open all the way, and that the Pump Bleed (lower) ball valve is closed. Open the Mash Tun valve, and switch the pump on. If the wort isn't flowing out of the pump and up to the sparge arm, burp the pump head with the lower valve to remove any trapped air.

MASH MODE

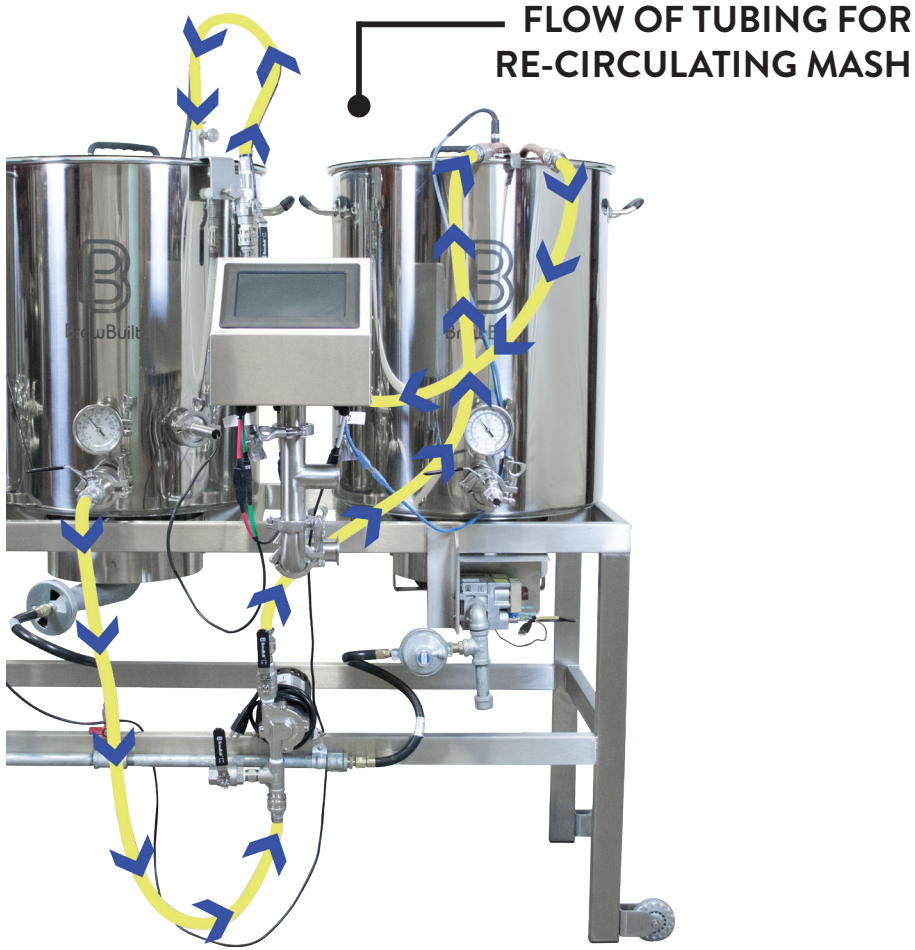
In Mash Mode, the Mash Recirculation pump is governed by the Mash Tun Temperature Probe. When the mash temperature drops below the set point for a given mash step, the pump is activated to pass wort through the heat exchanger in the Hot Liquor Tank. The Control Panel allows you to program up to 5 Mash Steps for your brew.

1. From the main screen, find and press the "Mash Mode" button to enter the Mash Editing screen.
2. On the Mash Mode screen, find and press the "Edit Mash Steps" button. You will see 5 mash steps displayed in two columns, one each for time and temperature. All the values will be zeroed out.
3. From here any of the steps' times and temperatures can be edited by tapping that value on the screen and editing it with the on-screen keypad.
4. You can reset all time and temperature values back to zero with the "CLEAR ALL" button.
5. When you have set the rest temperatures and times that you want for your brew, press "DONE" to return to the Mash Mode screen, and press START MASH.

When your mash is completed, the system will prompt you to continue on to Sparge Mode.

