Ambrell
INDUCTION HEATING SOLUTIONS
an inTEST Company

Application Note

Brazing a Copper Tube & Brass Fitting

Objective: To heat copper tubes and brass fittings for a brazing application; they had been using a torch.

Equipment: Ambrell EKOHEAT® 15 kW, 50-150 kHz solid state induction heating power supply with a workhead and coil specifically designed for this application.

Frequency: 97 kHz

Material: Brass & Copper

Temperature: 1400 ˚F (760 °C)

Testing: A custom-designed single position multiple-turn U-shape 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. The part achieved temperature for the braze to flow in under four minutes. It was also noted that the magnetic field of the coil was able to push the brass fitting during heating, so a fixture to hold the brass fitting in place was recommended.

Benefits:

- **Speed:** Induction met the client's time requirements.
- **Precision:** Induction heats only the area that requires it for brazing.
- **Repeatability:** The client can expect the same result in the same amount of time every single time with induction heating, which isn't the case with a torch.
- **No Open Flame:** Which results in a safer work environment.
- **Lab Expertise:** THE LAB at Ambrell was able to design a heating solution that met their requirements.

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Large brass fitting being brazed to the copper tube.

Small brass fitting being brazed to the copper tube.