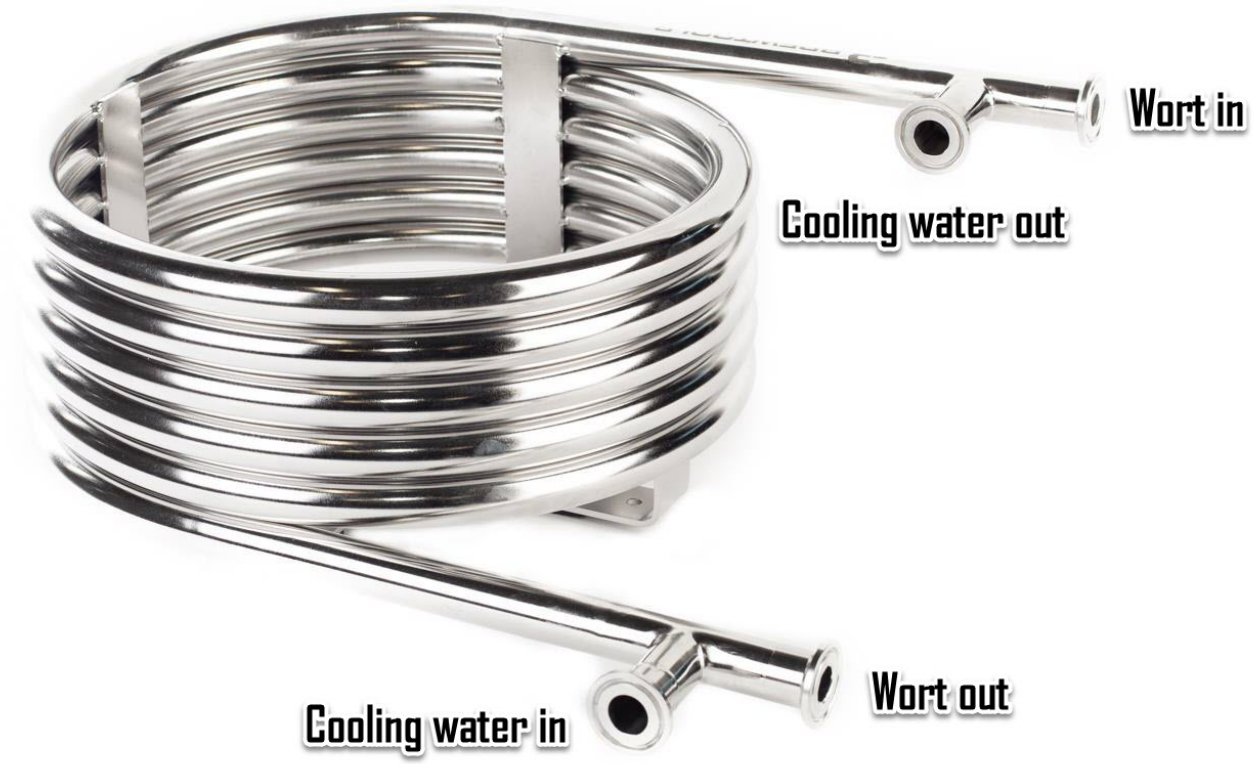
