

Brewtools Docs

Pro Series Brewing System

Safety instruction



Keep children away from packaging materials. Plastic bags can cause choking.

Make sure the power cable(s) are undamaged. Do not use the product if the power cable(s) are damaged due to risk of fire and electric shock.

The product must be positioned on a flat and stable surface before use.

Connectors and clamps should be checked and tightened if necessary before each use to avoid leaks.



The surface of the product gets very hot. Do not touch hot steel parts during use due to risk of scalding and burns.

Learn the function of the valves before you fill the tank with water. Use blind caps on unused output ports due to risk of spillage of boiling/hot liquid that may cause scalding and burns.

Do not fill the tank passed the maximum mark. During boiling, reduce the power to avoid boil over. Risk of scalding and burns.

The product has a powerful pump. Before using the pump, make sure valves are set to the correct position. The pump speed can be adjusted on the touch screen. Too much flow through the pump, for example during circulation over the grains can cause liquid to spray outside the tank. Risk of scalding and burns.



The heating elements are designed to heat liquids and must not be turned on without being completely submerged. Boiling liquids will evaporate and reduce the volume in the tank over time. During circulation, the liquid around the malt pipe will be reduced. Make sure there is always enough flow to keep the heating elements covered. The product must not be used without supervision



Make sure the power cables are inserted correctly. There are grooves in the connectors that needs to match the sockets.

During cleaning, the power supply must be disconnected. The machine must not be sprayed down on the outside. The electrical control system is protected from water splashes, but not spraying water.

The product is mostly constructed of highly conductive materials. Only use the product on circuits with a residual circuit breaker due to risk of electric shock in the event of an electric component failure.

The power cable(s) must be disconnected when the product is not in use.

If you find a fault with the product that may pose a risk, stop using the product and contact the manufacturer or the reseller.

Introduction

The Pro-series Brewing Systems are built without compromise and is the product series that will always offer the highest level of flexibility, accessories and support for high-end solutions. The Pro-series consist of 3 models of different brew volumes, but they are all based on the same design principle and uses the same control system.

The model name tells you the maximum recommended boil volume.



B40pro



B80pro



B150pro

The key concept of these brewing systems is to use Tri-Clamp connections for tool-free and sanitary use. These offer great flexibility and offers the user the choice of different setups based on their preference.



TC 34mm silicone gasket, tri clamp and 19mm hose barb

This user manual will teach you how to prepare the system for the first time, how to use it, clean it and maintain it. You'll also find an FAQ which addresses some questions that might arise during use.

First-time use

This chapter will tell you how to do the necessary steps to prepare your system for use.

Software

The control system for the Brewtools units will automatically receive software updates OTA (Over the air) as long as the microSD card is installed (fitted as standard) and the unit is connected to Wi-Fi. Software updates are free and will incorporate bugfixes as well as new features. Since the software is under continuous development, we have decided to put all software related information available online.

Check out our user manual for the software:



Control system

Assembly

Unpack all the parts and place the brewing system upside down. Connect the power cables and other accessories like the return temperature sensor if you have that. The power cables should exit one of the service holes on the back of the system. The connectors have grooves that only allows the connector to be installed correctly. Do not use excessive force when plugging in the connectors. The optional return temperature sensor should go through the left silicone grommet that is already installed. Flip the system the right way up and install the 3-way valve on the right side as shown below. Install the pump temperature sensor in the sensor adapter included with a gasket between the sensor and the adapter. Install the assembled sensor adapter on the rear outlet using a TC clamp with a gasket. Cut a part of the included silicone tube and install it between the sensor adapter and the pump. Make sure the tube has a nice curve to avoid blockages.



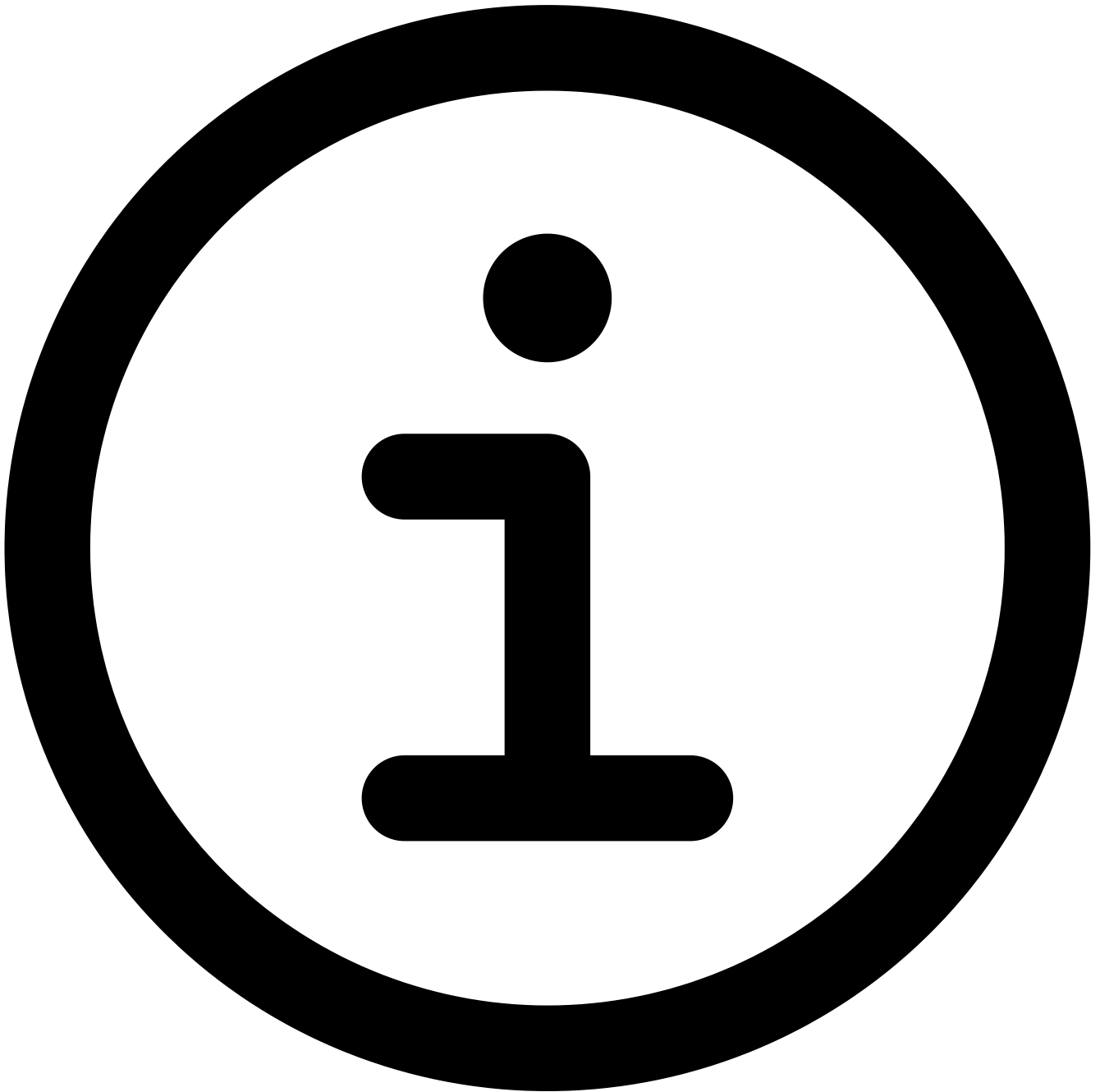
3-way valve on the right side with sensor adapter and pump inlet tube.

Install the gasket inside the bottom part of the sparge pipe and inside the mash hat as shown below. Use a small screwdriver or similar to push the gasket into place. The two gaskets are identical.



