

# ASSEMBLE THE DIGIBOIL WITH DIGIMASH UPGRADE KIT

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1. Unpack your DigiBoil electric kettle and DigiMash upgrade kit.
2. The DigiMash upgrade kit includes 5 pieces that allow the DigiBoil to be used for all-grain brewing:
  - Malt Pipe
  - Mesh Screen
  - False Bottom with Feet
  - Round Wire Support
  - Detachable Malt Pipe Handle
3. Place the false bottom inside the DigiBoil and install the round wire support in the channel located at the top of the kettle.
4. Place the mesh screen inside the malt pipe and attach the malt pipe handle.
5. Lower the malt pipe into the kettle so it rests on the wire support.
6. If you purchased the optional recirculation pump, follow the assembly instructions below. If you did not purchase the pump, you can skip to the next page.

# ASSEMBLE THE RECIRCULATION PUMP KIT

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1. Gather the pieces for your recirculation pump kit. You should have:
  - High Temp Magnetic Drive Pump
  - Recirculation Arm with Male Camlock
  - Female Camlock with Barb Fitting
  - ½" FPT x ½" Barb Fitting
  - ½" MPT x 5/8" Barb Fitting
  - ½" Ball Valve
  - 5 ft. Length of Silicone Tubing
  - 4 x Hose Clamps
  - Plumber's Tape
2. Thread the ½" MPT x 5/8" Barb Fitting into the outlet side of ½" Ball Valve. The outlet side is the one the valve handle points toward when in the open position. Use several wraps of Plumber's tape on the male thread fitting before threading it into the ball valve.
3. Attach the ball valve to the pump outlet, which is the threaded connection pointing upward from the pump head. Use several wraps of Plumber's Tape on the male threads. Be careful not to overtighten the ball valve onto the pump head. Overtightening may break or damage the pump head.
4. Attach the ½" FPT x ½" Barb Fitting to the pump inlet, which is the center-positioned threaded connection on the pump head. Use several wraps of Plumber's Tape on the male threads. Be careful not to overtighten.
5. Take the length of silicone tubing and cut it in half. One of these lines will go from the kettle's ball valve to the pump inlet, and the other will go from the pump outlet to the recirculation arm.
6. For the first length, simply slip the tubing over the barbs of the kettle ball valve and pump inlet and secure with hose clamps.
7. For the second length, attach one end of the tubing to the Female Camlock's barb and the other end to the barb coming off the ball valve you attached to the pump outlet. Secure both connections with hose clamps.
8. Place the Recirculation Arm on the side of the kettle so that the arm is inside the kettle and the shaft hangs along the outside. For more stability, pass the shaft of the recirculation arm through the kettle handle.
9. Finally, connect the pump outlet tubing with female camlock to the male camlock of the recirculation arm. At this point, we recommend doing a test run with water to check for leaks and to make sure everything is operating properly.
10. You're now ready to recirculate your wort during the mash. Please see below for our tips on using the recirculation pump.

# BREWING INSTRUCTIONS

## 1. COLLECT STRIKE WATER

Depending on your recipe, fill the kettle with 7 to 8 gallons of strike water. In brewing, the water that is heated and then mixed with the grain is referred to as 'strike water'. Approximately 0.125 gallons of water per pound of grain will be lost to absorption, and we are shooting for 6 gallons remaining after the mashing process. Reference the chart to the right for a more precise suggested volume based on the total amount of grain in your recipe.

Grain Bill Weight (lbs)	Fill Volume (gal)
8	7
9	7.125
10	7.25
11	7.375
12	7.5
13	7.625
14	7.75
15	7.875
16	8
17	8.125
18	8.25

## 2. HEAT STRIKE WATER

With the kettle powered on and both elements turned off, switch the controller to read in degrees Fahrenheit by holding down the + and - buttons simultaneously. Set the temperature controller to 156°F and turn on both heating elements. Our target mash temperature is 153°F, however there will be some temperature loss when the room temp grain is introduced. In this process, our water to grist ratio is much higher than in a typical all-grain process, so our expected heat loss is only 4-6 degrees.

