Objective  Brazing a steel impeller and shaft

Material  Steel impeller 2.0" (500mm) diameter, with a 0.25"(6mm) steel shaft, braze ring

Temperature  1450 °F (780 °C)

Frequency  262 kHz

Equipment  
- Ambrell EASYHEAT 3.5 kW 400kHz induction heating system, equipped with a remote workhead containing one 1.0μF capacitor
- An induction heating coil designed and developed specifically for this application.

Process  A two-turn helical coil is used to heat the impeller. The part is placed inside the induction coil and heated to 1450°F within 1 minute to flow the braze ring.

Narrative  Induction is proposed to replace a hand-operated flame process requiring operator training and expertise. Induction heating delivers a precise, repeatable and reliable process. Improved joint quality is coupled with simplified operation.

Results/Benefits  Induction heating provides:
- Heating directly into the part, saving energy
- Hands-free operation
- Precise control of heat
- Even distribution of heating
- Elimination of flame hazard, torch maintenance
The brazed assembly is shown within the coil