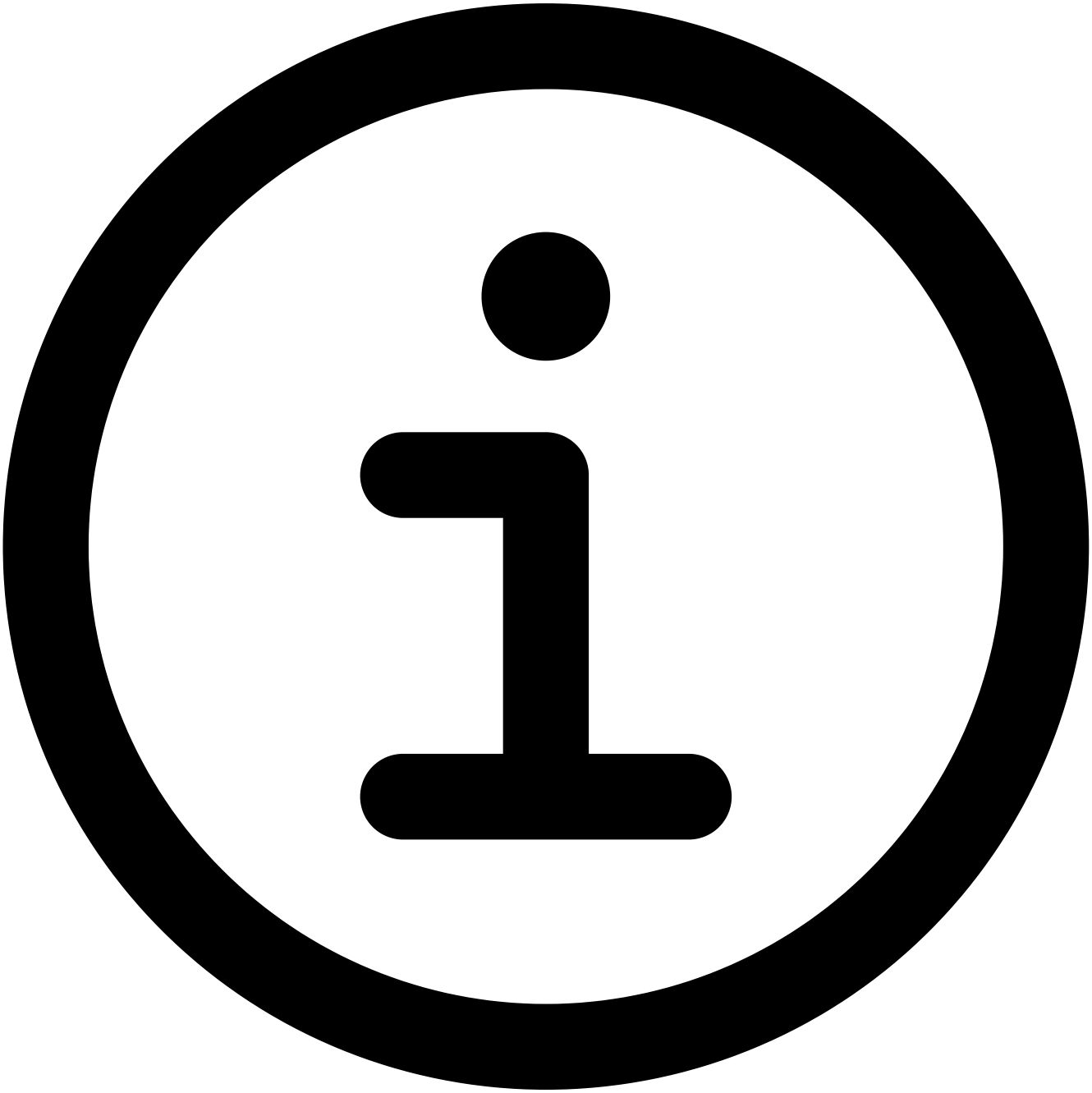
Brewtools Docs

