

Braze a thin walled tube to a steel cap in a hydrogen atmosphere

Objective Braze a NI-SPAN-C alloy tube to a steel cap in a hydrogen atmosphere

Material NI-SPAN-C alloy tube (5mm) dia, steel cap (7mm) dia, (7mm) long, nickel braze, quartz tube and hydrogen

Temperature 1875 °F (1024 °C)

Frequency 313 kHz

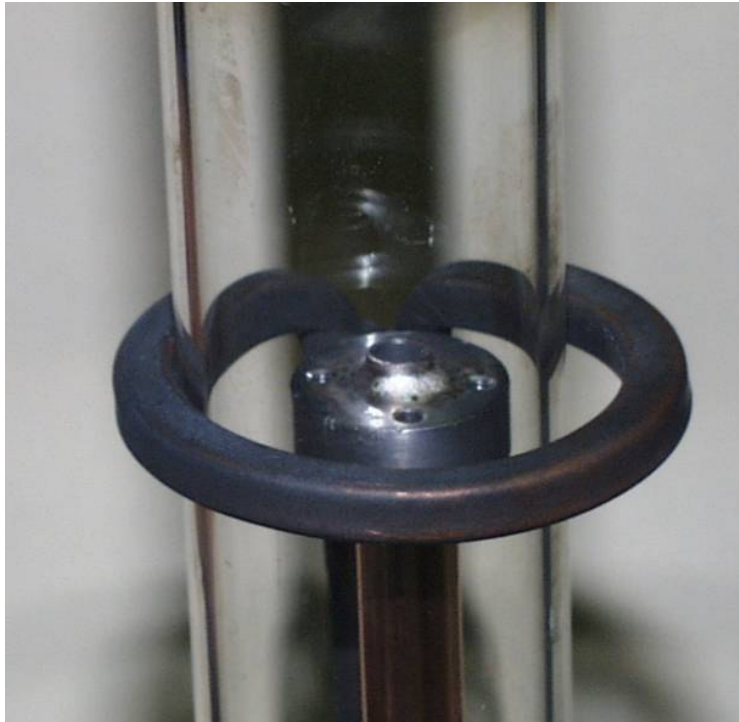
Equipment

- Ambrell 10 kW induction heating system, equipped with a remote workhead containing two 1.5 μ F capacitors for a total of 0.75 μ F
- An induction heating coil designed and developed specifically for this application.

Process A single turn helical coil is used to heat the tube assembly directly. The tube assembly is held in place inside the quartz tube by a copper fixture and hydrogen is fed into the quartz tube. Braze preforms are placed at the braze area and heat is applied for 60 seconds to flow the braze.

Results/Benefits Induction heating provides:

- Rapid localized heat to joint area only
- Minimized oxidation reduces cleaning time
- Improved part quality
- Hands-free heating that involves no operator skill for manufacturing



Tube assembly in hydrogen atmosphere



Brazed tube assembly