Brazing joint on pressurized heater connectors

Objective  Brazing a joint between a copper lug and nickel plated copper pins on a pressurized heater connector.

Material  1.5" (38.1mm) dia heater connector in a ceramic insulator with L shaped copper lugs and nickel plated copper pins, silver solder and braze

Temperature  1175-1375 °F (635-746 °C)

Frequency  270 kHz

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

Process  A two turn helical coil is used to heat the copper lugs and nickel plated copper pins for 1 minute. A clamp is used in production to hold the copper lugs in place for brazing.

Results/Benefits  Induction heating provides:
                     • Minimal transfer of heat to adjacent ceramic insulator.
                     • Hands-free heating that involves minimal operator skill for manufacturing.
                     • Flameless processing.
                     • Heat very small precise areas within production tolerances.
                     • Even distribution of heating.
Heater connector assembly in coil heating for brazing application

Ceramic insulator

Location of soldering application