

# Soldering Iron kit curated for beginning surface mount soldering

## WARNING Safety Precautions:

**Read through all safety warnings in the included Instruction Manual.**

**Read through the Operation Manual for instructions on how to properly use the iron.**

**Always wear eye protection to protect your eyes from hot solder balls or splatter**

## Included in the kit:



**Soldering iron:** 65W with digital temperature display, temperature control, and sleep mode. 700F/370C recommended for lead-free solder. Read through all manuals enclosed with this kit before using.



**Soldering iron stand:** this is a free-standing stand that allows you to holster and remove your soldering iron one-handed, without the need to re-position. This is key for SMT soldering, when you're typically holding an SMT part with tweezers in your other hand.



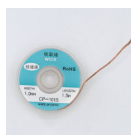
**Soldering iron tips:** variety of tips for different types of soldering. For SMT work, we like the pointed bent tip best.



**Brass wool tip cleaner:** we prefer this over sponges because it doesn't cool your iron tip, and it doesn't deposit minerals or impurities from the water. Just firmly wipe your iron tip in the brass wool to clean it. You may have to gently bend the lid slightly to keep it firmly attached to the tin, and we do recommend using the attached adhesive tape to firmly mount it to the stand. This allows for one-handed operation.



**Solder:** we've included a small coil of 0.4mm diameter lead-free solder, which is excellent for small SMT leads and metallized ends. It has a no-clean flux core and contains silver content, so it flows nicely.



**Solder/Desoldering Wick/Braid:** yes, it's called all of those things, but we usually say "Solder Wick". This is 1.5mm thick, a good size for small SMT work, and comes impregnated with no-clean flux for good wicking action. Always tuck the end of your solder braid back into the spool when done using it, this keeps the flux fresh. If the wick is having trouble wicking, cut the exposed wick off and start with a piece of freshly unrolled wick.



**Flux pen:** this is a rosin mildly activated (RMA) flux pen. RMA flux is more acidic and has better working life than most no-clean fluxes, which is why we like for SMT work. It's not 100% necessary to clean it, though if exposed to high humidity over several years, it can be mildly corrosive. Cleans off with 95% isopropyl alcohol (IPA).



**Tweezers:** these are fine-tipped curved tweezers, good for placing and holding SMT components. Only use just as much force as needed to hold your component, no more. It's good to practice this by using less and less force until you drop the component. Do not apply excessive force to the tip of the tweezers, otherwise they will deform. Tweezers are not pliers!



**Cutters:** these are basic cutters, mostly used for snipping the ends off through-hole components. Use with small gauge copper only, no steel or larger diameter copper.

## Successful SMT Soldering Strategies:

- To prolong tip life, always coat the iron tip in fresh solder before putting it back in the holder, even if only for a few seconds. This will prevent it from oxidizing. See the Operation Manual for more information on how to care for and clean soldering iron tips.
- Apply flux to pads with the flux pen before soldering.
- "Tack" down one end or leg of an SMT component first. Either pre-tin a pad and then re-flow it while gently placing a component on it with tweezers, or hold a component on a fluxed pad with the tweezers while applying a small solder ball from the tip of your iron. Then solder the other ends or legs. Always add a little fresh flux to that first "tacked" joint, and re-flow it with the iron.
- Successful soldering means touching the pad, component, and solder all at the same time with the soldering iron. GND pads may take longer to heat up and flow. Don't dwell for long on SMT pads that aren't connected to a larger copper pour, as SMT pads can be lifted from the board if overheated.
- Remember, the very tip will be the coldest part of the solder iron. Always solder with the side of the tip!
- Lead-free solder should look shiny when wet, but as soon as it cools/solidifies it will appear slightly dull. Joints should have nice smooth curved sides, and not have a crystallized appearance.