Brewtools Docs

Replacing heating elements

Introduksjon

This user guide explains how to disassemble and assemble the heating elements in our ProSeries Brewing Systems. Disassembly of the heating elements will at some point be necessary. You may need to replace the silicone gaskets or replace a faulty element with a new one. This guide will help you through it.

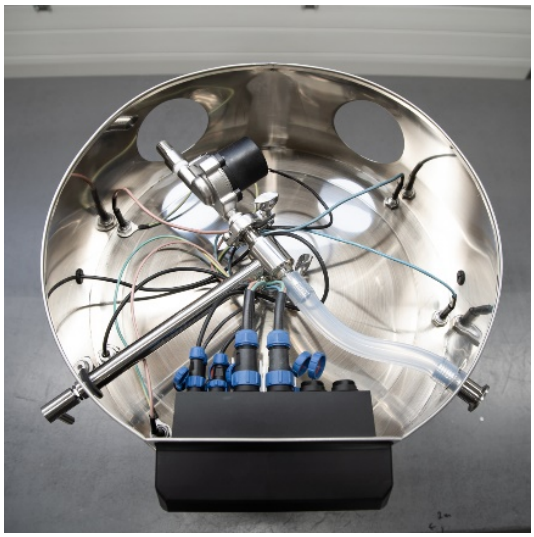
As the work described in this user guide is electrical, it needs to be carried out by skilled technician that can ensure the quality and electrical safety of the work done. This is due to the potential risk of electric shock or overheating in connections that might cause a fire.

Performing this type of work will require the heat shrink tube to be replaced. Ensure that you have heat shrink tube at hand before starting this type of work. Recommended size of heat shrink tube is 10mm (3/8'') with a 3x shrink factor.

You need

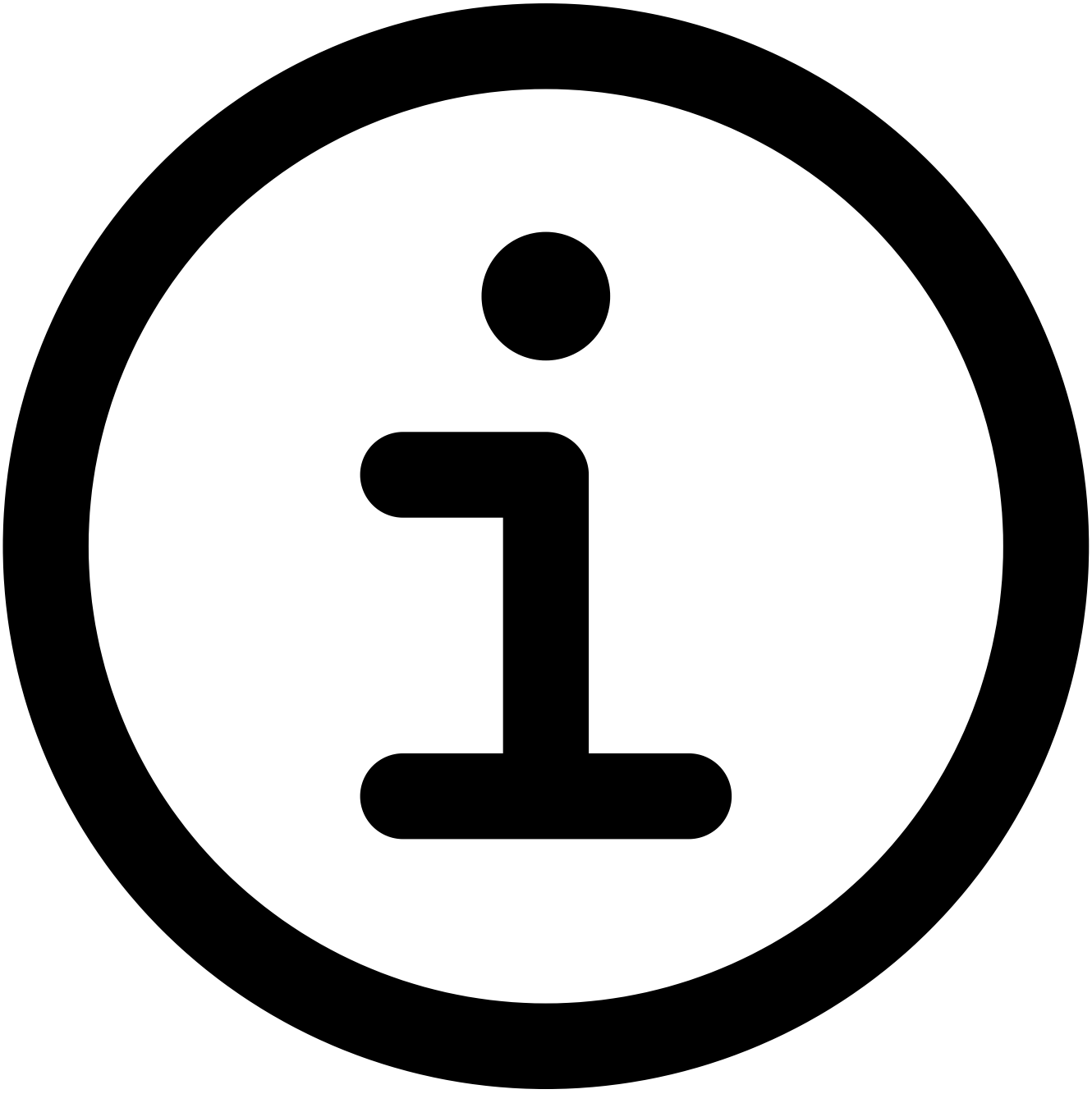
- Sharp knife
- Wrench or spanner
- Heat gun
- Heat shrink tube
- Allen key 1.5mm
- New heating element or gasket depending on intended work to be performed

