

# Kick the Fog

<http://www.kickthefog.com/chiller.htm>



*This is my adaptation of [Chuck Rice's Fog Chiller](#). Some of the pictures and instructions below were taken from Chuck's page since...well... I couldn't have said it any better. I have a letter in to Chuck asking permission to use some of his pictures and descriptions. Let's hope he says yes seeing as I already posted them up here. Thanks in advance Chuck!*

## THE FOG CHILLER:

All fog machines put out hot fog. Since heat rises, so does the fog. Cold air (or Fog) will hug the ground, so if you want ground hugging fog, you have to chill it after it comes out of your fogger.

Materials Needed: All items can be purchased at the local hardware store. The copper and the pump is the expensive stuff, The rest is cheap.

25' 1/4" copper refrigerator tubing

50' 3/8" copper refrigerator tubing

12' 3/8" Clear plastic tubing

2' 1.5" Pipe (used as a form, then discarded)

2' 3" ABS plastic pipe (used as a form, then discarded)

- 2' 6" Round sheet metal ductwork pipe (Stove Pipe)
- 4 Pipe clamps for the 3/8" Clear plastic tubing
- 1 Small submersible pump (80 gal/hour)
- 1 Package of plastic wire ties
- 1 Handle and screws (optional)
- 4 Stick-on Rubber Feet (optional)
- 1 Ice chest or bucket

### READ BEFORE PROCEEDING:

I can make no warranties on the methods and procedures presented here. I have built this device and am happy with the results but your tools and skills are unknown to me. Proceed at your own risk!

If there is a step or procedure here that you do not understand, [Email me](#) and I will help you out.

## OK, LET'S GO!!

This design uses 2 hand made soft copper coils that get placed inside a stovepipe (black tube in picture). The coils are connected via plastic tubing to a water pump that is placed in an ice chest full of water and ice. The cold water is pumped thru the tubes and returns to the ice chest where the ice chills the water again.



To build the inner coil, I took 25 feet of 1/4 inch soft copper tubing and bent it around a inch and a half scrap piece of PVC pipe. The soft copper bends well enough that it is easy to coil it around the pipe. As you can see I had a little left over.



For the outer coil, I did the same using 50 feet of 3/8 inch copper and a 3 inch scrap piece of PVC. (Your hands will hurt after coiling this bigger copper!)



Once the coils were made, I pulled the scrap PVC out of them and spread them apart a bit like a spring till they were the same length as the stove pipe.



Now slide the smaller coil into the bigger coil. (see below)

You'll notice how I used the wire ties to hang the inner coil inside the larger outer coil. This is kind of a pain at first but this will allow the fog to pass in and around the coils and cool it even better. Do this the entire length of the coils. After you have the 2 coils hanging together, you can do the exact same thing with the coils and the stove pipe. Hang them inside as close to center of the stove pipe as possible using the wire ties. This is a step I blew off but am thinking I should have done it. Look at Chuck's picture below. I think he is seeing better results with his suspended inside rather than mine just laying inside the pipe.

