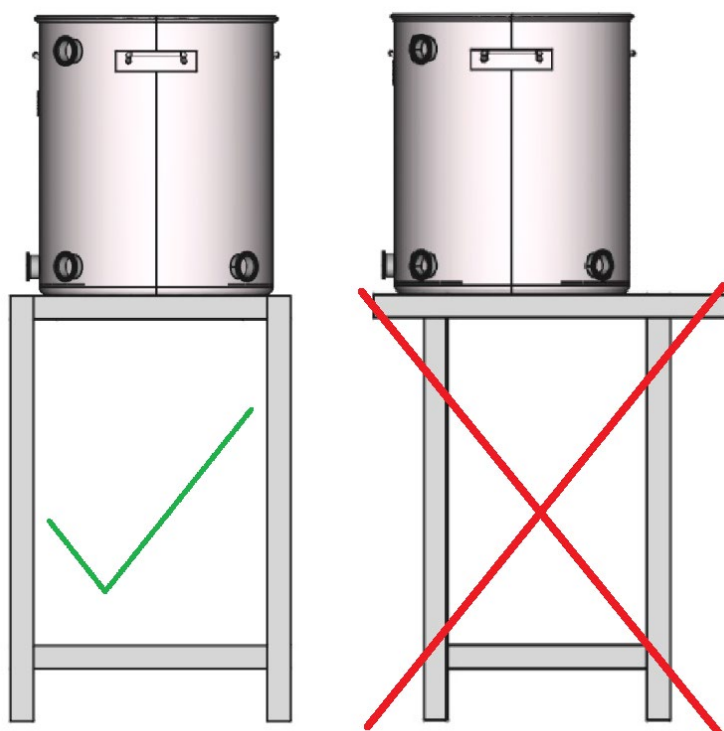


# HERMS Duo Brewing Guide

## Precautions

The 2V HERMS Duo is positioned near the front of your brewing table, with the pump hanging vertically past the table edge. The equipment alone weighs almost 40 KG.

**Please make sure your table is stable enough to carry the weight of the equipment plus brewing water and grain! Also make sure that the table legs extend to the front of the table and are not set back, which would decrease stability.**



**Important: please consult a professional electrician regarding the installation of your heating element. You must be sure to use an appropriate GFI outlet and circuit breaker sized for the load.**

**Do not over tighten the Tri-Clamp clamps. Hand tight is sufficient!**

**Do not run the pump dry, this will damage the pump.**

**Do not run boiling wort through the pump, this can cause cavitation and damage the pump. Allow the wort cool to below 95C before pumping.**

**Do not use cleaning chemicals containing bleach on your stainless steel equipment!**

**Do not use abrasive scouring pads (or the green side of the sponge) to clean your kettles. you will leave fine scratch marks.**

