FLEX TC-100

DESCRIPTION

The TC100 temp control system is our solution to possibly the most important part of brewing: fermentation. The TC-100 will easily hold your fermentation temps exactly where you would like them even in the hottest garage in Summer or the coldest basement in Winter. The only additional item needed is a cold water reservoir. This can be as simple as a cooler with ice or a fridge with cold water reservoir or even a dedicated glycol chiller.

The dual stage temp controller is designed to control both a pump and heating unit. The pump will move the cold fluid/glycol through the stainless steel temp coil, quickly chilling your wort. The specially fitted heater attaches to the neoprene jacket via velcro and sits on the cone.

BENEFITS

1. Neoprene Jacket
   a. Helps maintain stable fermentation temps regardless of ambient conditions
   b. Stops the tank from 'sweating' in warm weather
   c. Sewn in the USA (of imported materials)
   d. Reinforced stitching around all ports and handles for extra strength
   e. Machine washable

2. Temp Coil
   a. Each temp coil is designed specifically to fit each tank so half batches can be effectively cooled
   b. Our coil is designed to handle the not so well understood temperature inversion phenomenon that happens when cooling your tank (see Figure 1 below)
   c. Easy to clean stainless steel design
   d. Made in the USA
   e. Wide coil spacing for easy cleaning

3. 90° Quick Connect Elbows
   a. The quick connect fittings allow for tool-free connections between your temp coil and insulated glycol lines
   b. The 90° design prevents glycol lines from kinking

4. Insulated Glycol Lines
   a. We use 3/8" ID tubing which matches the temp coil tubing. This means there's no restriction in flow through the system
   b. Made in the USA
   c. The insulated tubing helps reduce heat losses usually seen in non-insulated designs
   d. The insulation prevents the lines from 'sweating' and dripping all over your floor

5. Pump
   a. The pump is engineered to work specifically with our temp coils as flow rate is directly proportional to cooling efficacy
   b. The submersible pump uses DC power which is much safer than an AC powered submersible pump

6. Heater
   a. All heaters are designed to fit their respective size fermenter and attach to the neoprene via velcro. The heater sits on the cone where the coolest liquid is. This gives the most consistent heating throughout your tank.
   b. Each heater uses a different wattage to match the size of the fermenter
   c. All heaters use a 95F thermostat which will prevent the heater from overheating your work
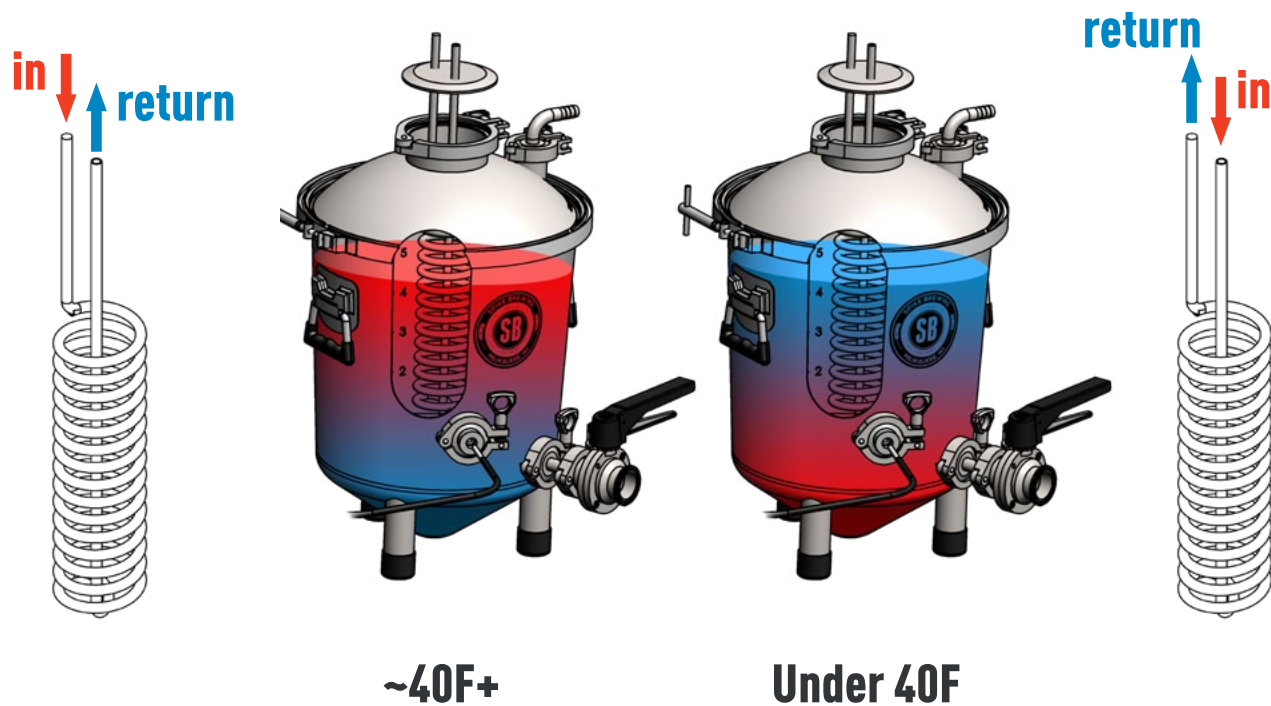
FLEX TC-100