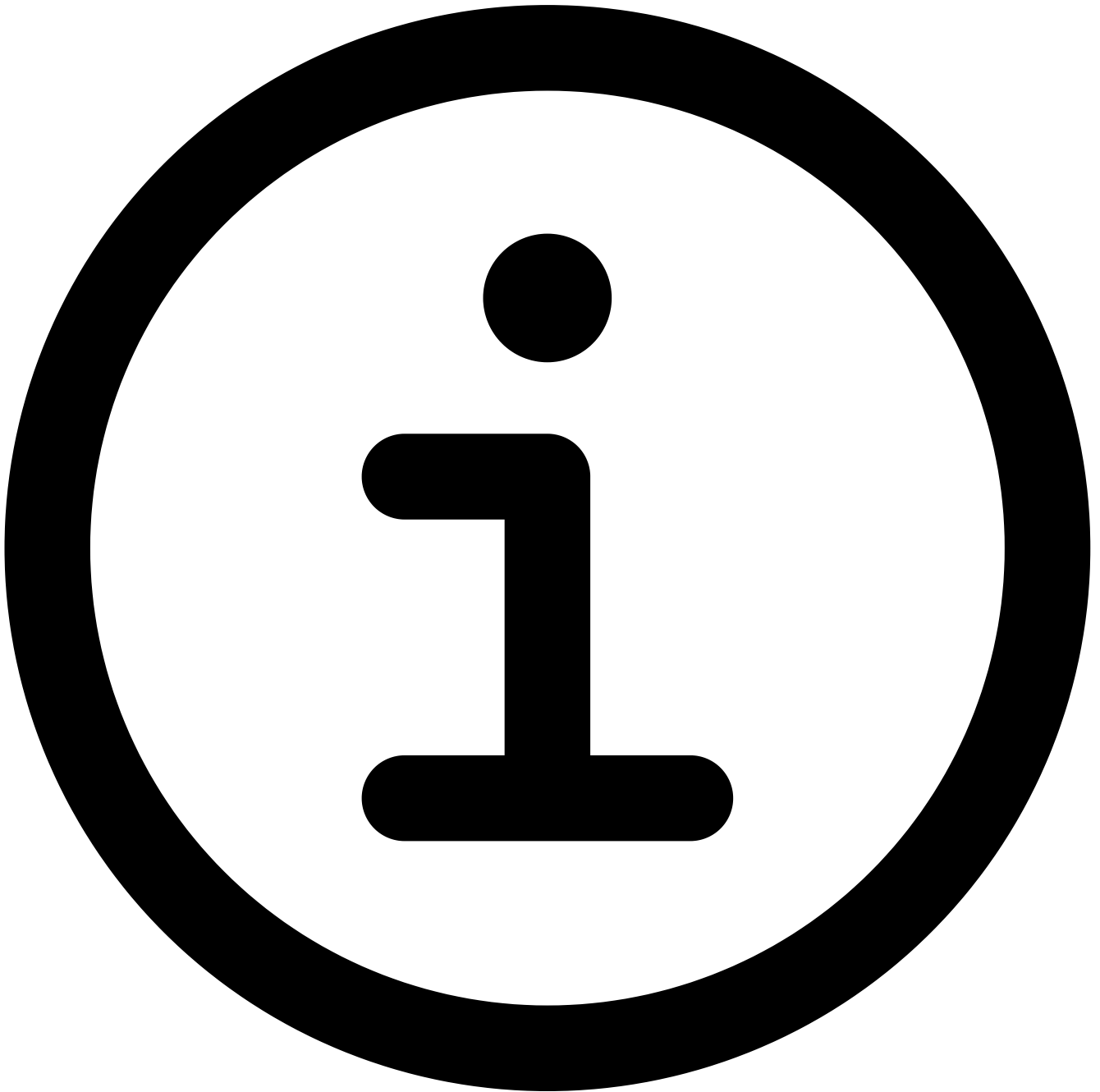
Install the large silicone gasket on the top of the sparge pipe as shown below.





Note that this design is only valid for systems produced after December 15th 2019.

Install two O-rings marked 18x2mm on the dip tube. The dip tube position can be adjusted freely. More on this subject in the "Using the system" section.



The silicone parts and O-rings should be lubricated with Haynes Silicone Grease. The center pipe should also have a thin coat of silicone grease to reduce wear on the silicone gaskets.

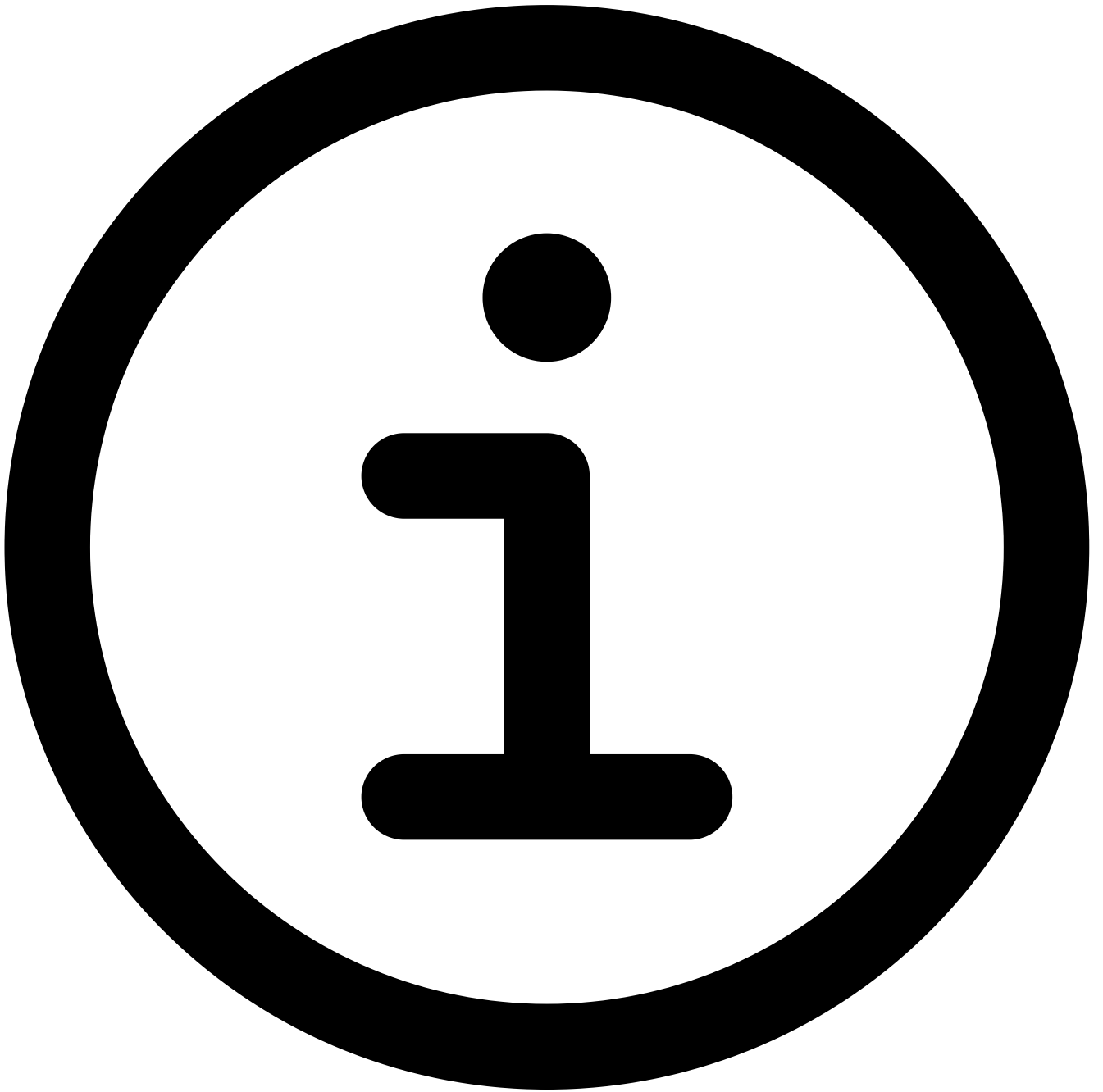


Install 3 blind caps on the open ports indicated below to avoid spilling. If you have extra valve(s), you can use the blind caps as preferred.



B80pro – Recommended blind cap placement

Install the 3 legs of the malt pipe using an allen key. Take note that the latches must be installed as shown below, and the wing nut must be used on the outside of the malt pipe. Alternatively, you can use a normal hex nut (not included). Install the silicone leg protectors to avoid scratching the bottom of the main tank during use.



Please note that the design of the malt pipe leg might have some variation based on model.



Combined leg and holder for malt pipe

Check for leaks

When filling the tank with water for the first time, make sure the taped threads on the pump and the sensor and heating elements gaskets are not leaking. Tighten if necessary. Also check that all TC clamps are tightly installed. The TC clamps might require tightening after use, due to the variations in temperature.

The filter

The filter included is made from expanded metal and might have some tension. Make sure the filter is flat. Flatten by hand if necessary. The filter should be cleaned before use to remove any residue from production.