Counterflow Cooler

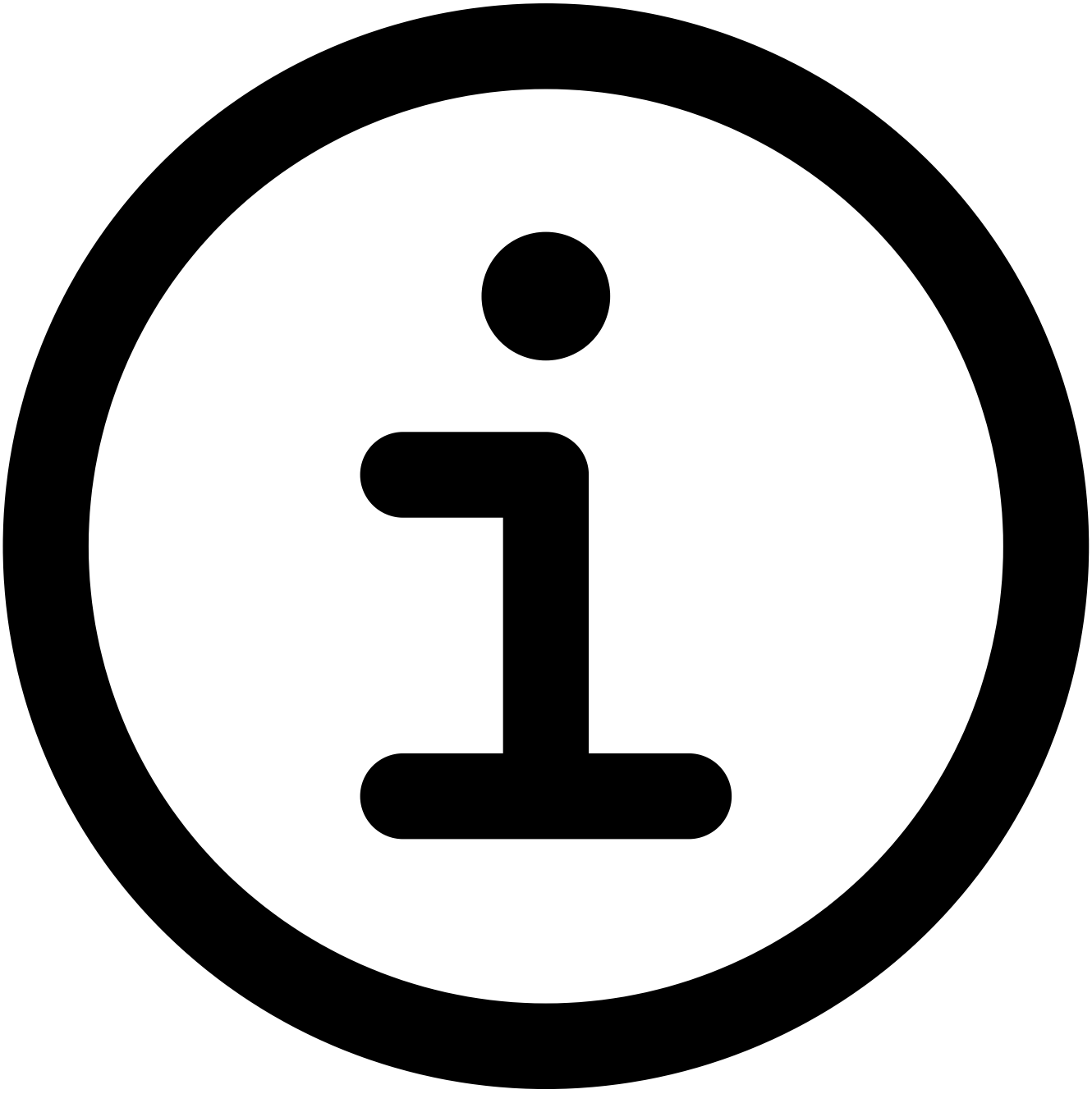
The counterflow cooler is made with high quality steel pipes, and has a design that does not reduce flow too much. The wort can be pumped throught the counterflow cooler and back into the kettle via the dip tube to create a whirlpool. The whirlpool will draw particles towards the center of the tank and reduce trub (hops and proteins) transferred to fermenter.



Counterflow Cooler



Using the Trubinator will help collect and hold the trub when emptying the tank at the end of the brew day. Read more here.



The counterflow cooler is not designed for "one pass" cooling by letting the wort flow slowly and then straight to the fertmenter.