TEMPERATURE INVERSION

At temperatures of 40F+ the beer inside your FLEX will have a standard temperature gradient with warmer on the top and cooler on the bottom. At around 40F this actually flips- a temperature inversion occurs. Due to density changes the colder beer will now be on the top and the warmer beer will be on the bottom.

To combat this our coil design has two configurations for cooling (refer to Figure 1) which will give the best results for either maintaining fermentation temps or cold crashing your beer.
- Temps of 40F+: You'll want the 'In' line to be the top of the coil and the 'Return' line to be the end of the coil that bends straight vertical. This will keep the coldest fluid at the top where your beer is the warmest.
- Temps under 40F: You'll want the 'In' line to be the coil run that goes straight to the bottom and the 'Return' line to be where the coil starts. This will keep the coldest fluid at the bottom where your beer is the warmest.
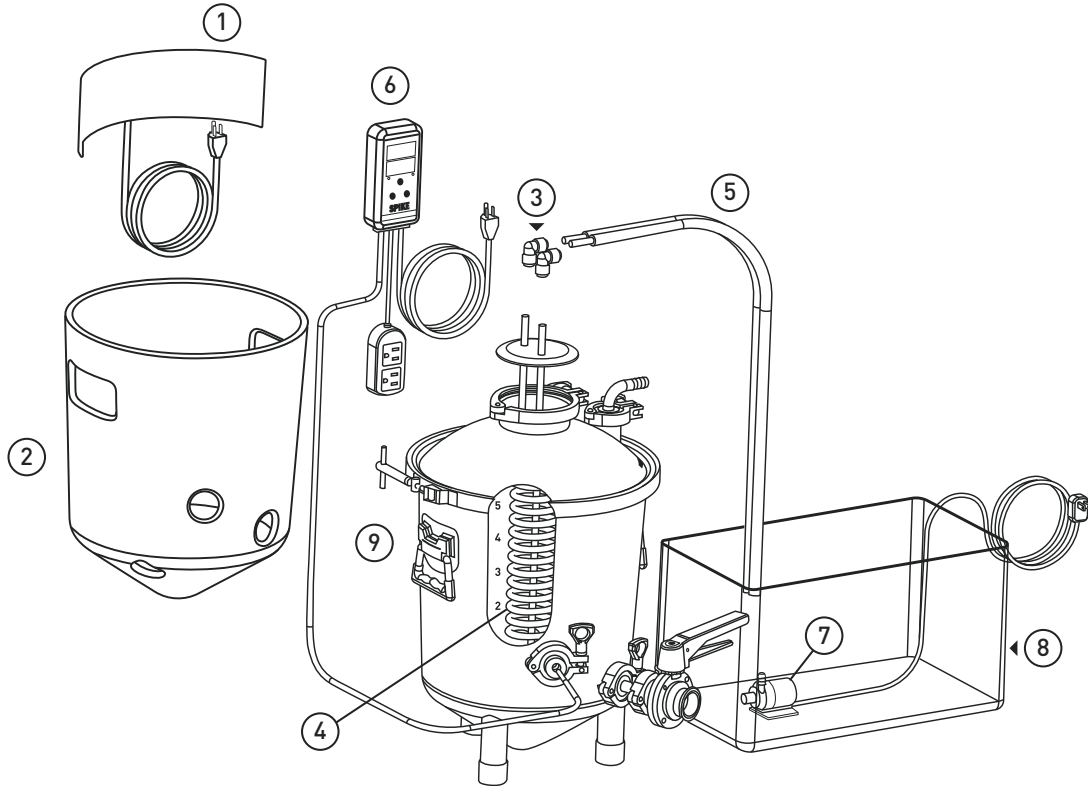
Figure 1

