

Soldering brass and steel radiator caps

Objective To heat brass and steel radiator caps to temperature for a soldering application

- Material**
- Brass radiator caps
 - Steel radiator caps
 - Solder
 - Flux

Temperature 450 °F (232 °C)

Frequency 350 kHz

- Equipment**
- Ambrell EASYHEAT 9kW 150-400 kHz induction heating system equipped with a remote workhead containing two 1.0 µF capacitors
 - A single-position two-turn split helical induction heating coil designed and developed specifically for this application

Process For the brass cap, the Ambrell team found that by varying the position of the part axially in the coil, more or less heat could be applied to the top or bottom of the assembly. A position was found to heat the top and bottom of the part at the same rate. It took 15 seconds for the solder to flow and create a good joint.

For the steel cap, it was noticed that because of the thickness of the solder wire the top of the assembly was closer to the top turn of the coil which caused it to heat more quickly.

Consequently, an attempt to solder from the bottom was also made. In both cases, the soldering process took just 15 seconds.

- Results/Benefits**
- **Speed:** The heating process was completed within just 15 seconds
 - **Repeatability:** Induction is a repeatable heating process, so a consistent result is achieved each time
 - **Safety:** Induction does not present a flame, so it helps create a safer, cooler working environment than other methods



The brass radiator cap, immediately following heating



The steel radiator cap, immediately following heating