In use

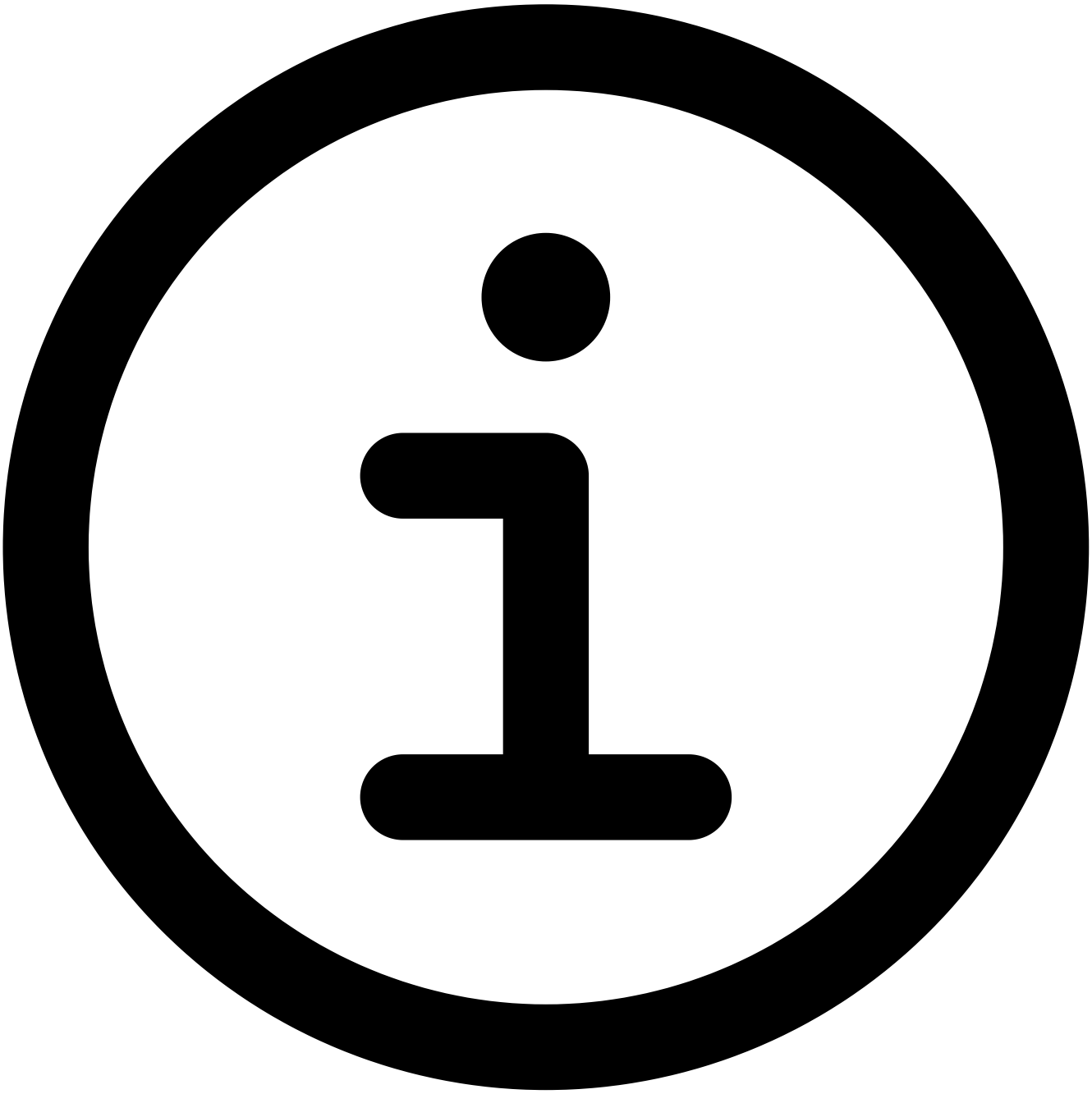
In preparation for cooling, it is important that boiling wort is circulated through the cooler to ensure that the cooler's inner tube is sanitized.

Switch off heating elements before cooling starts. Set the bottom valve so that the liquid is pumped out and through the cooler. Follow the liquid flow to make sure that all valves are in the correct position before starting the pump. It is recommended to run the pump at full power (100%) in the beginning and slow down before the end to allow the trub to settle.

Select the return temperature display on the screen if you opted for this accessory. This way you can keep an eye on the temperature of the returning wort. Also monitor the tank temperature.

If you're doing a hop stand, the pump is stopped manually based on the tank temperature. Set the timer manually based on how long the hopstand should last, if not already set in recipe mode.

When the desired pitching temperature is reached (based on return sensor), change the flow direction after the cooler so that the wort goes to the fermenter and not back into the kettle.