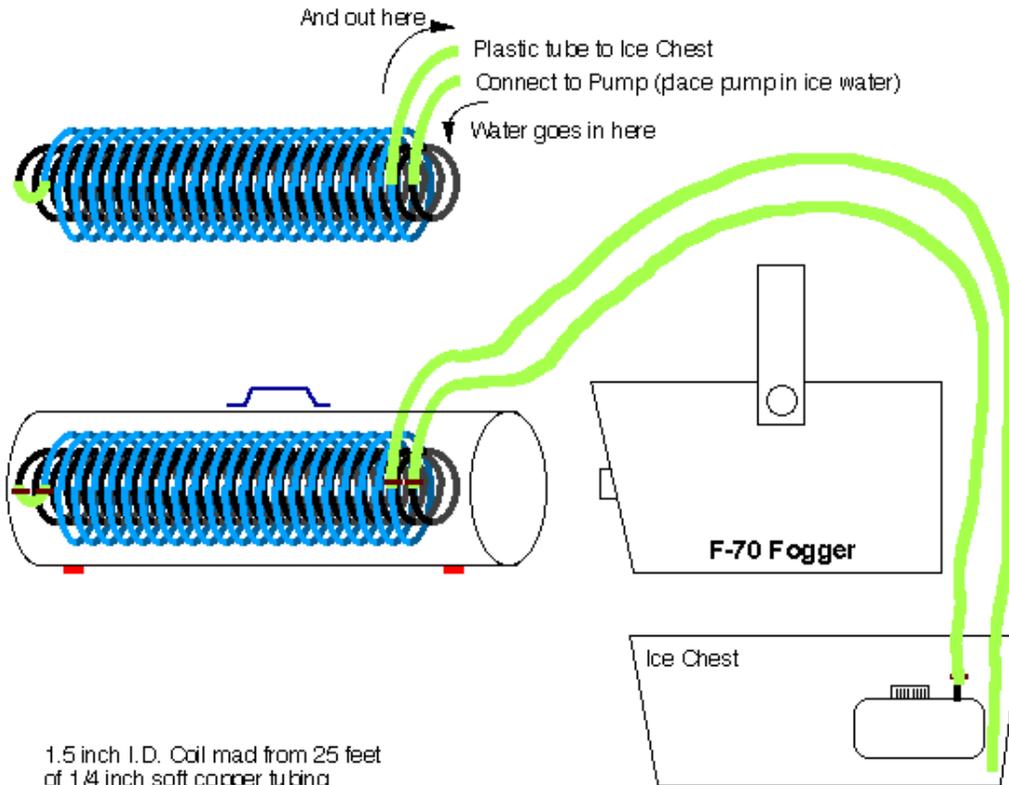


Chuck's Chiller (below 2 pictures)



Now, connect the inner and outer coil with a short piece of plastic tubing and pipe clamps.

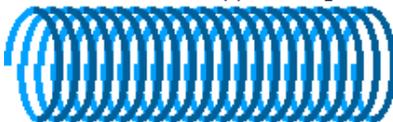
On the other end, attach longer plastic tubing from the coils to the pump and ice chest. (see Chuck's illustration )



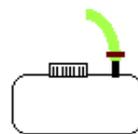
1.5 inch I.D. Coil mad from 25 feet of 1/4 inch soft copper tubing



3 inch I.D. Coil made from 50 feet of 3/8 inch soft copper tubing



5 inch sheet metal ductwork pipe (2 feet long)



Submersible Water Pump (80 GPM)

You can add a handle and feet but I stopped here cause I was too anxious to fire it up!

Now comes the fun.

Put your fog machine into one end of the chiller. Fill your cooler full of ice and water and allow the water to get damn cold! I know it sucks to wait 1/2 hour or so when your dying to try it out but it doesn't work unless the water is ice cold. After it's cold, fire up your pump and allow a few moments to get some good cold water circulating through the copper. Feel the copper and you'll know that the ice water has flowed through when the copper is good and cold. Of course, you should also have water flowing back into your cooler.

## **FIRE UP THAT SMOKE MACHINE!!!**

The beauty of this design is that you can blast hot fog through your new creation all day. The fact that ICE WATER is constantly flowing through, keeps the copper ice cold at all times!

Here is my Chiller in action. Sorry for the so-so pictures. When I took them, I had little intention of using them for anything but showing a friend. I'll take better ones in a few weeks.



Here you can see that I used a rag or shirt to clog up the end with the fog machine to make sure ALL the fog goes through the chiller. (some was sneaking out the same side un-chilled) Notice also my bucket of ice and the lines running to it.



Here you can see my entire setup. You notice the previous mentioned rag on the fog machine end. I also added a rag to "slow" the escape of the fog from within the chiller. My fog machine is so forceful that some of the fog was coming out un-chilled. This method (though stupid looking) works very well.



As you can see, it works pretty well. Big hunks of thick fog just billow from the stove pipe! COOL! My only complaint is that even after chilled, eventually the fog gets warm and rises. Indoors this is noticeable. If used indoors I get an exhaust fan going to suck out the high stuff.