~40F+   Under 40F

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PARTS LIST

|			
①	Heater (Optional)	⑤	Insulated Tubing
②	Insulated Jacket	⑥	Temp Controller
③	90° Quick Connects	⑦	Pump
④	Temp Coil	⑧	Cold Water Source (Not Included)
		⑨	FLEX Fermenter (Sold Seperately)

HOW TO CLEAN

1. Neoprene Jacket
   a. The jacket is machine washable and can be put into your dryer

2. Temp Coil
   a. You can either use the CIP ball and clean in place or remove the coil and soak in brewery wash

TC-100 ASSEMBLY
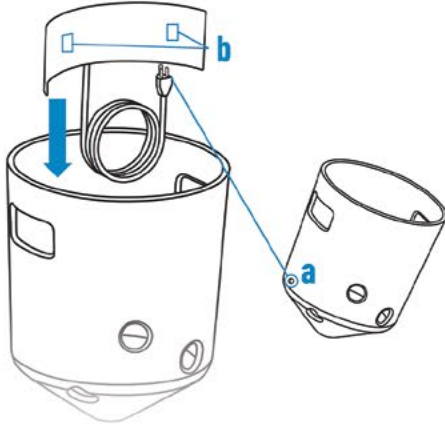
1 If you purchased the **optional** heating unit, attach it to the inside of the neoprene jacket.

   a. Feed the power cord through the small hole in the back of the jacket
   b. Align the 3 black velcro strips on the heater with the 3 gray velcro strips on the inside of the neoprene jacket and press to attach
   **c.** Pull the power cord through the hole so there is no slack inside the jacket
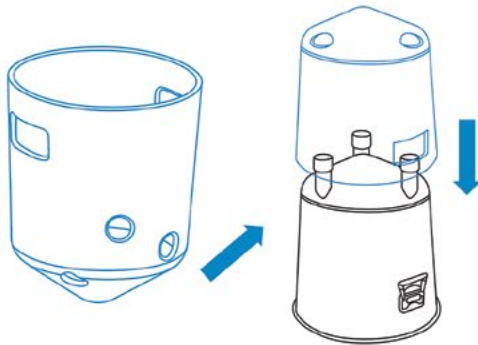
2 With the FLEX upside down and none of the accessories attached to the FLEX, slide the insulated jacket over the legs, welded ports and handles through all of the correlating holes.
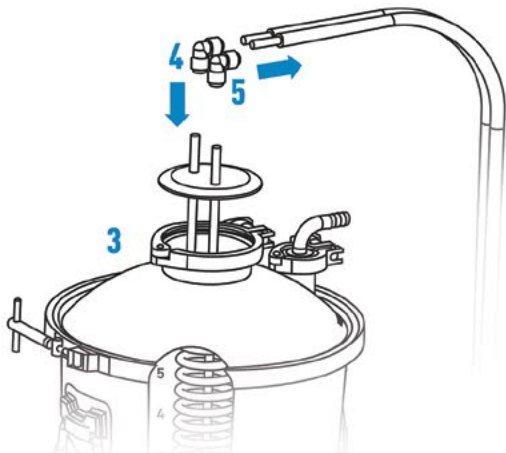
3 Flip the fermenter right side up, attach your lid to the FLEX, and affix your temp coil to the 4" TC port

