

Brazing a nickel sleeve to a copper mast

Objective To heat a nickel sleeve and a copper mast to temperature for a brazing application to create a pitot tube for the aerospace industry

- Material**
- Nickel sleeve
 - Copper mast

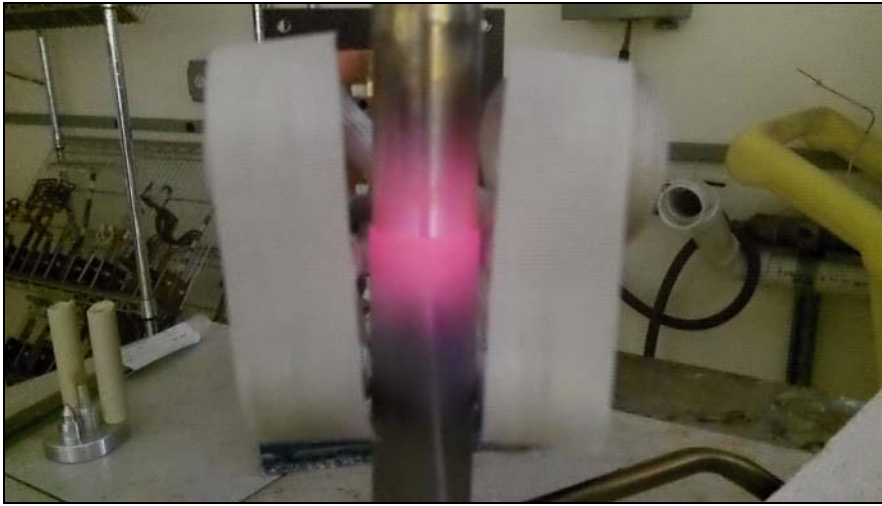
Temperature 1400 °F (760 °C)

Frequency 210 kHz

- Equipment**
- Ambrell EASYHEAT 10 kW, 150 to 400 kHz induction heating system equipped with a remote workhead containing two 1.0 uf capacitors for a total of 0.5 uf
 - A single-position, n-turn Ambrell-designed induction heating coil designed and developed specifically for this application

Process Thanks to the Ambrell design, there are design features that help operators center the part in the coil, which makes the process robust and repeatable. No braze alloy was supplied for testing, so the part was not brazed, but instead preformed in heat trials. Testing showed that the heat pattern lends itself well for brazing. With a 10 kW EASYHEAT power supply, the part can be heated to temperature in 60 seconds or less.

- Results/Benefits**
- Speed: Induction enabled the brazing process to be completed within the targeted time
 - Consistency: Induction enables consistent joint quality, which a torch often doesn't deliver
 - Safety: There is no open flame with induction, so it's a safer heating option than other common methods
 - Efficiency: Induction delivers heat only where it's required, making it more efficient than many competitive heating methods



The assembly during the heating process.