Cleaning

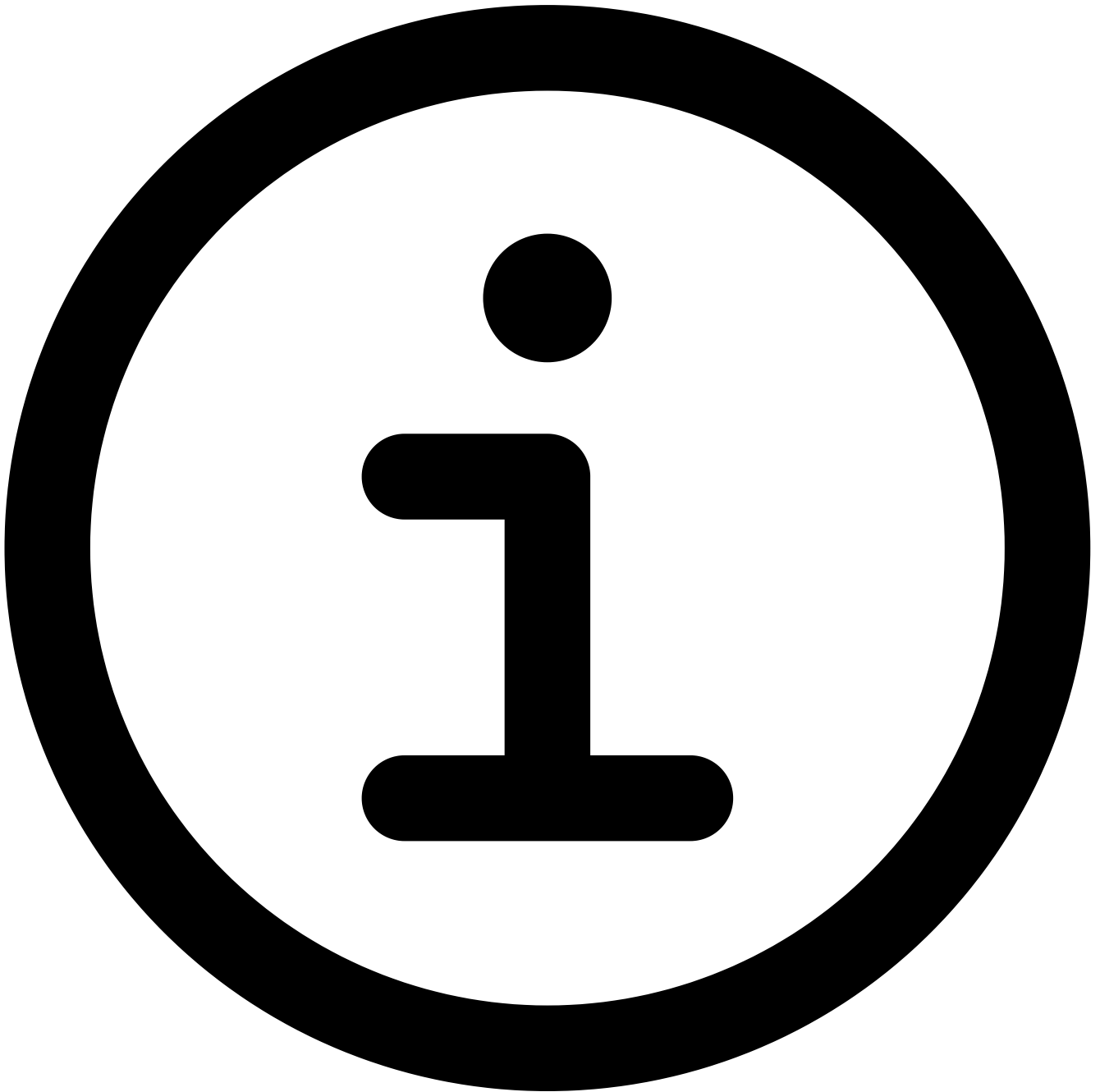
The system should be thoroughly cleaned before use to remove polishing compounds and flux from the production process. Use Trisodium Phosphate (TSP) or other chemicals designed for this type of cleaning. Use a microfiber cloth to wipe all surfaces clean.

Passivation

We recommend passivating the steel before first-time use and 1-2 times a year. Use StarSan or similar acid-based chemicals. Fill the tank with lukewarm water. Use approximately 5ml StarSan per liter and leave it for 15-20 minutes.

Electrical connection

The system must be connected to an earthed socket with a residual circuit breaker. The control system supports two individual circuits. This feature is used on the B40pro 110V version, the B80pro and the B150pro due to the power requirements. The 240V versions of the B40pro runs on one circuit. The software offers the possibility to reduce the average maximum power to adapt to your circuit breaker limitations. You can choose between 10A, 13A, 15A and 16A for each circuit in the control system. Take note that this feature is based on standard voltage ranges, and variations may occur. We recommend testing different settings to find the best option for your location.



The display and the control system are always powered by the main power input. If you lose power on the main circuit, the system will turn off. The second power supply is only used to power the second heater on some models, and the control system will not recognize the loss of power on the second circuit.

Simple function test

Fill the tank with water to cover the heating elements. Start the system in manual mode, and check the following:

- Temperature is correctly read by all sensors.
- The pump is running and can be adjusted on screen.
- Both heating elements are working (bubbles will form on the elements)

Using the system

This section explains how to use the system and gives you some good advice and recommendations for use. For more information regarding the system and different setups, please see our system guide by clicking the link below.

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The control system

The systems are equipped with a 7" touch screen controller. The software can be updated for free through the built-in WiFi-module. When a new version of the software is available, it will automatically download and prompt the user to install it. If the user does not update right away, the new software will automatically be installed during the next startup.

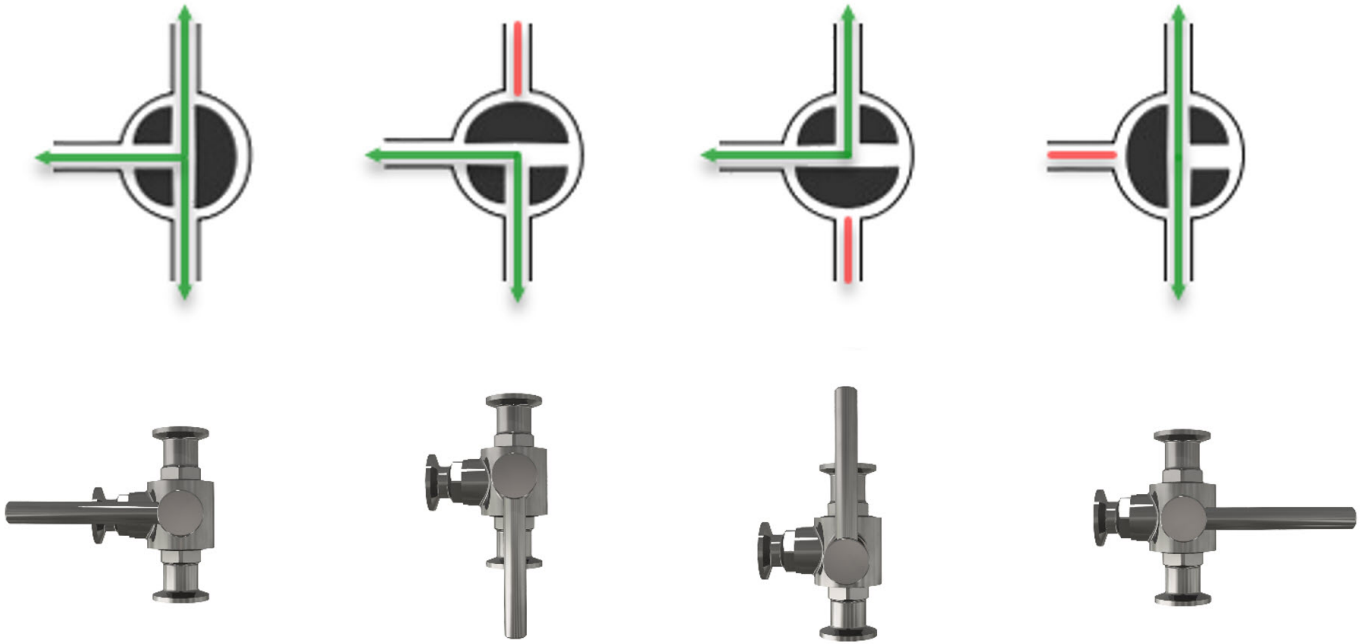
The software is constantly being updated and new features added, so we will not cover the software in this user manual. Visit our website, www.brewtools.com to get the latest information on our Pro series software.

Valves

The system two T-type 3-way ball valves as standard. One side valve, and one bottom valve. The valves only close the port opposite to the direction the handle is pointing. If the handle points toward the middle port (as shown below), all ports are open.

