Wiring Flexwatt Heating Systems

For those who are unfamiliar with it, Flexwatt heat tape is a widely utilized and economical under tank heating element (UTH). It is most commonly utilized as a form of heating for rack systems, and to a lesser extent any of the high impact plastic, injection molded, or fiberglass cages. Flexwatt is most commonly available in widths of 3", 4", or 11". Flexwatt heat tape MUST be used in association with a quality thermostat; in my case, a Ranco ETC 111000 model.

Wire, metal connector, and insulator sets are sold pre wired through several online retailers (such as Reptile Basics), thereby eliminating much, if not all of the need for one to do the pre wiring and soldering steps themselves. Assuming these sets are purchased, all of these steps ca be skipped.

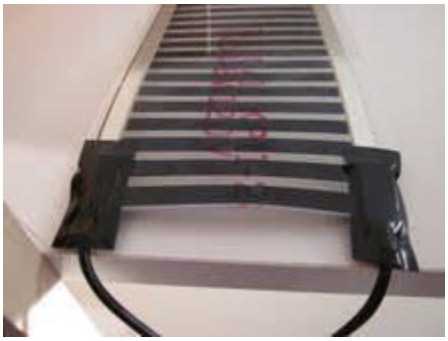
Materials Needed:
1 Roll of Flexwatt heat tape.
Metal Heat tape connectors.
1 Roll of 2" Aluminum Foil Tape.
1 Roll of Electrical Tape.
1 Quality Thermostat (In my case, Ranco ETC 111000).
Small handheld chisel or wood boring drill and drill bit.
1 Handheld pair of pliers.

Flexwatt heat tape must first be cut to a pre determined length depending on your preferences and what dimensions you have to work with. To do this, cut in between the black lines to your nearest specification. Do not cut any of the black strips as they are electrical conductors!

Next, carefully cut out two slots, approximately the width and length of the metal connector, on the outer edges of one end. To attach the metal clips to the heat tape, fold the metal connector down and make sure to crimp it tightly with a pair of pliers. Do the same for the other connector. The finished step should look like this:

Next, cut off two pieces of the electrical tape and cover the metal connectors with it. This will prevent the risk of electrical shock. Flexwatt heat tape also typically comes with plastic insulators for this same

purpose, but I did not use these at all.



Cut off two more pieces of electrical tape and attach them to the opposite ends as seen in this photo below:

Next, cut two length wide strips and two width wide of Aluminum foil tape and apply it. In addition to better securing the heat tape in place, the aluminum foil tape also acts as a heat conductor. Make sure this tape is where you *really* want it to be as it really sticks.

The Ranco ETC 111000 model comes with a temperate probe. For those who may not be familiar with it, this is the long, black projection on the thermostat that does not have a plug or outlet at the end.

To insert the probe, this step should actually be performed first before installing any of the heat tape. How much the probe should be in contact with the heating element is dependent on your preferences, but generally at least 1 to 1 1/2" of the probe tip should suffice.

To create the groove for the probe, a few measurements need to be taken relative to the probe and the heat tape's position. It helps to mark a series of points or lines where you plan on drilling or chiseling. The entire groove can be done by chiseling, but it is much faster and more practical to use the chisel in combination with a wood boring drill and drill bit.

Insert the Ranco EST 111000 probe into the groove.

This step can be optional, but to provide better conduction for the probe, a strip of Aluminum foil tape can be cut and rolled up to fill in the groove above the probe.

Ranco ETS 111000 Thermostat. Note that despite it saying 83, I have pre set it to 85 degrees F.