## 3. MASH-IN (ADD GRAIN)

Once your strike water has reached the target temperature, it is time to mash-in. Mashing is the process of steeping grain, allowing enzymes to convert starches into fermentable sugars. Quickly pour your grain into the malt pipe and stir until the water and grain are well mixed. At this point, turn off the high wattage heating element (1000w or 1900w) so only the 500w element is in the on position. Adjust the temperature controller to the target mash temperature of 152°F. Put the lid on the kettle and let the mash sit for 60 minutes. In most scenarios, letting the mash sit for 60 minutes at 148-158°F will result in full enzymatic conversion of starches to sugars. During this time the DigiBoil will automatically maintain the mash temperature by cycling on the 500w element when necessary. It is important that the high wattage element is turned off during this process, as it can cause scorching if used to maintain mash temperature.

## 4. RECIRCULATE THE MASH (OPTIONAL)

If you purchased the optional recirculation pump kit, wait until you're 15 minutes into the mash before beginning recirculation. This allows enough time for the grain bed

to settle, and then you can recirculate constantly for the remainder of the mash time. Before turning on the pump, open the kettle's ball valve and the pumps ball valve to allow wort to prime the pump by flowing into the pump head. Keep the kettle's ball valve fully open at all times when operating the pump. The ball valve on the pump outlet is for controlling the flow rate. Have the ball valve just slightly open when you turn on the pump so it does not come out full force and bore a channel in your grain bed. Adjust flow until you have a gentle, steady stream of wort being pumped back over the grain bed.

## 5. DRAIN & VORLAUF

Remove the lid and use the malt pipe handle to lift the malt pipe out of the kettle and rotate it 90° so the feet come to rest on the wire support. Allow the wort to drain into the kettle. At this point you will perform a vorlauf, which is simply the process of recirculating the wort over the grain bed to filter out any sediment that may have gotten through the mesh screen and false bottom. Open the ball valve at the base of the unit and collect the wort in a pitcher or large Pyrex measuring cup. Close the valve and then pour the wort back over the grain in the malt pipe. Repeat this process until the wort coming out of the ball valve is reasonably free of grain particles. Remove the malt pipe when you are done draining and vorlaufing. \*\*If you recirculated the mash with your pump kit, you can skip the Vorlauf step and simply drain the malt pipe and proceed to boil\*\*

## 6. TOP UP AND PROCEED TO BOIL

When finished draining you should have close to 6 gallons of wort in your kettle. If you end up with less, simply add water until your total volume is 6 gallons. Turn the high wattage element back on and adjust the temp controller setting to 221°F. We suggest this temperature setting because it will ensure that the elements will not automatically turn off once boiling temperature is reached.

From this point forward, the process is the same as any other brew process. Add your hops according to your recipe, chill your wort after the boil, and transfer to your fermenter.

**TIP:** The above brewing instructions are for a "no sparge" brew process. If you have a secondary kettle/vessel to heat and hold sparge water, you do not need to use as much water during the mash because you will add sparge water when you rinse the grain after the mash. If using a standard water-to-grain ratio, say 1.25 qts / lb of grain, you can expect a typical heat loss of 10-15°F depending on the ambient environment.

# TIPS & SUGGESTIONS

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- Before adding grains to your strike water, cycle the heated water through the pump for a few minutes. This will warm up the pump and the lines so you won't have as much heat loss when you later begin recirculation.
- Wait until 15 minutes into the mash before beginning recirculation. This allows enough time for the grain bed to settle, and then you can recirculate constantly for the remainder of the mash time.
- Make sure your pump is primed before turning it on. When you're ready to use the pump, turn the kettle's ball valve to the fully open position. Your pump should be placed below the ball valve so gravity will assist the flow of wort out of the kettle and into the pump head.
- The ball valve on the pump outlet is for controlling the flow rate. Have the ball valve just slightly open when you turn on the pump so it does not come out full force and bore a channel in your grain bed. Adjust flow until you have a gentle, steady stream of wort being pumped back over the grain bed.
- The DigiBoil can be switched from reading °C to °F by turning off the burners and holding the +/- buttons simultaneously.
- During the mash, turn off the high wattage heating element(s) so only the 500W element is in the ON position. The high wattage element(s) can cause scorching if used to maintain or raise the mash temperature.
- With the optional Whirlpool Arm, you can swap out the Recirculation Arm and use the pump to create a whirlpool at the end of the boil.