Ambrell
INDUCTION HEATING SOLUTIONS
an inTEST Company

Application Note

Brazing Copper Tubes for a Solar Industry Application

Objective: To heat 1.125” (28.6 mm) and 5/8” (15.9 mm) OD copper tubes for a brazing application in the solar industry.

Equipment: Ambrell EKOHEAT® 30 kW, 50-150 kHz induction heating power supply with a workhead and coil specifically designed for this application.

Frequency: 129 kHz

Material: Copper

Temperature: 1200 ˚F (649 °C)

Testing: A custom-designed single position multiple-turn split-helical coil was built to generate the required heating for this brazing application. Initial tests were conducted to optimize the power delivered to the part. Temperature indicating paint was then applied to the part, which dissolves when the part reaches target temperature. It was observed that the part reached temperature within one minute, which met the client’s objectives and was superior to what they were seeing with their torch brazing process.

Benefits:

- **Speed:** The client was able to braze their parts faster with induction heating than they were with a torch.
- **Precision:** Induction heats only the area of the copper tube that requires it for brazing.
- **Safety:** There is no open flame with induction heating, and it also introduces less heat into the work environment.
- **Repeatability:** The client can expect the same result in the same amount of time every single time with induction heating, which is not the case with many alternative heating methods.
- **Lab Expertise:** THE LAB at Ambrell designed a solution that met the client’s objectives so they had peace-of-mind before investing in a system.

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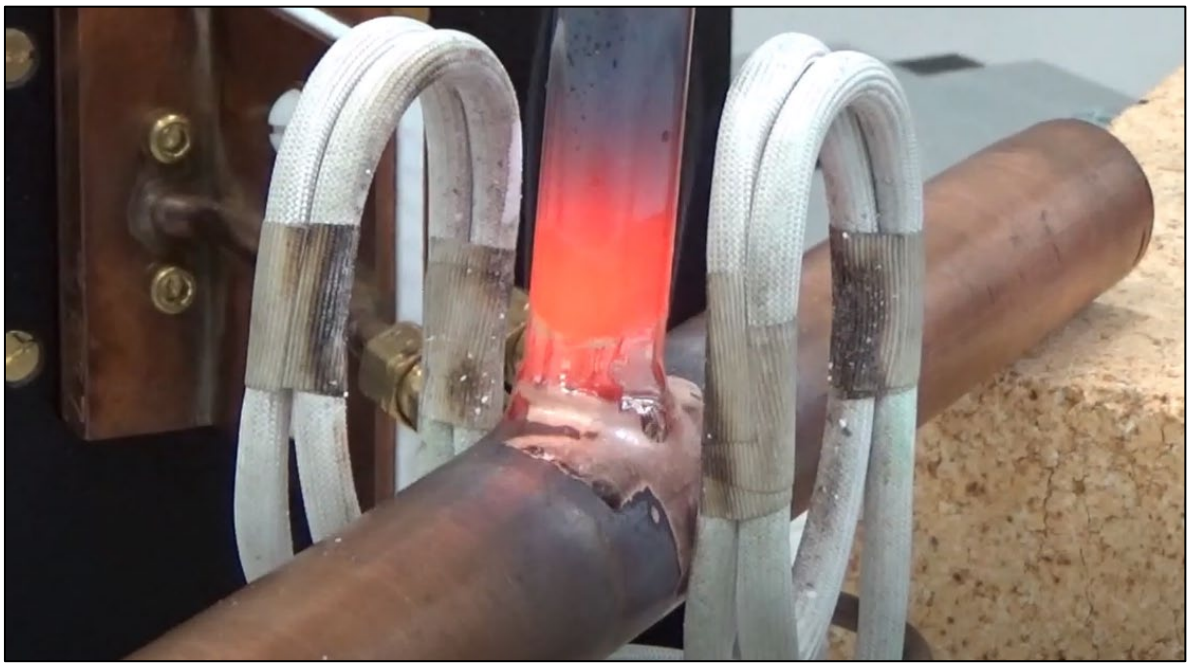

The copper assembly during induction heating.