



## Brazing Copper Tube Assemblies

**Objective** To heat a copper tube assembly in an inert atmosphere to 1450°F within 45 seconds for brazing without flux or acid wash clean-up.

**Material** Copper tube assembly, temperature sensing paint, braze pre-forms

**Temperature** 1450 °F

**Frequency** 339 kHz

**Equipment** Ameritherm HOTSHOT 7.5kW power supply, remote heat station with two 1.25  $\mu$ F capacitors (total 0.625  $\mu$ F), and a specially-designed induction coil

**Process** The testing was done in an atmosphere containing a mixture of 95% Argon and 5% hydrogen gas. A specially designed, four-turn split helical coil was used to provide optimal heating to the joint area of the tube assembly. After initial tests were conducted with bare parts and temperature sensing paints to establish time-to-temperature and heating profiles, a temperature of 1450°F was reached in 45 seconds to melt the brazing pre-forms.

**Results** Successful results were achieved at 1450°F within 45 seconds. Since the heat conducts through the tube assembly, subsequent joints on the same assembly would require less time.

### Advantages

#### of Atmospheric Brazing:

- No oxidation, scaling or carbon build-up; parts are cleaned by hydrogen in the atmosphere.
- No flux needed
- Eliminates acid wash cleanups

Ameritherm's induction heating atmospheric brazing system operates in continuous line control format, improving quality control and eliminating the need for batch processing. Call 1-800-456-HEAT for details.