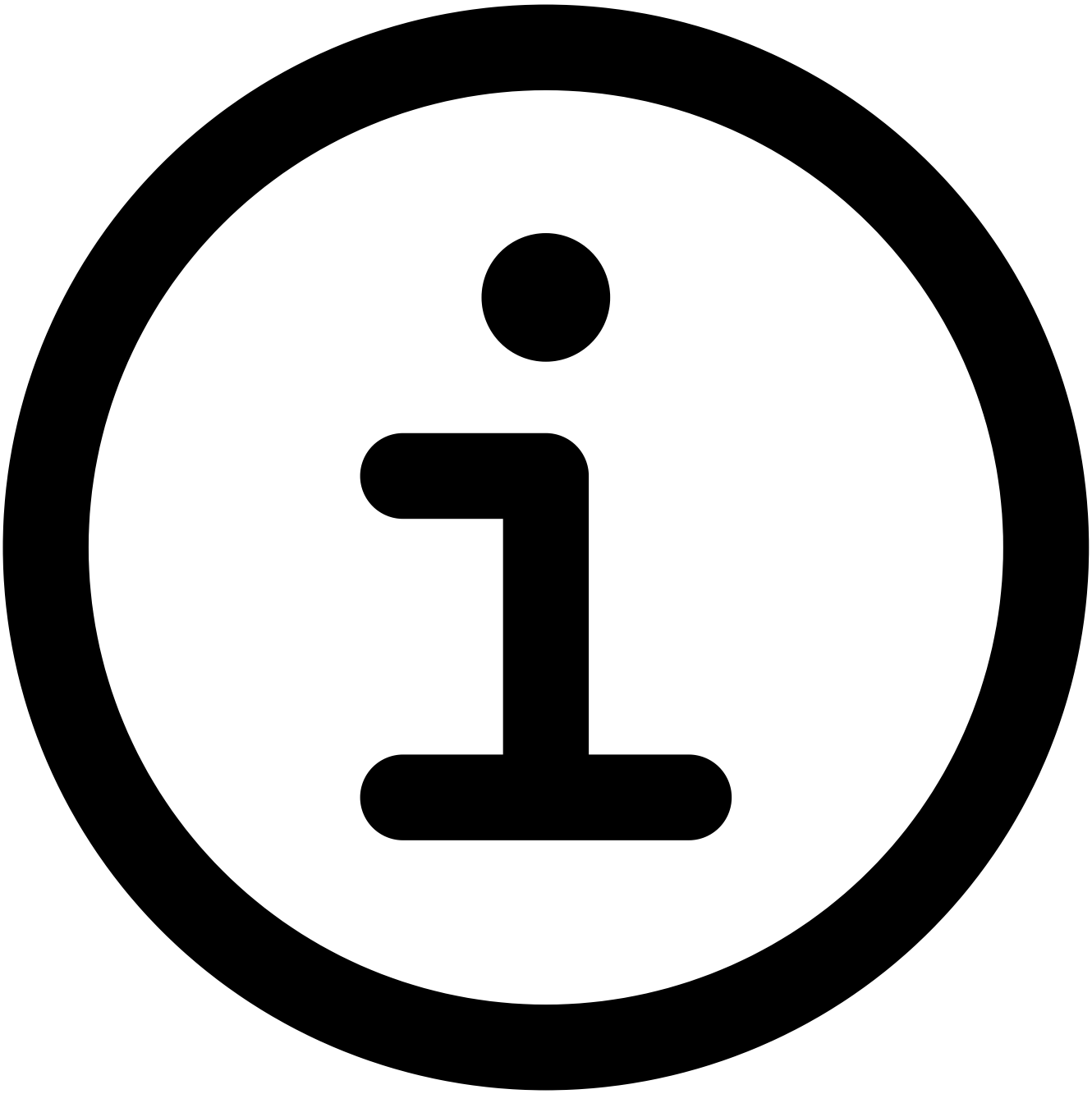
Remember to connect the cooling water opposite direction of the wort flow.