Before starting, make sure that all power input cables are detached so that the system is disconnected from the power grid. Also ensure that the heating elements are not hot.



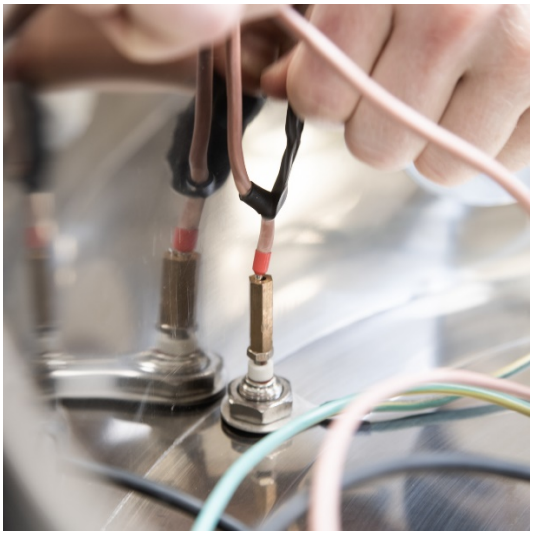
Disassembly

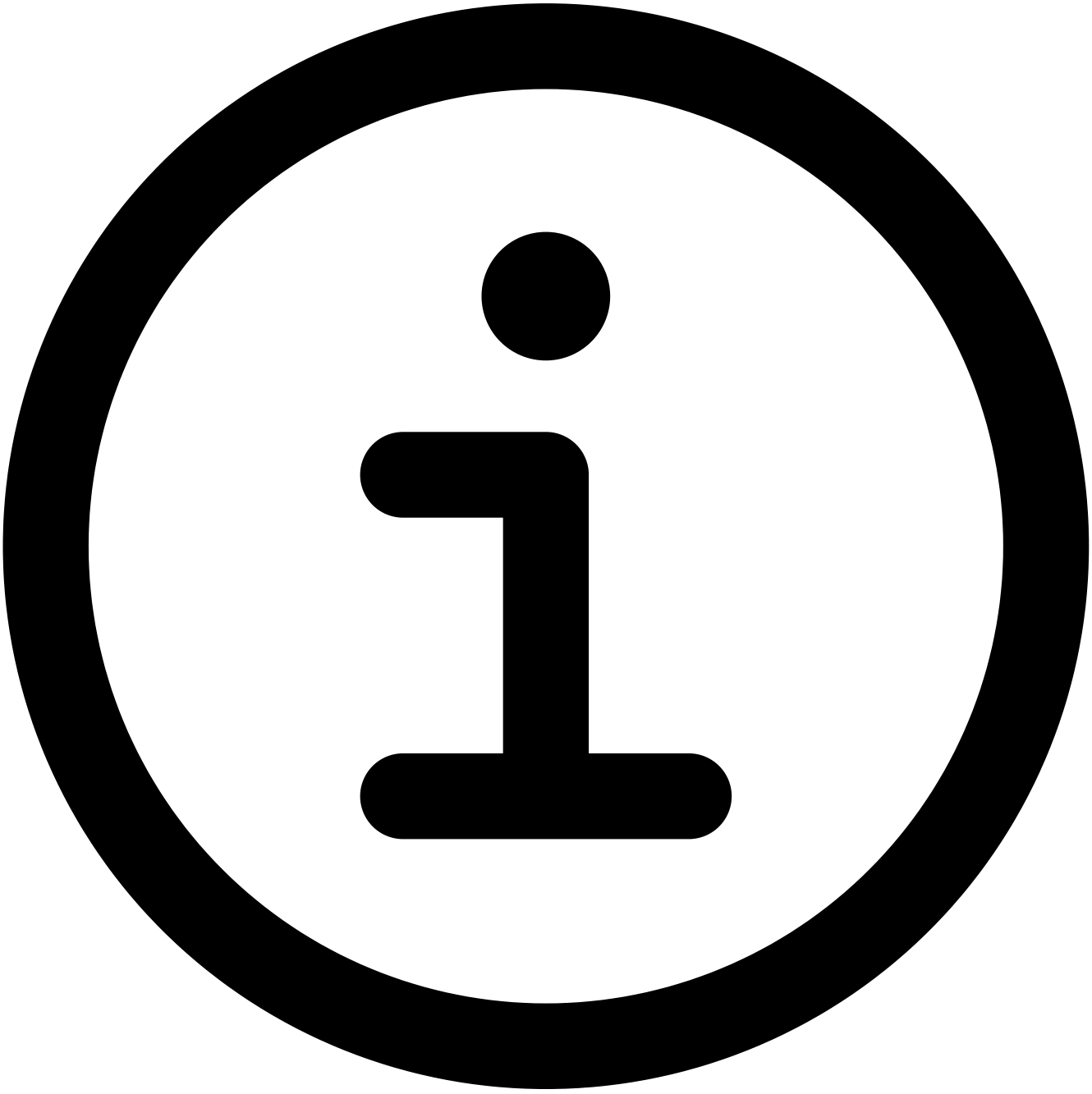
1. Disconnect all power input cables.
2. Turn the machine upside down to gain access to heating elements connection points.