**4** Attach your 90° quick connect elbows to the temp coil inlet and outlet

5 Attach both tubes from one end of your insulated tubing to the other ends of the 90° quick connect elbows. Make sure to push these in until they pop into place.
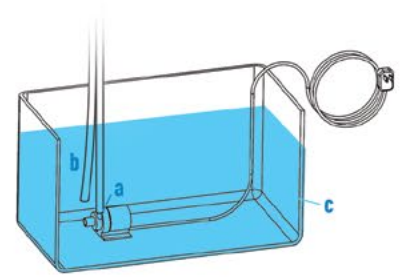
6 **a.** Next, attach one of the tubes from the opposite end of your insulated tubing to your pump
   b. Leave the other end free to act as the return into your coil.
   c. Submerge the pump into your cold water source
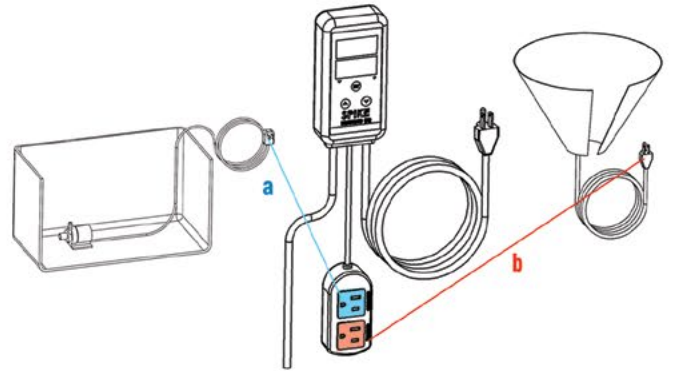
7 **a.** Plug in your pump to the 'cooling' plug
   **b.** Plug in your heater to the 'heating' plug
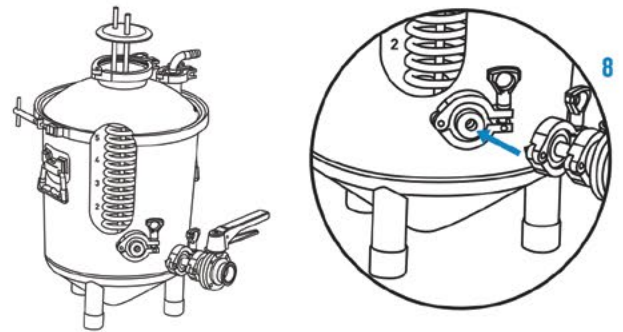
8 Push the temp probe from the controller all the way into the thermowell port
   Pro Tip: Wrap the excess cord around the thermowell port.

Controller Setup

1 The 'TEMP' readout on your controller is the temperature inside the fermenter.

2 The 'SET' readout is what temp you would like the fermenter to be maintained at

3 To change the 'SET' temp, simply push the up or down arrow
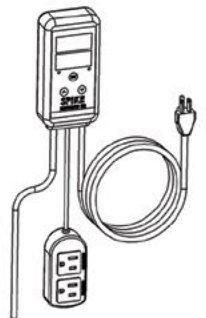
Pro tip: Hang your temp controller from the handle on FLEX+ lid clamp

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HOW TO USE

PRO TIP: Refer to the temp inversion diagram above for proper line configuration at different temps used during fermentation.

PRIMARY/SECONDARY TEMP CONTROL:
Deciding on your target primary temperature is up to the brewer and dependent of many factors, such as strain of yeast used and the desired flavors of your final product. It's important to keep your yeast in check (getting too warm) for most beers during primary, as many off flavors can develop from lack of temp control. As activity of fermentation slows, it's also important to keep the temperature at or above your primary temperature so the beer can fully attenuate. Once final gravity is met, shutting yeast activity down is necessary to suspend further attenuation.

PRO TIP: If your FLEX is in a room colder than your set temp unplug the pump from your cold water reservoir. This will prevent your cold system to kick on if your heater slightly overshoots your set temp. The ambient room temp will slowly cool the unit the needed fraction of a degree. Plug your pump back in when it's time to cold crash/carbonate and you can then unplug your heater as it won't be needed any longer.

COLD CRASH/CARBONATING

'Crashing' or 'cold crashing' your beer after it has fully fermented is a very useful technique used in professionally breweries and is now attainable for home brewers with use of the TC100. Crashing your beer from your fermentation temp down below 38F will drop any hops, trub, yeast, etc particles out of suspension and down to the bottom of the cone. Once your FLEX is crashed you can then dump the material out of the bottom port and prepare to rack your beer to kegs (using our CPC kit seen [HERE](#)) or prepare to carbonate your beer.

PRO TIP: Crashing your sealed FLEX will cause a vacuum (ever experience a Star San suck back??). To prevent this, you can use our gas manifold bundle (seen [HERE](#)) to apply ~5psi using a standard CO_2 ball lock quick disconnect. This positive pressure will prevent a vacuum from forming.

If you plan to use your FLEX+ as a unitank and carb your beer in the same vessel you fermented in you'll want to pick up one of our carb stones (see [HERE](#)). This will allow you to fully carbonate your beer in less than 24hrs compared to up to a week with standard in keg carbonating. To see in depth instructions on how to carb your beer in your unitank fermenter, click [HERE](#).