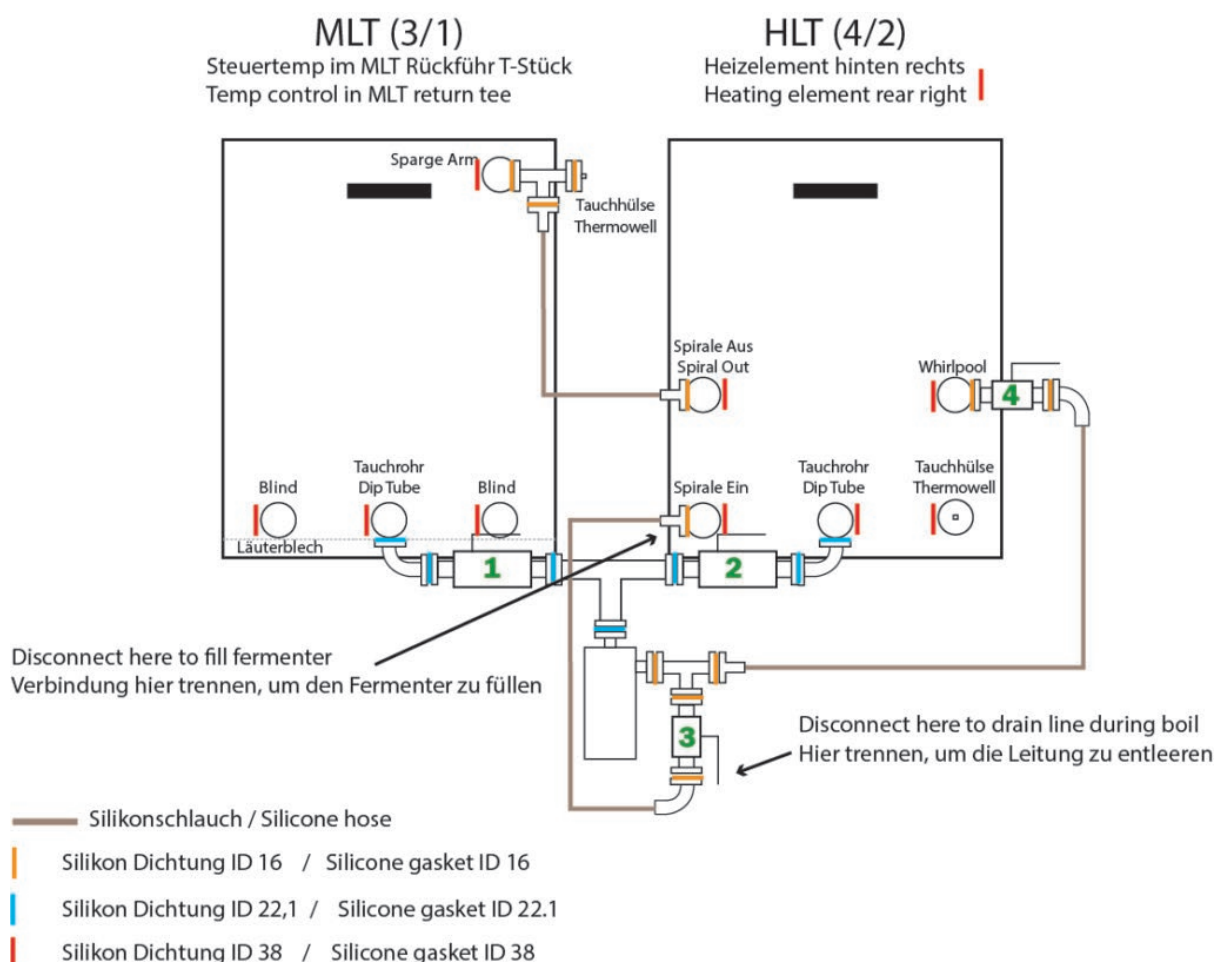
# Installation

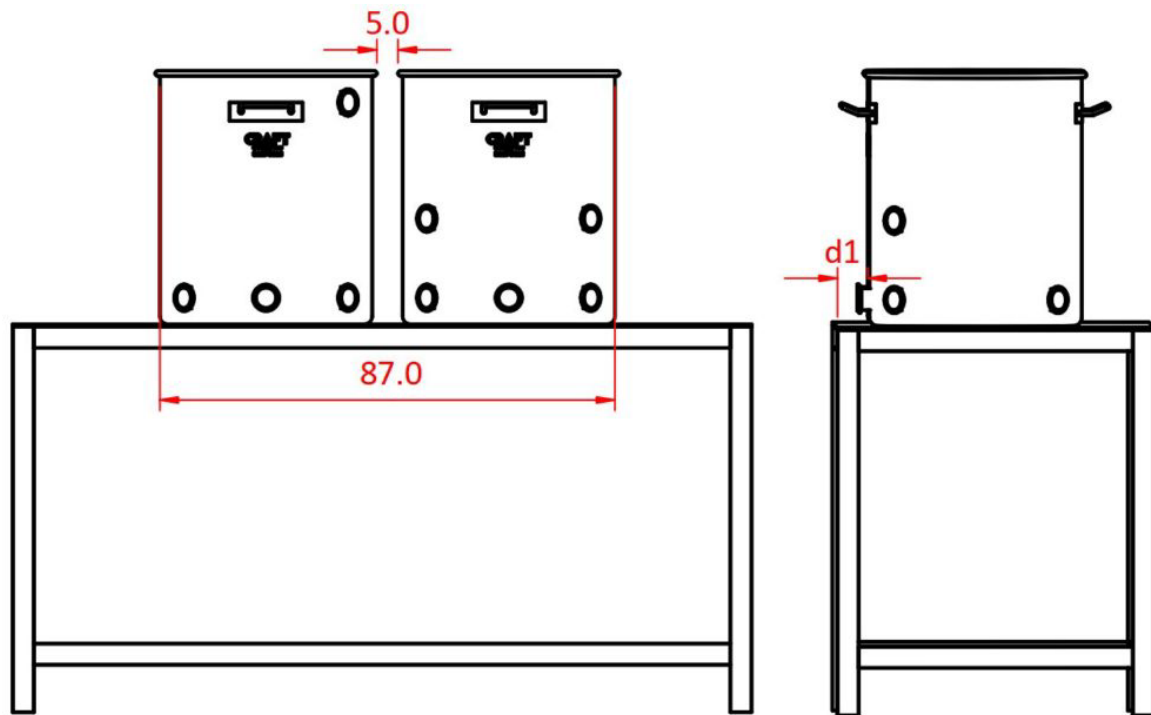
In these instructions the following acronyms will be used:

- Mash/Lauter Tun = MLT
- Hot liquor tank / Brew Kettle = HLT / BK

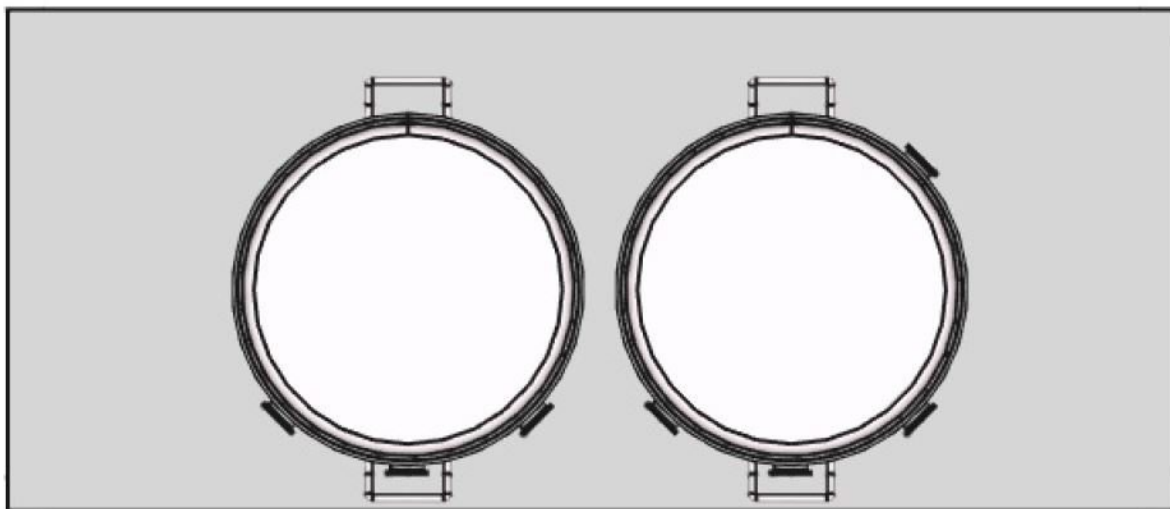
The HERMS Duo includes appropriate size gaskets to help facilitate unobstructed flow. When assembling the system take care to install the gaskets in the right location. The general rule is to match the inner diameter of the two fittings with the inner diameter of the gasket. If the two fittings to be connected have different inner diameters, choose a gasket whose inner diameter matches the larger of the two inner diameters.

The gasket placement and valve numbering is shown in the illustration below.





Side view of the kettles



Overhead view of the kettles

1. Place the kettles on the brew stand. The HLT can be installed to the left or right of the mash tun. The spacing between kettles is fixed at approximately 5 cm. The footprint of the system is 87 cm at the base and 89cm at the top (including the kettle rim). The front edge of the kettles should be located **maximum 15cm** from the front of the brew stand (d1). For reference, the table shown above is 140 cm x 60cm.