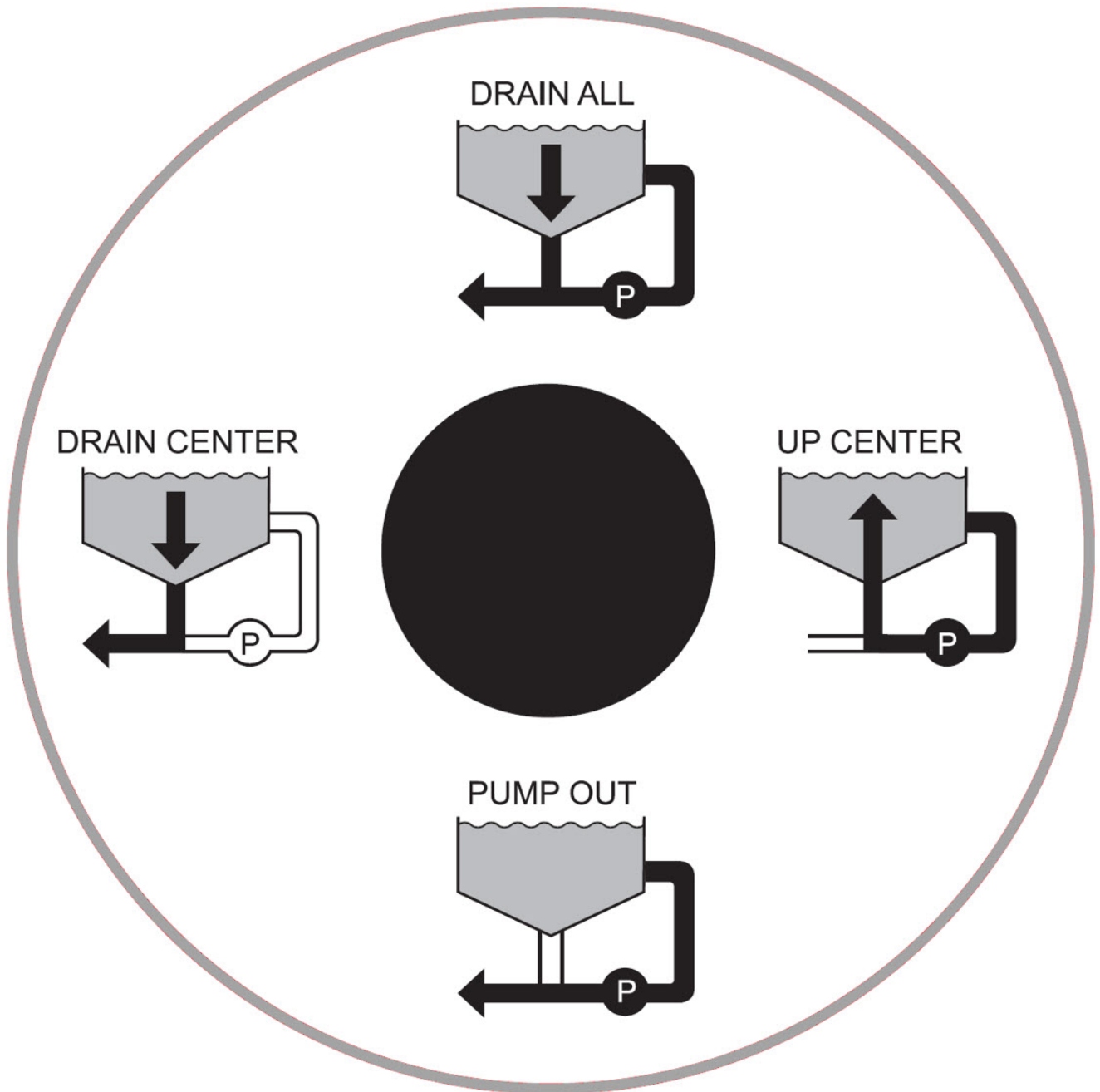


3-way valve shown with all ports open



The illustrations show the fluid flow in the 3-way valves based on the handle position

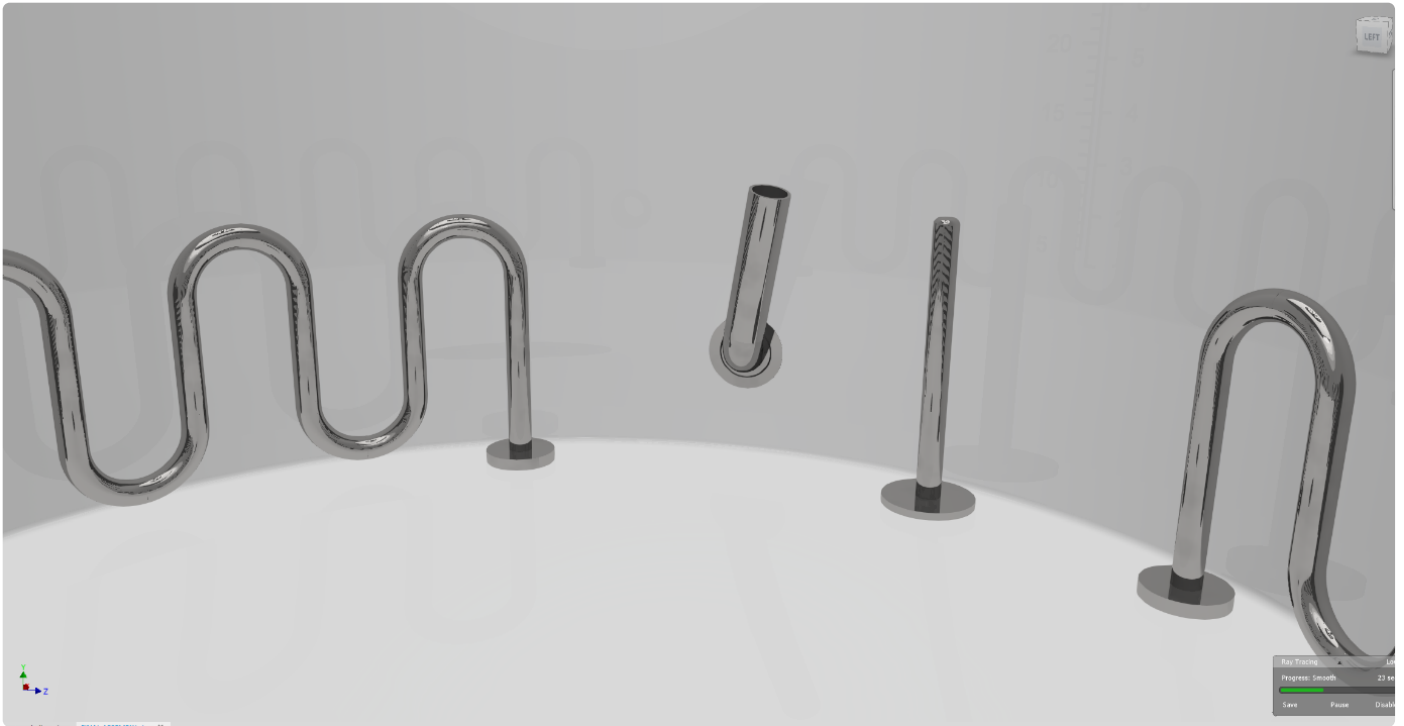
The bottom valve has an extended handle which makes it possible to control from the right side of the control system. There is a sticker showing the flow based on the handle direction.



Bottom valve sticker

Dip tube

The dip tube position is adjustable and is normally used in the two positions shown below. We recommend positioning the dip tube in the upper position during mashing (especially when getting to know the system) to prevent the heaters becoming exposed. Exposing the heating elements will burn them and make them difficult to clean. They might also warp/expand due to the high heat. You can use the mash paddle or equivalent to push the dip tube down when the mashing is complete to get as much wort as possible pumped to the fermenter later in the process.



Dip tube in the upper position



Dip tube in the lower position

The Pump

The pump must never run without fluid in the chamber. This will cause damage to the magnetic impeller. In the beginning of the brew, air may be trapped inside the pump. To vent it, start the pump for a few seconds, stop it, and start it again. Repeat if necessary.

The pump must be installed as shown below. If you install it in a different position, it may affect the lifetime of the pump and make it difficult to vent the air out.



Correct position of the pump



Correct position of the pump

Preheating

We recommend heating the strike water before you install the center pipe and malt pipe for an even temperature. We also recommend circulating the water. The bottom valve handle must point to the "UP CENTER" position.

Crushing the grains

We recommend using grains that's not too finely crushed to get the maximum flow through the grain bed. If you use a lot of special grains like wheat or oats, or you push the limits of the malt capacity, we recommend using rice hulls to increase the flow. The systems ship as standard with the coarse malt pipe filter and our recommended crush grade is 1.1-1.3mm.

Adjusting the malt pipe holders

The latches on the malt pipe may need some adjustment. They should move freely. Push them together to remove it from the latch holder. Adjust as necessary and reinstall the latch. The lower "pin" on the latch can be bent to position using a suitable tool

Lifting the malt pipe

The handle on the malt pipe is designed to be easily removed for cleaning and use of future accessories.



