Ambrell
INDUCTION HEATING SOLUTIONS
an inTEST Company

Application Note

Brazing Copper and Brass Assemblies

Objective: To braze various copper and brass assemblies for a valve manufacturer; they are looking to replace their torch heating process with induction.

Equipment: Ambrell EASYHEAT™ 10 kW, 150-400 kHz solid state induction power supply with a workhead and coil specifically designed for this application.

Frequency: 280-300 kHz

Material: Brass and copper assemblies

Temperature: 1400 ˚F (760 °C)

Testing: Multiple custom-designed single position multiple-turn coils were built to generate the required heating for this brazing application. For each joint, initial tests were conducted to optimize the power delivered to the parts.

It took 30 seconds or less to heat the joints to temperature and form a brazed assembly. All joints were heated with the same coil. The smaller copper tube assembly can be heated faster with a smaller coil if desired.

Benefits:

- **Speed:** Induction exceeded the client's time requirements and is faster than the results they saw with a torch.
- **Repeatability:** The client can expect the same result in the same amount of time every single time with induction heating, which is a considerable advantage over torch heating.
- **Lab Expertise:** THE LAB at Ambrell was able to design a heating solution that met their requirements.
- **Safety:** Induction is typically safer than torch heating as it doesn't introduce a flame into the work environment.

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The copper and brass assembly inside the coil.