***Note:** There are 3 handy "quick-start" buttons below the steps in the screen where you set up your Mash steps, which allow you to quickly jump into common values for a Single Infusion, Single Infusion w/ Mash Out, or Multi-Step mash.*

***Note:** The "Pump 1" button displayed in Mash Mode can be used to manually activate the pump between your Mash Tun and Boil Kettle (the pump not being use to recirculate your mash).*



SET UP FOR SPARGING

1. With the pump turned off, close the Pump Outlet & Mash Tun ball valves and disconnect the hose from the Mash Tun. Do your best to pinch the hose closed or fold it over to keep it as full as possible, to keep from losing wort and letting air into the hose.
2. Install the hose on the Hot Liquor Tank ball valve.
3. Install the remaining 40” hose running from the Mash Tun ball valve to the Left Pump inlet.
4. Install the 32” hose with two female Quick Disconnects between the Left Pump outlet valve and the Boil Kettle ball valve.
5. Open the Hot Liquor Tank ball valve, wait a moment and then the Right Pump outlet valve and turn on the pump.
6. Once 2-3” of water have accumulated above the grain bed in the Mash Tun, open the Mash Tun ball valve, and then a moment later the Left Pump outlet valve and the Boil Kettle ball valve. Turn on the Left Pump.
7. Use the outlet valves on the two pumps to adjust their flow rates such that you are able to maintain approximately 2-3” of water above the grain bed in the Mash Tun, and a flow rate that allows you to complete the Sparge in 45-60 minutes.

***Note:** Once you find a handle position on the pump outlet valves that you are happy with, you can mark this position with a sharpie or a Dremel to make it easy to find again in the future.*