2. Install all the fittings into the brew kettles using the **38 mm ID gaskets**. In the HLT you install the dip tube, a short (5.5 cm) thermowell, whirlpool tube, heating element, and the HERMS adapters with HERMS coil. Install the HERMS coil in the HLT by placing the threaded ends through the two HERMS ports. Then screw on the HERMS adapters from the outside of the kettle. **Do not overtighten or you may damage the EPDM gasket**. Lastly you can clamp the HERMS adapters to the kettle.

3. In the MLT, install the false bottom on the low stand first. Now you can install the dip tube with O-ring, the sparge arm fitting (remove the screw first), and 2 blind caps.

4. At the mash tun, the short tee is connected to the sparge arm inlet with the middle leg facing down. The thermowell is installed horizontally into the tee.

**Having the thermowell in another position could result in poor wort flow past the thermowell causing inaccurate temperature readings. \**

In the mash tun install the sparge arm extension tube and mash spreader plate. Choose your extension length based on the estimated volume of your mash. The bottom of the tube should be at least 2cm below the liquid level after doughing in.

5. On both kettle dip tubes install a 1" Elbow and a 1" Quick Clean Valve, and connect the two valves with the 1" Tee. Make sure the valve handles can be operated without obstruction. At the BK whirlpool port install a 3/4" quick clean valve.

7. Next install the pump vertically at the bottom of the 1" tee. On the pump output install a small tee with the middle leg facing down. On the middle leg of the tee install the second 3/4" quick clean valve. Make sure all valves are closed!

8. Install the 90-degree hose barb on the HLT whirlpool valve. The second 90-degree hose barb is attached at the pump output tee. The 4 straight hose barbs should be installed at the pump outlet tee, the HERMS coil in port, the HERMS coil out port, and the bottom of the sparge arm return tee. See the picture below for an overview:



