Brazing a heat-sensing probe

Objective
To heat a coil and a wire assembly to 1300 °F (704 °C) within 60 seconds for brazing.

Material
Platinum coil, steel wire, braze paste

Temperature
1300 °F (704 °C)

Frequency
307kHz

Equipment
Ameritherm 1kW output, remote heat station containing one 1.2 microfarad capacitor, a specially-designed induction coil, an optical pyrometer, stainless steel susceptor, and zirconia felt to house the susceptor.

Process
A C-shaped steel susceptor is used to ensure even heating and for ease of loading and unloading the samples. RF power from the power supply heats the susceptor to the required temperature of 1700 °F (926 °C) in 45 seconds. After braze paste is applied to the wire assembly, the assembly is placed inside the susceptor. It takes 3.5 seconds to heat the wire to the optimum brazing temperature of 1300 °F (704 °C) and the braze paste flows evenly and consistently.

Results/Benefits
Induction heating provides:
• Fast, accurate, repeatable heat
• Ability to heat very small areas within precise production tolerances
• Better joint quality, reduced oxidation