Product specification

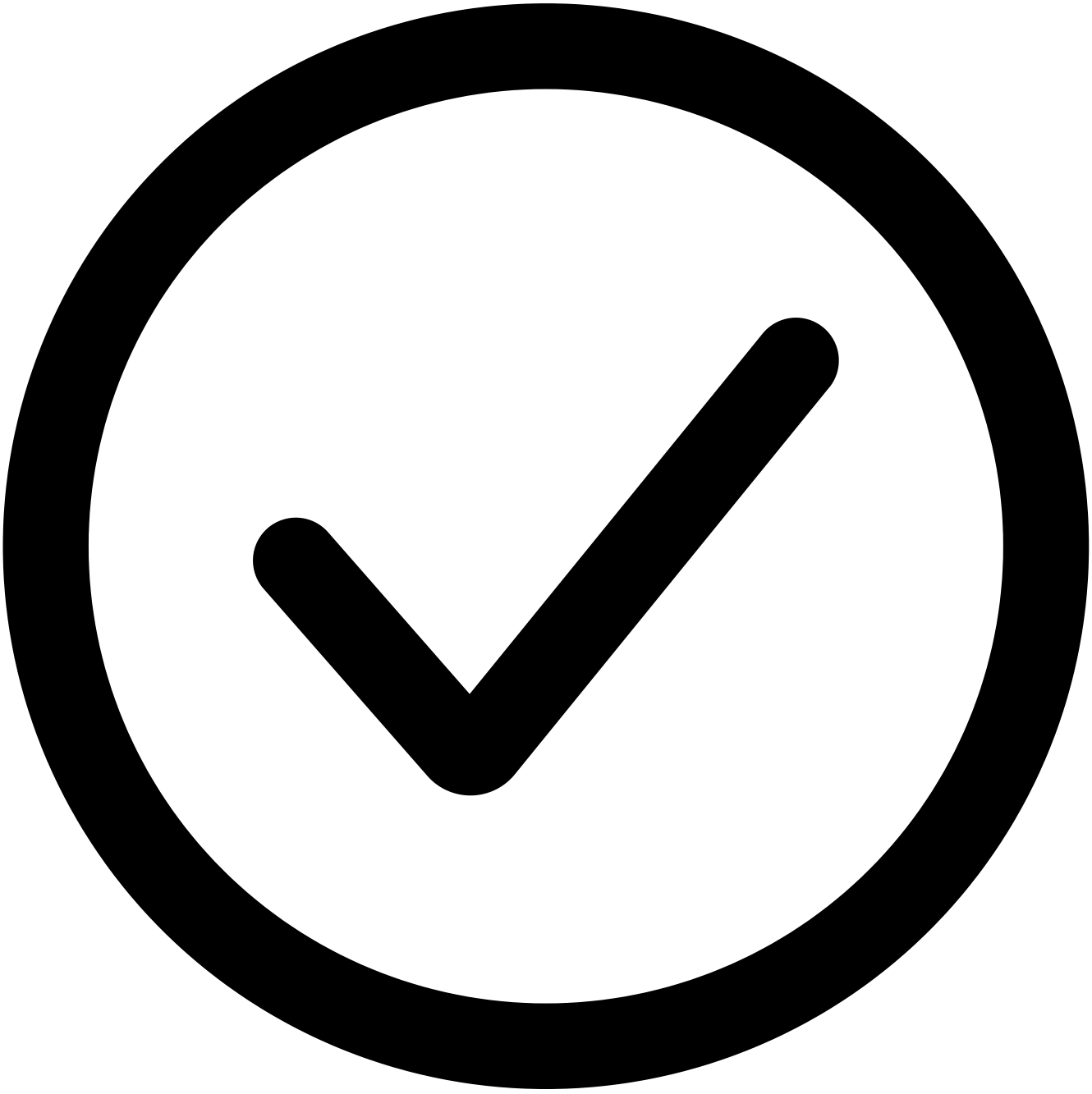
- Length: 5.2m
- Inner pipe: 14.3mm
- Outer pipe: 22mm
- Fittings: 4x TC34mm
- Material: SS304
- Surface teatment: Electropolished
- Box size: Height 22cm, Length 41cm, width 45cm
- Weight: 5.5 Kg

