

## Brazing tube fittings

**Objective** Braze ¾" (19mm) tube fittings together, which are magnetic steel assembly components. The client was interested in upgrading from a 2.5 kW system as they need to process larger parts.

- Material**
- Two magnetic steel components
  - Black flux
  - Braze rings

**Temperature** 1400 °F (700 °C)

**Frequency** 200 kHz

- Equipment**
- Ambrell EASYHEAT 5060, 5.0 kW induction heating system, equipped with a remote workhead containing one 1.0µF capacitor.
  - A helical induction heating coil designed and developed specifically for this application.

**Process** A braze ring was applied, and the steel tubes were put together. The multi-turn helical coil was adjusted to be level with the tubes. The assembly was heated to the desired braze temperature in 20-25 seconds, which achieved the client's targeted cycle time of less than 30 seconds.

- Results/Benefits**
- Braze temperature was reached quickly which saves time and energy when compared to other heating methods
  - Direct and precise control of heat also saves energy compared to other heating methods
  - The 5.0 kW unit enabled this client to braze larger components within the targeted cycle time
  - The braze alloy forms a good joint, validating the high quality level that can be achieved via induction
  - Can easily be integrated into an automated process



Tube fittings



Tube fittings being brazed together via a circular induction heating coil