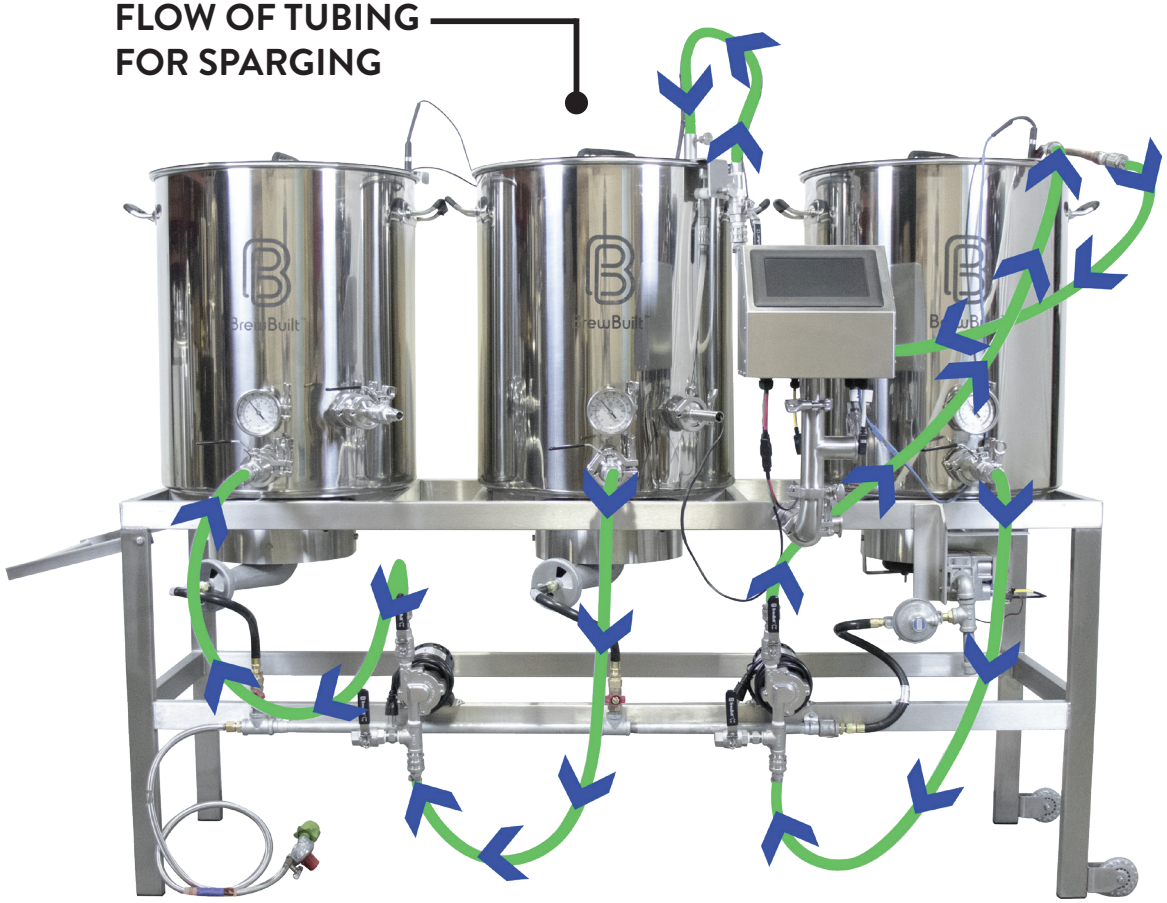
SPARGE MODE

In Sparge Mode, the pump which was recirculating your wort during mashing will now be delivering sparge water from your Hot Liquor Tank. The pump is no longer controlled by the Mash Tun Temperature Probe, and is instead controlled by the Float Switch on the Sparge arm. As wort is transferred out of the Mash Tun and into the Boil Kettle, the float will drop down and activate the pump. Ordinarily, you will be transitioned into Sparge Mode organically by the system once your mash is finished. You can also access the Sparge Mode from the main screen at any time.

1. Once in the Sparge Mode screen, find and press the “Pause/Start” button to activate the main pump and begin the timer. Pressing this button again will pause both the timer and the pump.
2. The second pump, which moves wort from the Mash Tun to the Boil Kettle, is controlled manually with the “Pump 1” button on the right side of the screen.

While the sparge is running, you can press the “Boil Mode” button and program in your Boil Addition Alerts ahead of time.

FLOW OF TUBING FOR SPARGING



BOILING, WHIRLPOOLING, CHILLING AND TRANSFERRING

1. Fire up the Boil Kettle burner once your sweet wort reaches the level of the thermometer in the Boil Kettle to save time—you can be heating your wort while the sparge finishes.
2. With 15–20 minutes remaining in the boil, connect the two medium-length hoses so that they are running out of the Boil Kettle ball valve to the Pump Inlet and from the Pump Outlet to the Boil Kettle Whirlpool Valve. We recommend recirculating through the Whirlpool Circuit for the last 10 minutes of the boil to ensure that the hoses are sanitized by the boiling wort.
3. If you are using a Counterflow Chiller with your system, we recommend that the Whirlpool Circuit be set up as Boil Kettle to Pump to Chiller to Whirlpool Valve. That way your boiling wort will sanitize the interior of your chiller, and when the whirlpool is finished you can simply disconnect the hose from the Whirlpool Valve and direct it to your fermenter.

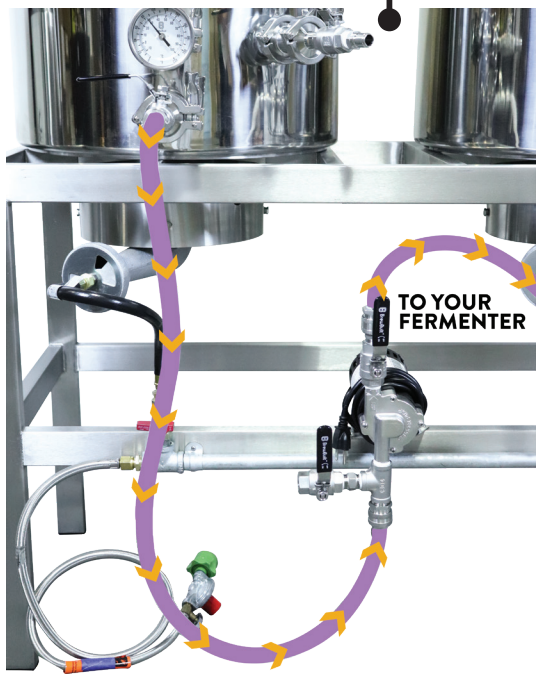
HOW TO PROGRAM BOIL ADDITIONS

Boil Mode allows you to enter a custom boil time and then set alerts for up to 5 events with any amount of time remaining in the boil, most often used for hop and clarifier additions.