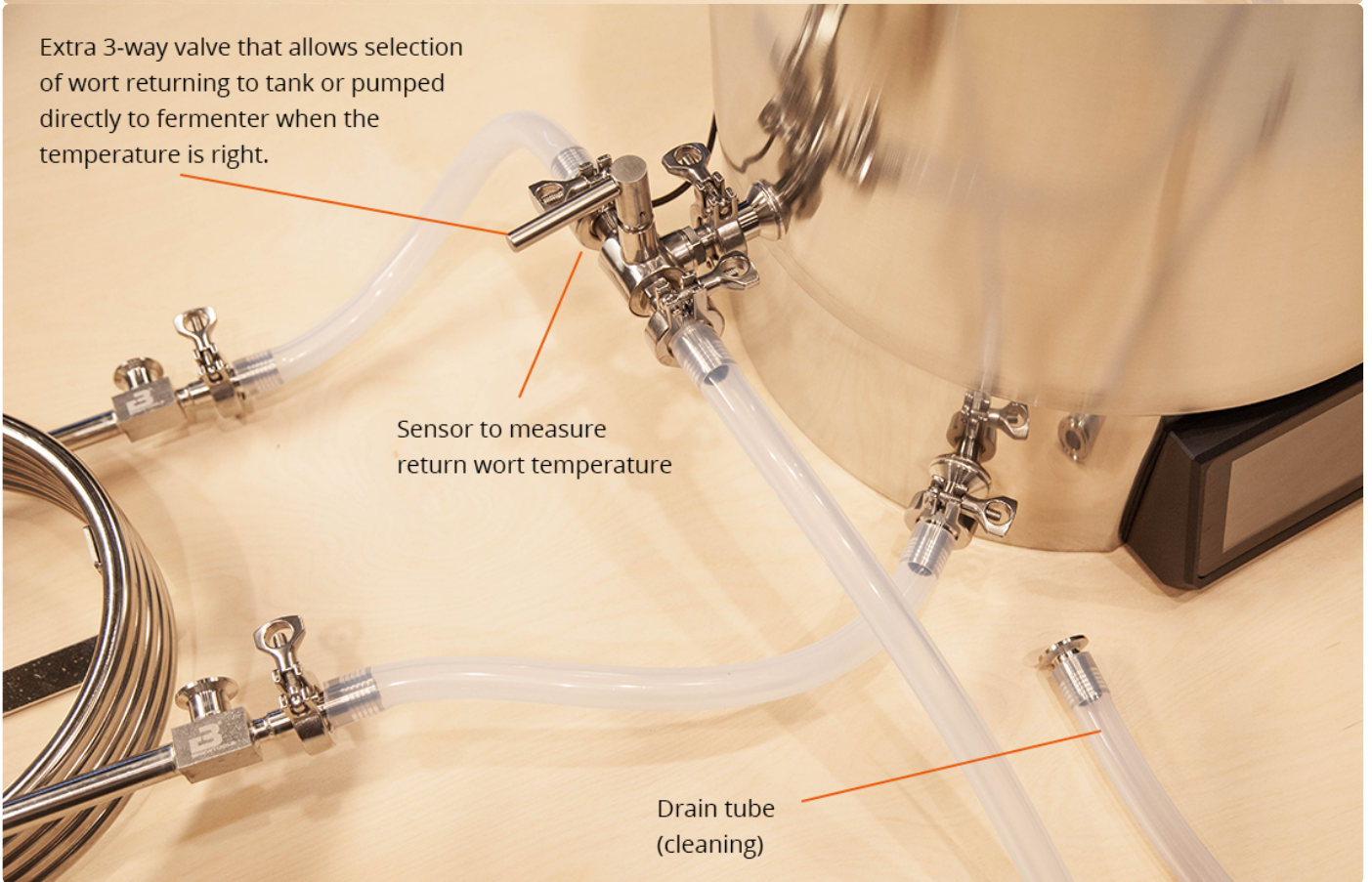
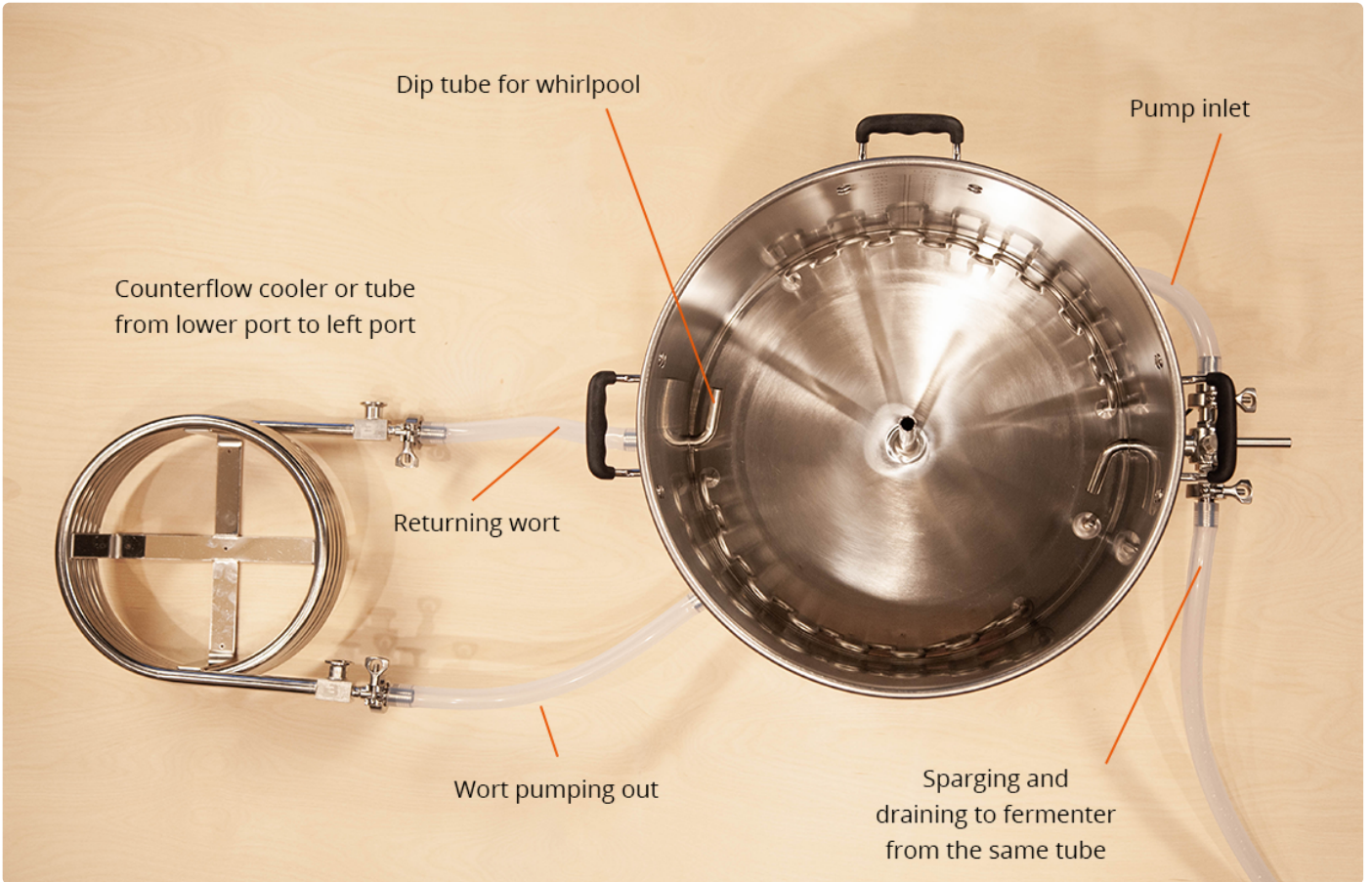
Make sure to always lift the malt pipe from the center of the handle to avoid it coming loose.