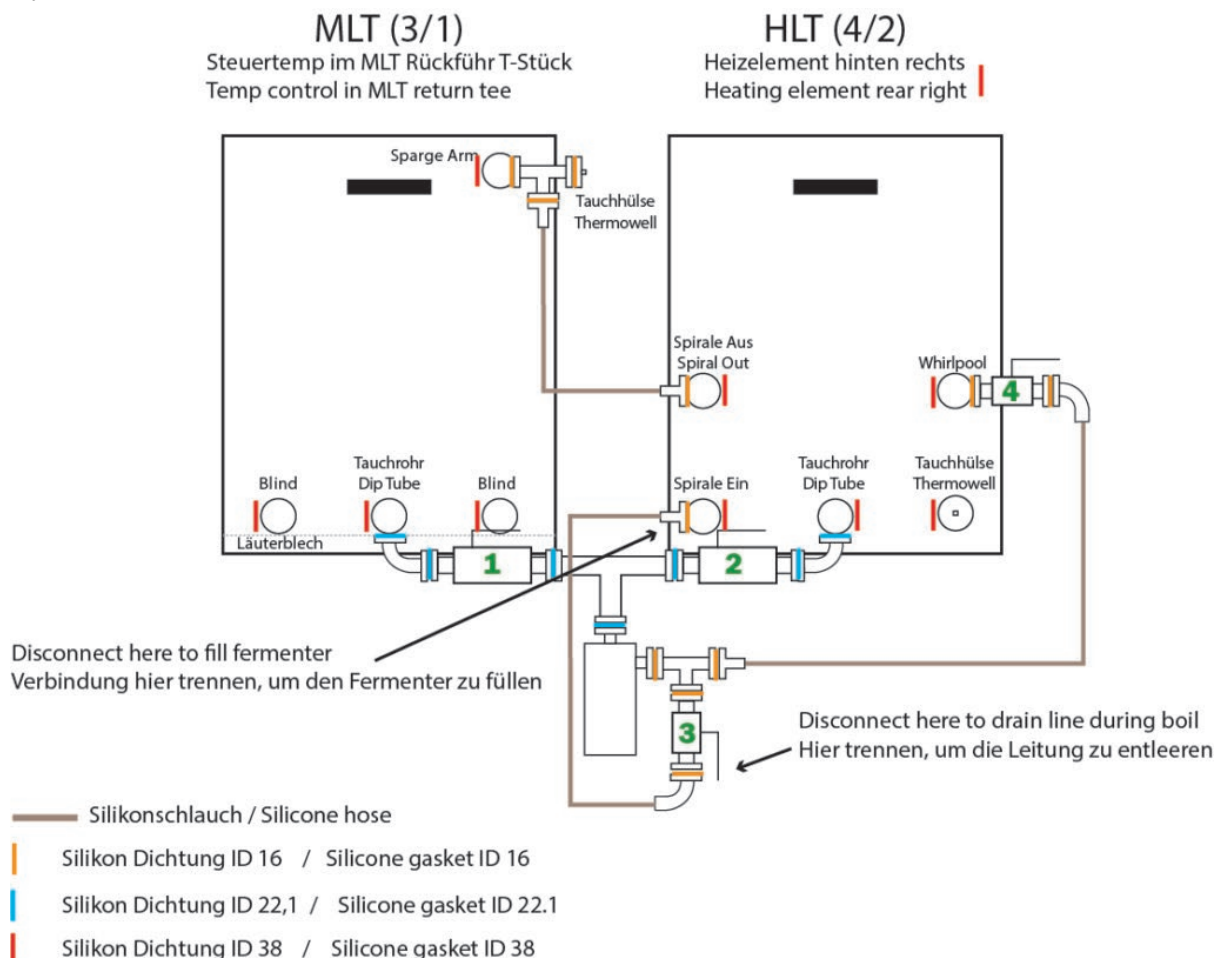
9. Next cut the silicone tubing to length and install the hoses. The set includes 1.5m of silicone tubing. I recommend cutting two 50cm pieces and one 30cm piece, but the actual lengths may vary a bit. Better to double check it before cutting. When installing the hose onto the hose barbs, do not forget the hose clamps!

The system is ready for brewing. If this is your first time using the system, I recommend running a full cycle of a typical brewery cleaning solution (for example Chemipro Oxi) once through all components followed by a rinse with clear water.

## Brewing

**Begin by closing all the valves in your system!**

1. Calculate your required mash water volume by using your desired mash thickness, and add 4L to this amount, to account for the space under the false bottom and inside the HERMS coil circuit. Now calculate your sparge water volume, accounting for grain absorption and about 1L mash tun remainder after lautering. If the sparge water volume is insufficient to cover the HERMS coil completely, simply add more sparge water than required to ensure the coil is fully covered.
- 2.



2. Add the mash water to the MLT and the sparge water to the HLT. Open the MLT output valve (#1) and the HERMS circuit valve (#3). Wait 20-30 seconds to let the pump head fill with water. Start the pump. It may be necessary to start and stop the pump several times to complete the pump purging process. It can help to partially close valve #3 when purging.

3. Check the fit of the sparge arm extension tube for any air ingress. If you hear any unusual noise, such as a gurgling or bubbling sound, and you are concerned about low oxygen mashing, you may want to readjust the extension arm for a tighter fit.

4. Turn on the HLT heating element and allow the water to come to the desired temperature. I advise setting the initial temp to about 2C above your desired strike temperature, to compensate for the cooling effect of adding the grain. You can use the HLT temperature sensor or the sparge arm input tee sensor for initial heating control.

5. Doughing in: stop the pump, turn off the heating element, and remove and set aside the sparge arm spreader plate from the MLT (to help stirring). Slowly and gently stir in your grain, breaking all clumps. When that is complete, allow the grain to rest for about 5 minutes to facilitate swelling of the grain and help prevent compaction issues. Close valve #3 almost completely and restart the pump. Slowly open valve #3, it is important to do it slowly to prevent compacting the grain bed. There is enough resistance in the HERMS coil that you can recirculate with valve #3 fully open near the end of the mash period. You can expect around 7 l/min flow rate with the valve fully open and an adequately porous grain bed; the flow rate will drop slightly during the mash period as the wort becomes more viscous.