1. Boil Mode can be entered from the main screen or directly from the Sparge Mode screen.
2. From the Boil Mode screen, press the “Edit Boil Timers” button.
3. The Total Boil Time and each Boil Addition can be set by pressing the “000” to the right of the listing to select it, then changing the value with the on-screen keypad. Store the new value by pressing the green “Enter” button.
4. When you have set all of the alerts that you want, press the DONE button to return to the Boil Mode screen.
5. Once the kettle reaches a boil and you are ready, start the timer by pressing the “Pause/Start” button to begin the countdown timer.
6. When the alert times you set are reached you’ll see a visual alert and hear an audible alarm. You can turn off the alarm with the “Silence Alarm” button.
7. When you are ready to begin your whirlpool, press the “Pump 1” button.

FLOW OF TUBING FOR WHIRLPOOL

FLOW OF TUBING FOR TRANSFER TO FERMENTER



TESTING YOUR DIGITAL SYSTEM

Your BrewSculpture's Digital Control Panel features a built-in pre-brew diagnostic program that you can use to ensure that all of the electronic systems are functioning correctly prior to each brew. We highly recommend you take the few short minutes to go through the diagnostic program before you start each brew day.

While the diagnostic mode is a very powerful feature, we also strongly recommend that you go through a short "mock brew" before starting out on your first brew. This will ensure that you're familiar with and practiced at the correct way to hook up all the hoses, as well as that all the hoses, welds & threaded fittings are tight and leak-free.

1. Connect your fuel source and light the pilot light on the Hot Liquor Burner.
2. With the kettles in place on the Sculpture Frame, fill the Hot Liquor Tank with enough water to raise the float in the kettle, and the Mash Tun with enough water to cover the thermowell. Check the outside of the kettle to make sure that the threaded fittings are not leaking.
3. Set your Hot Liquor Tank temperature to 10°F over your current ambient temperature. Ensure that th burner activates.
4. Switch the Hot Liquor Tank temperature setting to be below the current temperature in the kettle. Ensure that the Burner turns off.
5. Reset the Hot Liquor Tank temperature to 20°F above the current ambient temperature. The Burner will activate.
6. Connect the hoses for Mash Recirculation per the instructions on page 5, including the steps leading up to turning on the Pump.
7. From the Control Panel's main screen, manually activate Pump 2 for a moment to ensure it is working. Check the hoses for leaks, especially at the ends where the quick disconnects are held in place with hose clamps. Check the pump head and valves for leaks as well.
8. Program in two 1 minute mash steps at 10°F & 15°F above the current water temperature in the Mash Tun and begin the mash. Ensure that the Pump activates and stays on as necessary until the Mash Tun temperature rises to set point. Conclude the Mash and enter Sparge Mode.
9. Referring to page 6, connect the hoses for Sparging.
10. Set the Sparge Arm in the Mash Tun so that the float is at the lowest possible setting.
11. Open the Mash Tun Ball Valve all the way to drain water until the float drops.
12. Start the sparge timer & pump. Make sure that Pump 2 activates and sends water from the Hot Liquor Tank to the Mash Tun. Close the Mash Tun Ball Valve and allow Pump 2 to continue running. Ensure that when the water level in the Hot Liquor Tank drops below the level of the Hot Liquor Tank float, that the Digital Burner turns off.
13. Stop Sparge timer and enter Boil Mode.
14. Enter a Boil time of 2 minutes, set Addition 1 to 1 minute, start Boil Timer. Ensure that the Alarm functions on screen and audibly.
15. Connect the hoses for Whirlpooling as described on pages 6-7. If your set up includes a counter-flow chiller now is a great opportunity to make sure you have the connections all down as well as flow control for chilling. If possible, practice running the water all the way out to your fermenter just to make sure your hoses are all long enough and there are no connection surprises come Brew Day.
16. If everything works, and nothing leaks, you're ready to brew!