Performance test

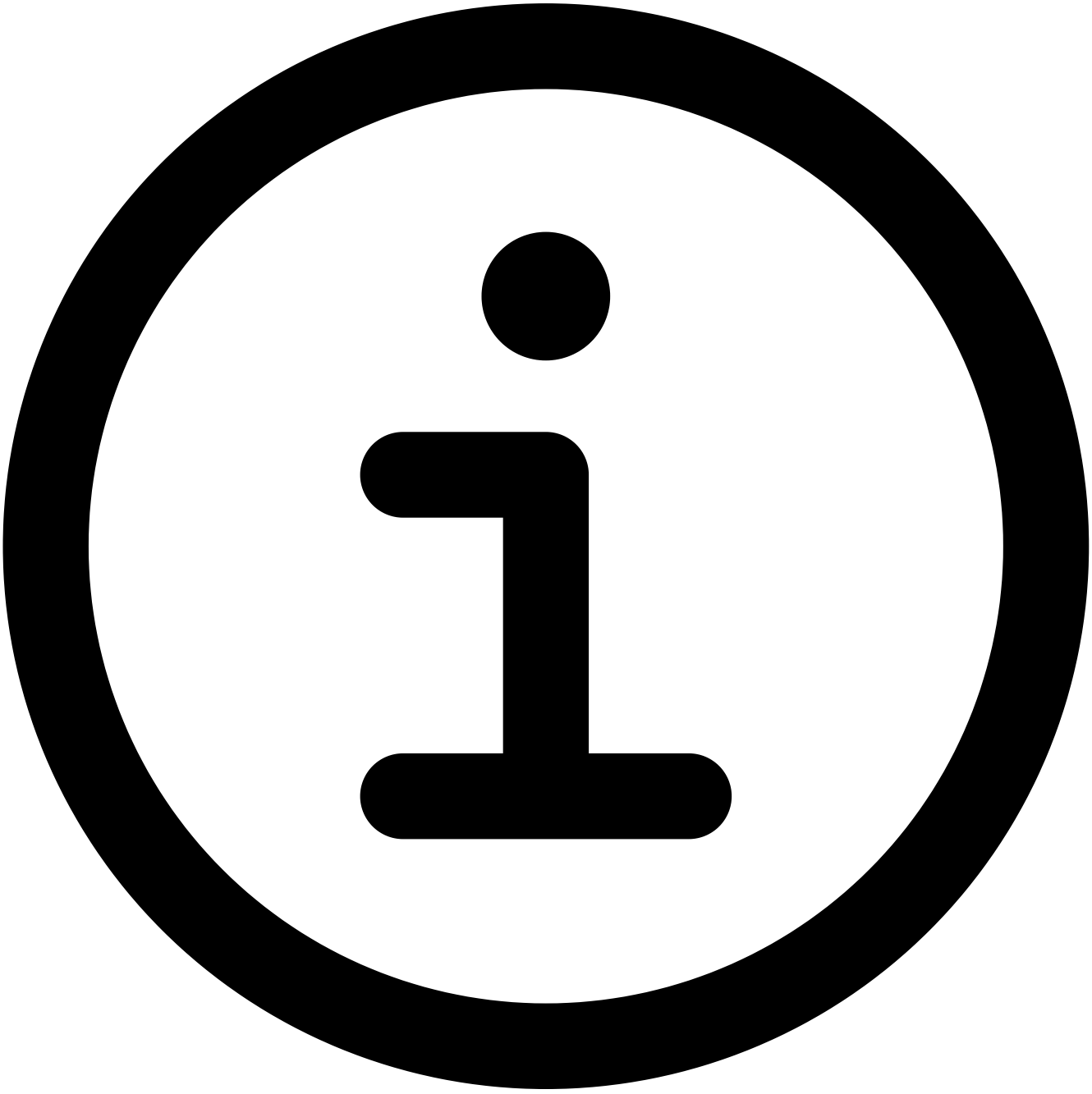
A performance test has been carried out to demonstrate the performance of the counterflow cooler. Additionally three different ways of using the counterflow cooler has been tested to demonstrate the difference in performance.
The goal of the test is to cool 50 liters / 13.2 US gallons og boiling wort down to 20°C /68°F. The cooling water holds 9°C / 48°F and has a flow rate of 19 liter per minute / 5 US gallons per minute.



Method #1 - Cooling the entire tank content before transferring to fermenter
Pumping wort from the tank, through the cooler and back into the tank until all wort in the tank is 20°C / 68°F.
Results:
Time: 19 min.
Cooling water consumption: 361 liters / 95 US gallons.
100°C / 212°F to 80°C / 176°F in 2 min
80°C / 176°F to 40°C / 104°F in 7 min.
40°C / 104°F to 20°C / 68°F in 10 min.



Method #2 - Cooling until return temperature is 20°C / 68°F and then start the transfer to fermenter
Pumping wort from the tank, through the cooler and back into the tank until the return temperature out of the cooler is 20°C / 68°F. Change the wort flow to start the transfer to fermenter.
Results:
Time: 16.5 min (13 min until transfer starts + 3.5 min to complete the transfer).
Cooling water consumption: 315 liters / 83.2 US gallons.



Method #3 - "Single pass"
Pumping wort from the tank, through the cooler and directly to the fermenter. The flow needs to be restricted at the cooler output using a valve so that the temperature to the fermenter is 20°C / 68°F.
Results:
Time: 26 min.
Cooling water consumption: 500 liters / 132 US gallons.
Summary
Based on the test, it becomes clear that our counterflow cooler is not designed to be used as a "single pass" method. The reason for this is due to the hugely sized 14.5mm inner diameter tube designed to minimize the flow restriction as that will negatively affect the whirlpool-function.
Method #2 is 2 minutes faster and saves 46 liters of water compared to method #1.