



# Top tips for soldering

Achieving beautiful solder seams can sometimes seem like an exercise in frustration, but with a little practice soldering becomes much easier. Here are some common problems people tend to encounter when soldering, and a few helpful hints to help overcome them.

TOP  
TIP

## Solder is not bonding to the copper foil

- Forgetting to apply flux to the copper foil is the most common reason why molten solder does not bond – apply flux and try again.
- The iron tip must be hot enough and in contact with the foiled and fluxed seam. For the solder to flow and adhere to the foil properly, both the solder and the foil must be heated.
- If you have already been soldering on this seam, the flux has probably evaporated – apply flux and try again.
- Remove any oxidation by gently rubbing fine steel wool lengthwise along the foil until the seam is shiny – apply flux and try again.

TOP  
TIP

## Solder melts through the seams

- The soldering tip is too hot, has been held too long in one place, or the seam has been soldered too many times without allowing to cool. Solder in another area of the project until the seam cools and try again.

TOP  
TIP

## Melt-through is occurring due to large gaps between the glass

- The best way around this is to try to cut the glass as accurately as possible.
- Melt-throughs on 3D projects can often be avoided by tinning seams with 50/50 solder, allowing the seams to cool, and then bead soldering with 60/40 solder. 50/50 melts at a higher temperature so melt-throughs will not occur as often.
- Place masking tape on the underside of a gap to prevent molten solder from falling through before it cools.

**TOP TIP**
**Solder seams are uneven and have peaks and valleys**

- Apply flux and touch up the seam with the soldering iron. Hold the tip on the solder seam long enough for it to start melting. Lift the tip up and repeat the melt-and-lift motion along the seam, smoothing it out. Add more solder if necessary.

**TOP TIP**
**Copper foil is lifting from the glass surface during soldering**

- Avoid drawing the soldering iron tip over a seam too many times without letting the seam cool occasionally.
- Check to make sure the adhesive backing on the copper foil has not dried out and lost its tackiness.
- Clean glass pieces thoroughly before applying foil.
- When foiling glass pieces, start and end the foil on an edge that will not be on the perimeter of a project.
- Burnish the foil tightly to the glass. Rub the foil against the glass surface several times with a lathekin or fid, using a back-and-forth motion.

**TOP TIP**
**Solder seams have too much solder**

- Remove excess solder by melting the solder with the iron and then quickly dragging the iron tip across the seam, pulling the excess molten solder with it. Immediately, remove the excess solder from the iron tip by wiping it on a water-moistened sponge.

**TOP TIP**
**Molten solder & flux are bubbling/splattering whilst soldering**

- Use a safety flux that's formulated for stained glass work and use it sparingly along the foiled seams. You may have applied too much flux. The application of the hot iron tip and molten solder to a foiled seam can cause excessive amounts of liquid flux to boil and splutter before evaporating. Small solder balls are formed and sprayed about as the solder contacts the bubbling flux and may burn exposed skin.

**TOP TIP**
**Small pits are present in the solder seam**

- Soldering over a seam repeatedly can overheat the copper foil adhesive. Let the solder cool slightly and use a cotton swap/paper towel to wipe the adhesive away. Reapply flux and smooth out the solder seam with iron tip.
- Use flux sparingly.

**TOP TIP**
**Solder is not flowing properly, resulting in uneven solder seams**

- Apply flux to each foiled seam before attempting to solder. If you have soldered over a seam more than once reapply flux and try again.
- Clean iron tip regularly on a natural fibre sponge moistened with water, to remove flux residue. If spots are present on the iron tip even after it has been wiped on the sponge, use a tip-finishing compound to re-coat the tip.
- The iron tip may not be hot enough to melt the solder or it may be too hot causing the solder to melt through the seams. Depending on the soldering iron, the temperature may be adjusted by turning the temperature controller up or down, or, by replacing the tip.