Tip: If you have a high wheat grain bill it can be helpful to add rice hulls in with the grain to help drainage and prevent compaction.

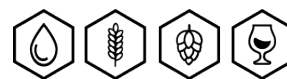
Tip: when mashing, use the temperature sensor at the sparge arm input tee for temperature control. Installing the control sensor in the HLT or in the MLT output can result in undesirable temperature lag or overshoot.

6. Once mashing is complete, you can begin the semi-sparge process.

**Turn off the HLT heating element first, do not dry fire your heating element when sparging!**

Close the MLT output valve (#1) and completely open the HLT output valve (#2). Close valve #3 almost all the way. You do not need to stop the pump.

7. You control the lauter flow rate with valve #3. The goal is to proceed slowly, moving approximately 1L per minute from the HLT to the MLT. Stop when you have reached your target sparge water level in the MLT. You need to include the water held by grain absorption as well as 1-2L remainder in the bottom of the MLT after draining. It is OK to fill the MLT with extra water, especially on your first few brew



sessions until you have a better feel for the system. Stop the pump and close all the valves.

8. If you have residual water in the HLT (henceforth referred to as the boil kettle or BK), you can disconnect the BK **between valve #2 and the elbow** and drain it into a bucket. Reconnect the kettle and you are ready to transfer the wort back to the BK. Open valve #1 completely and open valve #4 very slightly. Turn on the pump. Wort will begin flowing into the boil kettle. Again, target about 1L per minute between the kettles. Once the heating element in the BK is fully covered you can begin heating the boil kettle. Once sparging is complete and the desired boil volume has been reached, turn off the pump and close all valves. Drain the system by disconnecting the hose at valve #3 and drain into a bucket.

**Careful, the residual liquid is hot!**

Open valve #1 and #3 and allow the system to drain completely.

9. During the boil you can remove the MLT for cleaning. Leave valve #1 connected to the tee. Make sure it is closed.

10. If you plan on pumping wort to your fermenter, you can use the hose between valve #3 and the HERMS input coil for the transfer. Disinfect the tubing to be safe.

11. When boiling is complete, you can perform an optional whirlpool step. Turn off the heating element and **allow to cool below 95C** to avoid pump cavitation. Open the BK output valve #2, partially open valve #4. Turn on the pump. It may be necessary to start and stop the pump several times to complete the pump purging process. Note: if you skip the whirlpool step it is still a good idea to recirculate very hot wort through the whirlpool loop for a few minutes. This will ensure that the circuit is disinfected completely.

12. When whirlpooling is complete you can close valve #4 and turn off the pump. Wait 10-15 minutes for the kettle trub to settle out into a cone. Lastly, open valve #3 slightly and restart the pump to transfer to your fermenter. You can control the flow rate with valve #3.

13. Finally, clean up the BK by disassembling all attached parts and rinse with warm water. Cleaning chemicals are optional at this point, I prefer hot water and a sponge. Unclamp the quick clean ball valves for cleaning. Carefully rinse the pump head with water. Towel dry all parts and leave to dry before reassembling.

## CIP cleaning

If you wish to perform a CIP cleaning, start with adding water to the HLT. Add your desired cleaning chemical (e.g. Oxi-Clean or PBW, nothing chlorine based) and heat the water to desired temperature. Recirculate the cleaning water within the HLT for 5-10 minutes, then pump the water through the coil into the MLT. Recirculate the water through the MLT / HERMS loop for 5-10 minutes, then pump out the water into a bucket. A final rinse is optional depending on your cleaning solution. Finally drain completely, towel dry the kettles, take the ball valves apart, and leave everything to dry.

When performing CIP, open and close each ball valve several times to ensure cleaning around the ball valve seat.

I recommend occasional disassembly of the pump head from the pump body for a more complete cleaning and drying. The pump head is mounted with (6) TX20 screws. Do not over tighten when reinstalling.