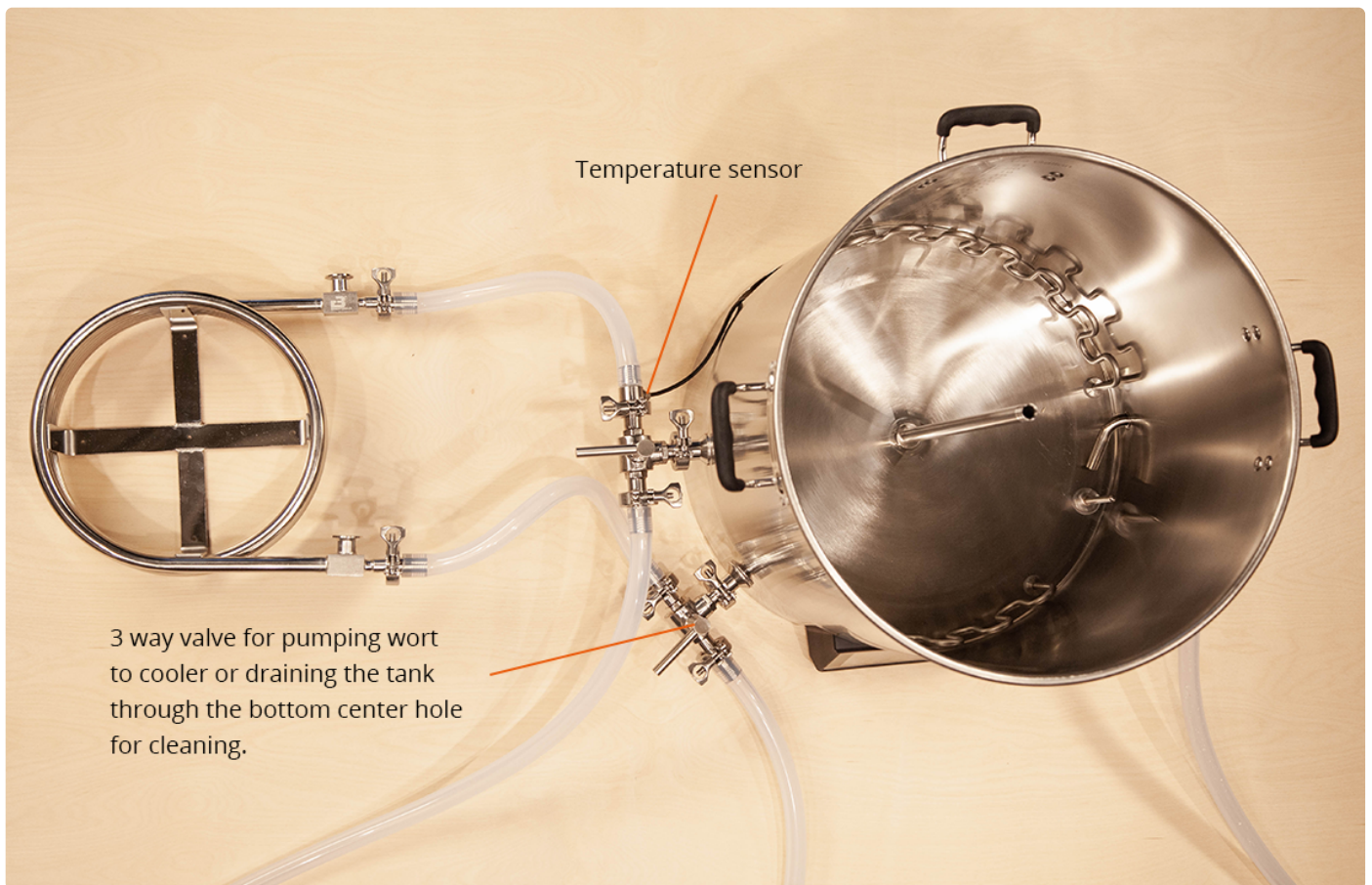
On the larger systems, the malt pipe can be very heavy. We recommend using a lifting system if available.

When lifting the malt pipe, make sure to only lift it high enough for the 3 latches to fall out and grab the edge. If you lift the bottom of the malt pipe higher than the center pipe, you may have difficulties getting the malt pipe seated back on the center pipe.

Different setups

The system can be set up in many ways. Below, we show 3 recommended options based on your accessories.





Temperature sensor

3 way valve for pumping wort to cooler or draining the tank through the bottom center hole for cleaning.

For more more details on the different setups, click at the link below.

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Circulating during mashing

We always recommend resting the mash for 20 minutes after stirring in. In this period, we recommend circulating on the outside of the malt pipe. This is done by pumping the wort out through the lower left port and into the tank again on the upper left port. Use a dip tube to make sure the wort is circulating around the malt pipe. This will give you a more accurate temperature and prevent the heating elements burning the sugars. You can circulate through the counterflow cooler, if you have that.

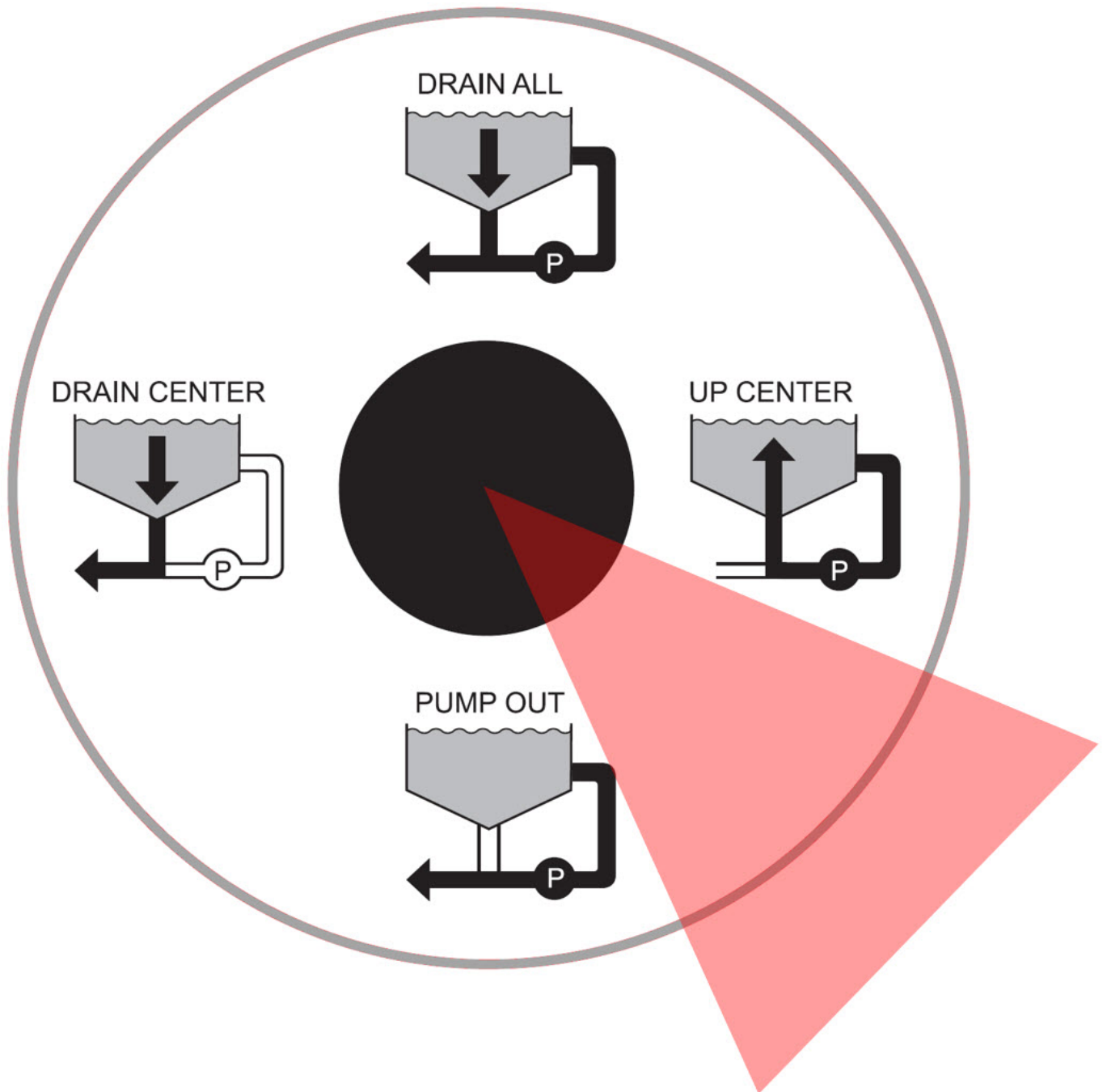


When step mashing it's critical to circulate around the heating elements and reducing the power a lot to avoid risk of burning the elements as they may be turned on for a long time.



