



Aluminum Soldering with KappAloy™ 9 & 15 Solders

- Before** Breaking the oxide coating by agitation and fluxing is one key to successful soldering, especially for Aluminum, Stainless Steel and Nickel-plated parts. It is important to follow these steps in a timely uninterrupted 1-2-3... sequence. Otherwise, the strong oxide coating can reform and hinder the solder bond. So, make sure you have all your tools and supplies staged and ready to go before you begin.
- Pre-Tinning** For some difficult to solder and large surface area joints, it may be extremely helpful to pre-tin the joint area on each part with the solder before setting up to join the parts. Simply follow the steps below to coat the joint area of each part with an even coat of solder. Then, after the parts have cooled, follow the steps again to join the parts. The 1-2-3 rule applies here as well. Don't pre-tin one day and solder the next. A fresh oxide-free surface is important to soldering success. Pre-tinning your parts with the right solder can greatly improve joints on difficult to solder metals & large surface area parts.
- Step 1** Pre-clean the parent metal or metals to be joined. Prepare aluminum surfaces with a stainless steel wire brush. Breaking the tough aluminum oxide coating on the aluminum parts is the secret to aluminum soldering. These barriers reform quickly, so agitate, flux and solder in a rapid sequence.
- Step 2** Apply Kapp Golden Flux to break the oxide barrier and draw the solder into the joint/repair area. The Kapp Golden Flux active range is between 350°F and 550°F. You may easily use the solder rod to spread the flux.
- Step 3** Use a soft flame, heat gun or soldering iron to heat the parent metal adjacent to the repair area. A direct flame on the repair area is likely to overheat the solder and flux.
DO NOT DIRECTLY HEAT THE SOLDERING ROD or FLUX!
- Step 4** If using a torch, hold the torch tip 4 to 6 inches away from the parent metal. If it is necessary to apply the flame directly to the rod or flux, pull the torch tip back even farther from the work surface and keep it moving.
- Step 5** The flux will begin to bubble and turn light brown. Besides preparing the parent metal for the solder, these changes indicate the proper working temperature for the flux. If the flux turns black, let the area cool, clean it & start over.
- Step 6** When the flux bubbles and turns brown, it is time to apply the rod. Drag the rod over the area to be soldered, until it begins to flow.
ONCE THE ROD FLOWS, STOP APPLYING THE HEAT!
If additional layers are needed, continue to drag the rod over the area. With some applications, for example with very thin wires, it may be helpful to tin the aluminum surface with the rod before soldering the parts together. In this case, follow steps 1 through 6 to apply an even coat of solder to the aluminum parts. Let these parts cool, and then follow steps 1 through 6 again, soldering the parts together. This will often result in a more consistent solder joint for small parts.

Step 7 Sometimes it is necessary to heat the tip of the rod with the flame to help the solder flow more easily onto the repair area.

DO NOT HEAT THE ROD TO THE MELTING POINT!

Step 8 Observe the solder deposit. The solder should bond smoothly. **DO NOT OVERHEAT!** The rod will melt if overheated, but will not bond properly.

Step 9 If you stopped soldering and want to apply more solder or flow out the deposit more, let it cool a little, add more flux and reheat. The flux will help the bonding process, whether adding more solder or just flowing out the previous deposit.

Step 10 Remove the excess flux with warm water and a wire brush. Flux residue is acidic and should ALWAYS be removed, even for “No Clean” fluxes.

KappAloy Product	% Tin	% Zinc	Temp Range °F	Temp Range °C	Product Code
KappAloy9™	91	9	390°F Eutectic	199°C Eutectic	121
KappAloy15™	85	15	390°F to 500°F	199°C to 260°C	124