Tip: To gain better access to the connection points, the control box can be detached and temporarily removed. To do this you'll need a 3mm Allen key.

3. Use the sharp knife to slice the heat shrink tube from bottom to top. Be careful not to damage the electrical cord outer stealth. Remove the heat shrink tube to gain access to the brass connector. Use the provided 1.5mm Allan key to loosen the two set screws. The electrical cord will then come loose.



Tip: It is important that the electrical cords are put back at the same place as they were before the work started. As a help, the electrical cords can be marked with a unique number (1-4). Similarly, the same unique number can be written on the steel bottom. This way you'll be able to fit the electrical cords back where they were before the work began.

4. When the electrical cord has been removed from the brass connector, loosen the heating element using a wrench or spanner on the main nut. Remember that when both nuts have been removed, the heating element can drop down. It is therefore recommended to hold the heating element while unscrewing the last nut.

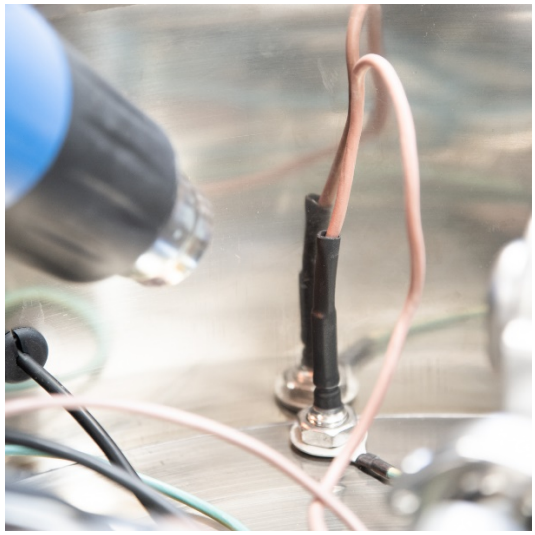
5. When the heating element has been removed, it is possible to either replace the silicone gasket or replace the heating element with a new one. If replacing the silicone gaskets, it is possible to take the opportunity to give the heating element a solid scrub or do some mechanical adjustments. The bending radius of the heating elements might increase slightly over time, - especially if they are run without being submerged in liquid. Carefully use a suitable tool to decompress the turns to decrease the overall bending radius of the heating element. Be careful not to overdo it. Be careful not to scratch the surface of the heating elements.

Assembly

1. Put the heating element back in place and use a wrench or spanner to fasten the nut. Remember to refit the earthing ring lug. While fastening the nut, visually inspect the deforming of the silicone gasket on the inside of the vessel to ensure a good fit and a leak free connection.
2. 

   Ensure that the brass connectors are fitted tightly to the heating element. It should not be possible to turn them by hand. Use two wrenches or spanners to tighten the brass connector and the small nut together to lock it properly. It is important that the brass set screws point towards the center of the machine to enable easy access to the set screws later. The brass connector and the small nut should not touch the ceramic ring.
3. Put a piece of heat shrink tube on the electrical cord and put it into the brass connector. Ensure that the whole tip of the electrical cord fits into the brass connector. Use the 1.5mm Allen key and tighten the brass set screws. Pull the heat shrink tube over the brass connector and all the way down. Use a heat shrink gun to shrink the heat shrink tube so that it electrically isolates and seal the whole connection area.





4. When all the connections are complete, the control box can be refitted (if removed). Remember that all connectors are clocked and will therefore only fit in one position. Do not try to fit it using brute force. It is important that tank sensor is plugged into Sensor 1 socket. The in-line sensor placed on the right-hand side of the machine (pump circuit) goes into Sensor 2 socket. Return temperature sensor (accessory) plugs into Sensor 3 socket.

5. If desired, a cable tie can be used to organize the electrical cords.

6. Turn the machine right side up. Fill it with water so that the heating elements are fully covered. Check that there is no leakage. Tighten main heating element nuts if necessaray.

7. Connect the power cables and put the machine in manual mode. Turn on the heat and visually verify that small bubbles form on the heating element surfaces as an indication that both heating elements are working properly.

8. Now the work is completed, and the machine is ready for normal operation.