SAFETY INFORMATION

Please read the following **IMPORTANT** safety information before use:

DANGER:

⚠ **Do Not** operate your BrewSculpture indoors. BrewSculptures are designed for outdoor use only.

⚠ **Do Not** exceed the weight limit of 250 lbs per burner.

⚠ **Do Not** leave the system unattended during operation. User must stay in the immediate area and have a clear view of the system at all times.

⚠ **Do Not** heat cooking oil with your BrewSculpture.

⚠ **Do Not** allow children near the BrewSculpture when in-use.

⚠ **Do Not** use close to combustible materials.

⚠ **Do Not** use under any overhead construction.

⚠ **Do Not** operate on uneven surfaces.

⚠ **Do Not** attempt to light the system's burners without a kettle containing liquid placed on top of the burner.

⚠ **Do Not** move the BrewSculpture while in use.

⚠ **Do Not** use this system with any gas regulator other than the model supplied.

⚠ **Do Not** modify this BrewSculpture in any way.

⚠ **Do Not** use a low pressure propane tank that is visibly rusty, damaged, or out of date.

⚠ **Do Not** use this BrewSculpture while under the influence of drugs or alcohol.

☑ **Always** keep the black gas hose away from the flame and heated surfaces of the burner at all times.

☑ **Always** check for gas leaks before each use by applying soapy water to all connections.

☑ **Always** have a fire extinguisher nearby at all times.

☑ **Always** use at least 10' away from construction.

☑ **Always** shut off the gas valve at the tank or main supply and extinguish any open flame if you smell gas. If odor continues stay away from the burner and propane tank and immediately call your fire department. Always call the fire department in the case of a fire.

WARNING!

Combustion by-products produced when using this product contain chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

CLEANING AND SANITIZING

Cleaning your BrewSculpture right away will make it easier, and will keep your whole system looking newer for longer. Cleaning is one of the last things that anyone wants to do after finishing a brew day, but anybody that's put it off before will tell you, it's much easier to do right after the brew rather than waiting until your next brew! Please make sure to remove and unplug all of the temperature and float switches before you start to clean your system.

HOT LIQUOR TANK: Generally, the hot liquor tank will not need to be cleaned, but should be dried out/wiped down, as nothing but water is ever held in this kettle. Remove and clean the kettles maximizer, ball valve assembly, sparge ring, and thermometer after every brew.

MASH TUN: The mash tun will need to be emptied, and having a scoop, mash paddle, or spoon will allow you to scoop the grain out of the mash tun until it is light enough to dump out. **CAUTION**: *The grain could still be hot, so be careful not to dump it onto yourself or anyone else.* Once most of the grain has been dumped, remove the thermometer and false bottom, and clean these off (do not submerge the thermometer face into water). Remove the maximizer, but leave the ball valve installed. Fill the kettle with 2–3 gallons of water and scrub any sugars or grains off the kettle walls with a white scrub pad or wash cloth and sanitizer. Once the kettle looks clean and there are no more sugar or grain spots, you can empty all water and remove the ball valve assembly. All of the subparts of your kettles (other than the thermometers) should be placed in a bucket of PBW water and allowed to soak for 10–15 minutes. PBW

helps to break down any residual sugar or wort, and will make them easier to un-thread and keep clean.

BOIL KETTLE: Your boil kettle will most likely have some foam residue, hop material, and trub adhering to the walls and bottom. There will also most likely be some liquid left over from the boil, we recommend dumping that out, then spraying and wiping the kettle down with a hose and scrub pad until all visual dirt, hops, and residual sugar are removed. After the kettle appears clean, all of the subparts of your kettles (other than the thermometers) should be placed in a bucket of PBW water and soaked for 10–15 minutes.

