

Coil Winding Tips

Equipment Needed

1. Drills of the appropriate size used as winding mandrels
2. Wire cutters suitable for use with small gauge wire
3. Temperature controlled soldering iron
4. Resin core solder
5. Small needle nose pliers
6. Isopropanol alcohol
7. Cotton tip swabs

Procedure

Coils are wound on drills using the smooth area of the drill shank the portion that doesn't have flutes. Using one hand hold the wire about 2 cm from its end firmly against the drill shank. With the other hand tightly wind the wire around the mandrel. Don't worry about the space between where your hand is holding the wire against the drill and location of the first turn but don't leave any space between subsequent turns.

Count the turns carefully especially on inductors that have a large number of turns.

When the coil has the number of turns needed, form the start end of the coil wire so that it's tight against the other windings. Cut it to leave a tail about 1 cm long.

Back the coil end wire off so that it's on the opposite side of the drill to the start tail and cut it to leave an end tail about 1 cm long.

Remove the insulation from both tails. The following procedure will burn the insulation off the wire, stay back far enough so that you do not inhale the fumes. Use a broad chisel tip on a temperature controlled soldering station. Set the temperature as high as possible, 450 deg. C or higher is a good choice. Use resin core solder. Apply enough solder to the tip to completely surround the wire. Gently move the tip along the wire tail while applying more solder. Once most of the insulation is burnt off there may be some residue left on the wire. This can usually be removed by cleaning the soldering iron tip and re-applying solder to the tail. Alternately it can be scraped clean with a small utility knife.

Once all insulation has been removed from both tails, form the coil start by winding the tail one quarter turn on the coil and then bend the wire at 90 degrees to the coil with the needle nose pliers. Wind the other end one quarter turn and bend it 90 degrees to the coil so that the formed leads are parallel.

Slide the coil off the mandrel by gently pushing on the end closest to the drill flutes.

Cut the wire tail ends off about 2 mm from the coil body.

After winding each coil, clean the drill bit of any resin by wiping it down with a cotton swab soaked in isopropanol alcohol.