B40pro – Circulating during the mash

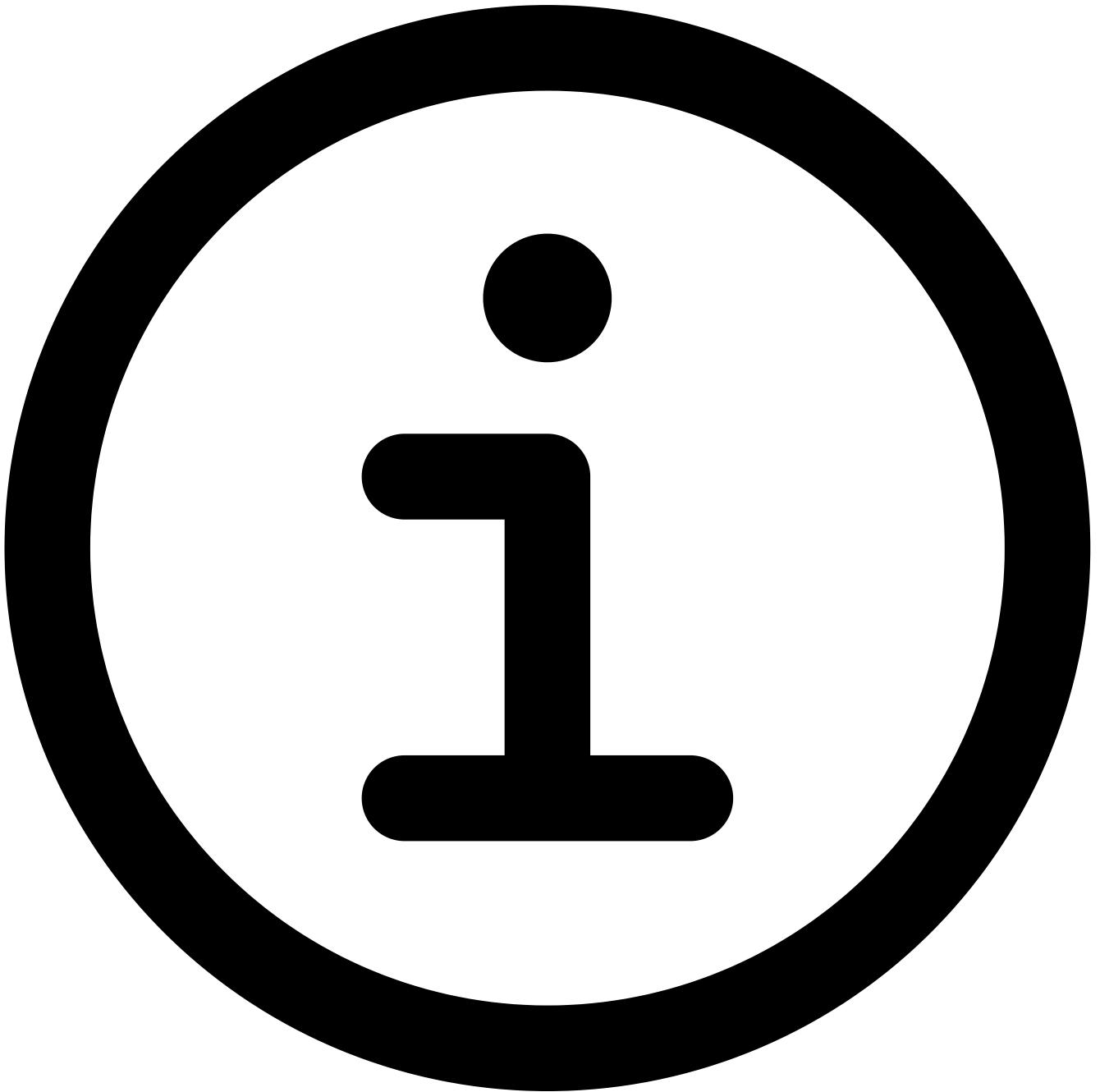
By setting the bottom valve in a middle position shown below, you can circulate both outside the malt pipe and over the grain bed. With this solution you can set the pump power high (70-100%). Make sure the liquid level outside the malt pipe is stable and the heating elements never expose. As recommended earlier, the right dip tube can be set in the upper position to prevent this. Use the bottom valve to adjust the flow over the grains based on your flow rate through the grain bed.



Sticker for bottom valve showing the area you should operate on during combined circulation

Sparging

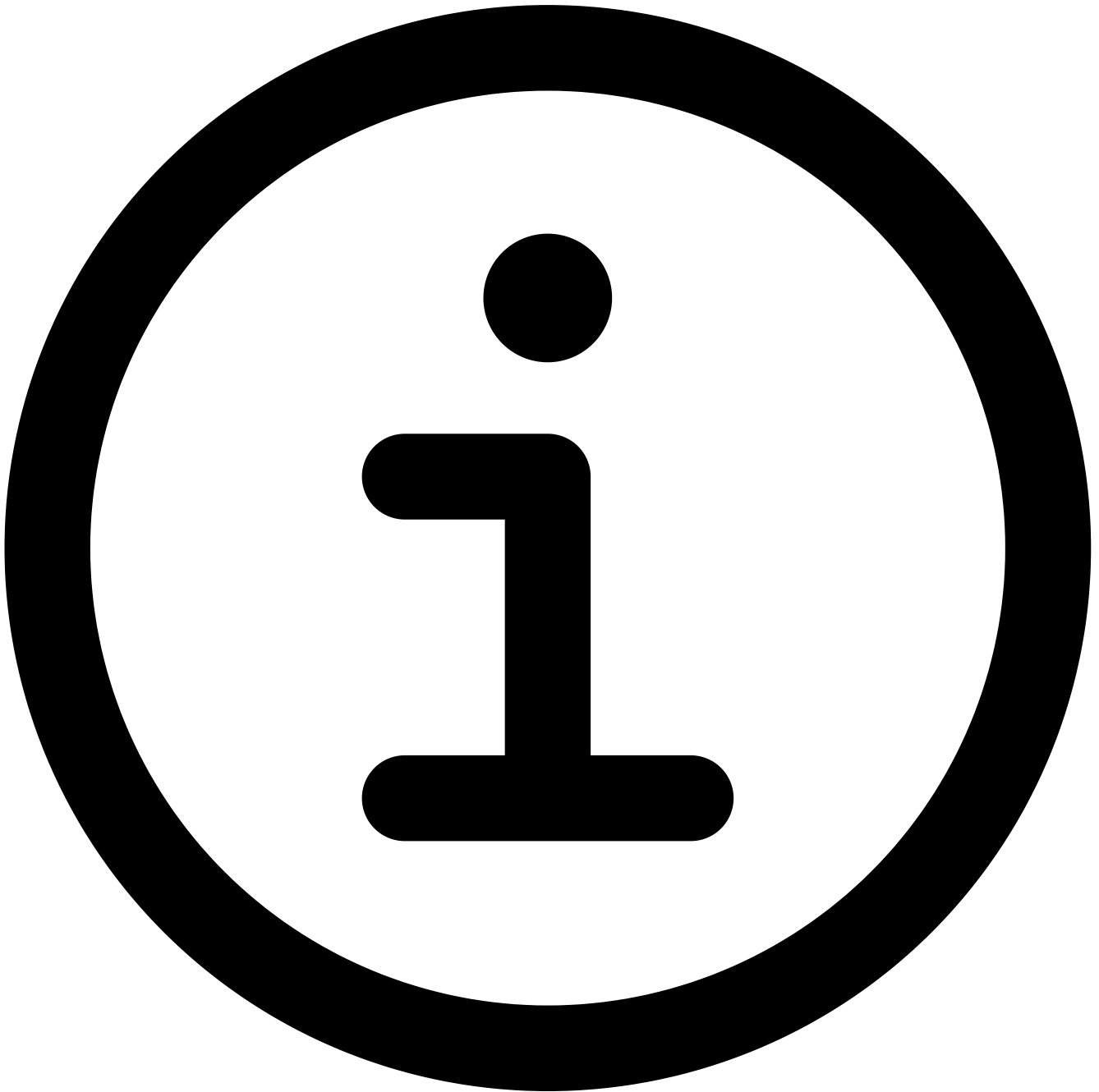
The system ship as standard with a sparge pipe. This pipe will sit outside the center pipe during the mashing process. When lifting the malt pipe, the sparge pipe will lift with it thus extending the center pipe. If you are sparging from a second water heater, we recommend connecting the sparge water on the front-facing port on the right 3-way valve. This allows you to pump the sparge water up the center pipe from the water heater, using the internal pump. Adjust the pump speed as needed. Make sure to not sparge with more water than the main tank can hold.



When lifting the malt pipe during sparging, the liquid level will drop and expose the heating elements. It is important that you turn off the heating elements before lifting the malt pipe.

Boiling

Boiling can be done without a lid (open boil) or using a steam hat (accessory), if you have a ventilation system. You can also use the steam hat with our steam condenser (accessory) if you don't have a ventilation system. During the boiling process it is important to adjust the power to get a satisfactory boil.



Take note that adding hops might cause the wort to boil over.

It is not recommended to use the pump during the whole boiling process, as hop pellets might clog the dip tube and pump. We recommend adding hop pellets on the opposite side of the pump intake. Whole hops should not be used directly in the tank as they will clog the pump intake. To disinfect the counterflow cooler and tubes, circulate through the cooler at least 10 minutes before starting the cooling process. Take note that you might need more power to keep the boil going when running the pump. Additionally, using the pump while boiling increases cavitation inside the impeller house causing more noise from the pump. It is therefore recommended to reduce the speed and not run it at full speed.

Cooling and transferring

You can use your preferred method for cooling the wort. An immersion chiller will work but will limit the whirlpool functionality.

We recommend using our custom counterflow cooler (accessory). It is designed for maximum flow to get a good whirlpool while cooling the wort. We recommend circulating through the counterflow cooler and back into the tank on the left side with a dip tube on the inside to create a whirlpool. When the desired return temperature is reached (can be measured with optional return temperature sensor), the wort is pumped directly to your fermenter by adjusting the left port 3-way valve (accessory, based on setup).