Allow your kettles to completely drain/dry out by keeping them stored upside down on their burner tiers with their lids resting on top of the upside down kettles. Always try to store your BrewSculpture in the best conditions possible.

Every 5–6 months check your thermometers' calibrations. They most likely have remained accurate, but double checking is easy and never hurts. To calibrate, you'll need to have a 1/16" hex key. This will go into the hex nut on the side of the thermometer, and will adjust the face of the thermometer. While the probe is in a bath of ice water, check to make sure it's reading 32–33°F. If not, adjust the hex nut until it is. Then, place the probe in boiling water and make sure the thermometer is reading 211–212°F **NOTE**: Boiling temperature is variable by elevation. Calibrate the thermometer accurately to your current elevation's boiling temperature.

FAQ

QUESTION: I connected all of the tubing as suggested in this manual, but even with all of the ball valves completely open, I can't get the pump to move the wort! How should I proceed?

ANSWER: The pump is not great at moving air, but is excellent at moving liquid. The pump assembly will have a "tee" fitting on it, with a ball valve on that tee. Try priming the lines by opening and re-closing this ball valve (with a bucket underneath it…). This will get the pump head full of liquid hopefully, and the air in the rest of the lines should get pushed out by this liquid. If this doesn't completely solve the problem, try closing the pump's outlet ball valve, remove the tubing, and open / close that valve. After you get a steady stream of liquid exiting, re-attach the tubing and turn the pump on. Just remember – the pump pushes, but does not pull. It will not suck liquid from one vessel and move it to another, so always have gravity working in your favor to feed the pump.

Question: My BrewSculpture doesn't have a wort chiller – why not?

Answer: A wort chiller is an item that many brewers may have prior to owning their BrewSculpture.

TIPS AND TRICKS

SPARGE TIME

If you want to sparge in 60 minutes, and you want to sparge 10 gallons in that time, you'll know that you should be dropping about 1 gallon every 6 minutes.

WORT CHILLING

You can use the supplied heat exchanger as an immersion wort chiller. Continue to whirlpool while chilling. Once the wort is cooled, turn off the whirlpool and allow to settle.

BALL VALVES

There is a pocket behind the ball valve that can trap spoilage organisms in it when the valve is fully open. To Prevent any spoilage organism from lingering between batches you need to rinse and sanitize the valve. To do so, open the valve **half way** and run rinse water/sanitizer through the valve in both directions. Alternatively, they are easy to disassemble and clean.

PUMPING FROM THE BOIL KETTLE

To transfer from the boil kettle using the pump, the hose connected to the bottom coupler needs to be switched from the pump outlet to the

pump inlet and the hose connected to the offset coupler detached and ran from the pump outlet to the fermenter.

CALIBRATING YOUR DIGITAL PROBES

There are two methods for calibrating your digital probes depending on how accurate your needs are. We recommend the simple method for 99% of users. Go to Help>System Settings.

Simple Method:

Place all probe/float assemblies in the same kettle and cover with water for 20 minutes. Press Calibrate. This will set all three probes to the average value of the three probes within .1 °F.

Advanced Method:

Place all probes in the boil kettle. Fill the kettle half way with ice water and set up to whirlpool. Turn on the pump and wait 15 minutes. Make sure there is still ice at the end of 15 minutes. Press Calibrate. This will set all three probes to 32.0 °F.

CALIBRATING YOUR THERMOMETER

The boiling point of water changes with altitude. Locate your altitude on the chart below to find your calibration temperature:

Altitude, ft (m)	Boiling point of water, °F (°C)
0 (0 m)	212°F (100°C)
500 (150 m)	211.1°F (99.5°C)
1,000 (305 m)	210.2°F (99°C)
2,000 (610 m)	208.4°F (98°C)
5,000 (1524 m)	203°F (95°C)
6,000 (1829 m)	201.1°F (94°C)
8,000 (2438 m)	197.4°F (91.9°C)
10,000 (3048 m)	193.6°F (89.8°C)

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