

Brazing brass tube and fitting assemblies

Objective To heat two brass tube and fitting assemblies to temperature for a brazing application

- Material**
- Customer supplied small brass tube (0.31"/7.9mm)
 - Customer supplied large brass tube (0.875"/22mm)
 - Customer supplied fittings
 - Black flux

Temperature 1350 °F (732 °C)

Frequency 338 kHz

- Equipment**
- Ambrell EASYHEAT 10kW 150-400 kHz induction heating system equipped with a remote workhead containing two 1.0 µF capacitors
 - A single position four-turn helical induction heating coil designed and developed specifically for this application

Process This smaller assembly was fluxed and placed into the induction heating coil. A braze pre-form was placed onto the tube and the induction power was turned on. After 28 seconds the braze pre-form had flowed and made a perfect fillet. The parts were then rinsed with warm water to remove the flux and brushed with a wire wheel.

The larger assembly was assembled, fluxed and placed into a different four-turn helical coil. In 2 minutes and 20 seconds the braze flowed into the joint and formed a perfect fillet. Testing for both assemblies was initially done with a 6kW EASYHEAT. It was determined that both parts could achieve temperature within 28 seconds with a 10kW EASYHEAT.

- Results/Benefits**
- **Speed:** The parts heated to temperature considerably more quickly than they did with their previous heating method – a torch
 - **Part quality:** Induction's repeatability resulted in improved part quality
 - **Safety:** Induction is flameless and introduces less heat into the production environment than torch brazing



The smaller assembly after being brazed and wire wheeled



The larger assembly after being brazed and wire wheeled.