

Brazing a steel rod and housing for a sensor assembly

Objective To heat a steel rod and housing to 1400 °F (760 °C) within 30 seconds for a brazing application to create an assembly for a sensor.

- Material**
- Steel tube (1/2"/13mm OD)
 - Steel tube and housing (3/8"/10mm OD)
 - Black flux
 - Braze rings

Temperature 1400 °F (760 °C)

Frequency 304 kHz

- Equipment**
- Ambrell EASYHEAT 3542, 3.5kW 150-400 kHz induction heating system equipped with a remote heat station containing one 1.0 µF capacitor
 - A single position, four-turn split helical induction heating coil designed and developed specifically for this application

Process Initial testing was conducted to optimize power delivered to the part. The part was fluxed and two braze rings were applied to the joint area. After 30 seconds, braze flowed around the joint area and the assembly was cooled and cleaned with warm water.

- Results/Benefits**
- **Joint Quality:** They currently use an induction system from a different manufacturer, but they are seeing inconsistent joint quality. This is resolved by Ambrell's solution.
 - **Responsiveness:** The current induction heating provider is not responsive. They want to work with a company that is responsive when it comes to questions about applications, and Ambrell is known in the industry for being a highly responsive business partner.



The joint being heated



The assembly after brazing.