Cleaning

Regular cleaning is critical to keep the quality of your beer, and also to make your brewing system last you a long time. We recommend using a cleaning agent that does not harm Teflon (PTFE). Our 3-way valves uses PTFE bushings. PBW is not recommended to use for more than 30 minutes at a time.

During cleaning, we recommend using the pump to circulate through the counterflow cooler and all tubes. To empty the tank, remove the center pipe. The bottom valve handle is turned to drain the through the lower port. Use a bucket or a tube going directly to a floor drain.

If you have access to pressurized air, this is a great option to blow water out of the pump and pipes. Take note that the silicone tubes are not designed for high pressure.

Maintenance

Normal cleaning, rinsing and drying the tank, tubes, and cooler is sufficient. Tubes should be replaced when severely discolored.

If valves start leaking due to wear or stuck particles, we offer a rebuild kit for them.

O-rings and gaskets are replaced as needed.

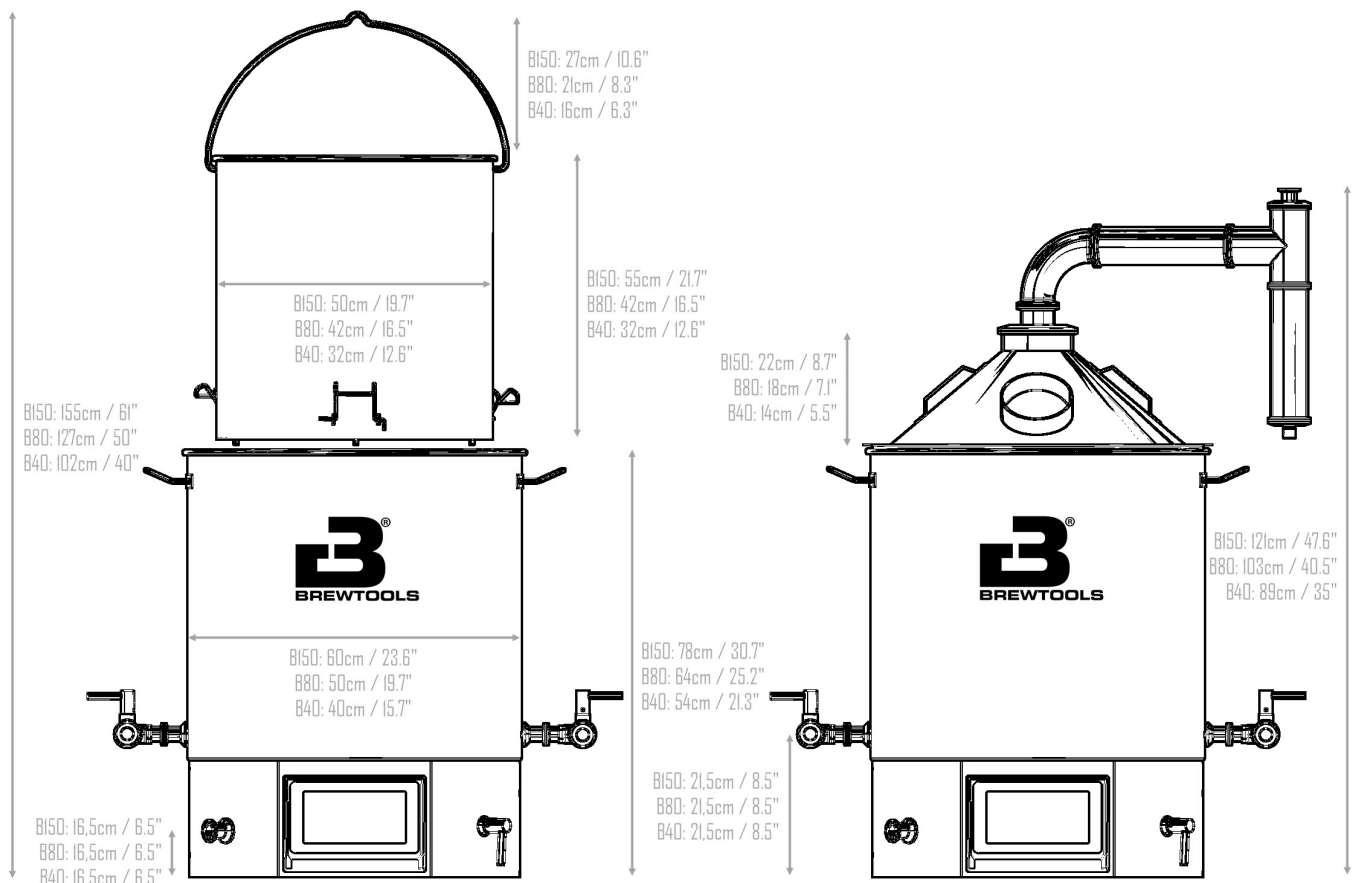
The pump impeller should be checked from time to time to make sure no particles or grains are stuck.

FAQ

See the separate section for FAQ by following the link below.



Specifications



B40 Pro

Dimensions excl. packaging:	58 (h) x 52 (w) x 52 (d) cm
Dimensions with one side valve:	58 (h) x 62 (w) x 52 (d) cm
Dimensions with two valves:	58 (h) x 72 (w) x 52 (d) cm
Packaging dimensions:	70 (h) x 55 (w) x 55 (d) cm
Weight excl. packaging:	20 kg
Weight incl. packaging:	24.5 kg
Tank dimensions:	Ø40 cm, height 36 cm
Tank volume:	46 liters (rec maximum boil volume – 40 liter)
Malt pipe dimensions:	Ø32 cm, height 32 cm
Malt pipe volume:	25.7 l
Max recommended grain quantity:	9 kg
Minimum liquid volume:	15 l
Build material:	1.0 mm stainless steel (SS304)
Heating elements:	230V, 3200W (2x1600W)
Watt density:	6.3W/cm ² (40.4W/in ²)
Pump:	24VDC brushless, max 25 l/min, max head 4.5 m, stainless steel head, stepless speed control from touch display
Controller:	ARM Cortex M4 180mhz, 7" Touch display
Connectivity:	WiFi 802.11 b/g/n, Bluetooth 4.2, MicroSD
Hoses:	16x25mm silicone, food grade

B80 Pro

Dimensions excl. packaging:	67.5 (h) x 62 (w) x 62 (d) cm
Dimensions with one side valve:	67.5 (h) x 72 (w) x 62 (d) cm
Dimensions with two valves:	67.5 (h) x 82 (w) x 62 (d) cm
Packaging dimensions:	83 (h) x 62 (w) x 62 (d) cm
Weight excl. packaging:	27.5 kg
Weight incl. packaging:	34 kg
Tank dimensions:	Ø50 cm, height 46 cm
Tank volume:	90 liters (rec maximum boil volume – 80 liter)
Malt pipe dimensions:	Ø42 cm, height 42 cm
Malt pipe volume:	58 l
Max recommended grain quantity:	20 kg
Minimum liquid volume:	25 l
Build material:	1.0 mm stainless steel (SS304)
Heating elements:	230V, 6000W (2x3000W) (two individual circuits)
Watt density:	9.1W/cm ² (58.8W/in ²)
Pump:	24VDC brushless, max 25 l/min, max head 4.5 m, stainless steel head, stepless speed control from touch display
Controller:	ARM Cortex M4 180mhz, 7" Touch display
Connectivity:	WiFi 802.11 b/g/n, Bluetooth 4.2, MicroSD
Hoses:	16x25mm silicone, food grade

B150 Pro

Dimensions excl. packaging:	79 (h) x 72 (w) x 72 (d) cm
Dimensions with one side valve:	79 (h) x 82 (w) x 72 (d) cm
Dimensions with two valves:	79 (h) x 92 (w) x 72 (d) cm
Packaging dimensions:	97 (h) x 72 (w) x 72 (d) cm
Weight excl. packaging:	37.5 kg
Weight incl. packaging:	45 kg
Tank dimensions:	Ø60 cm, height 60 cm
Tank volume:	169 liters (rec maximum boil volume – 150 liter)
Malt pipe dimensions:	Ø50 cm, height 55 cm
Malt pipe volume:	108 l
Max recommended grain quantity:	35 kg
Minimum liquid volume:	35 l
Build material:	1.0 / 1.2 mm stainless steel (SS304)
Heating elements:	230 V, 6600W (2x3300W) (two individual circuits)
Watt density:	8.9W/cm ² (57.2W/in ²)
Pump:	24VDC brushless, max 25 l/min, max head 4.5 m, stainless steel head, stepless speed control from touch display
Controller:	ARM Cortex M4 180mhz, 7" Touch display
Connectivity:	WiFi 802.11 b/g/n, Bluetooth 4.2, MicroSD
Hoses:	16x25mm silicone, food grade

These products are handmade. As a result of this, the products might have minor cosmetic irregularities without affecting its function.

Declaration of Conformity

Follow the link below.



All documents