

Application Note

Shrink Fitting Automotive Turbo Charger Impeller Blades onto an Aluminum Shaft

Objective: To heat aluminum impeller blades to 200 °F (93 °C) and shrink fit them onto shafts.

Equipment: Ambrell EASYHEAT™ 3.5 kW, 150-400 kHz solid state induction power supply with a workhead and coil specifically designed for this application.

Frequency: 255 kHz

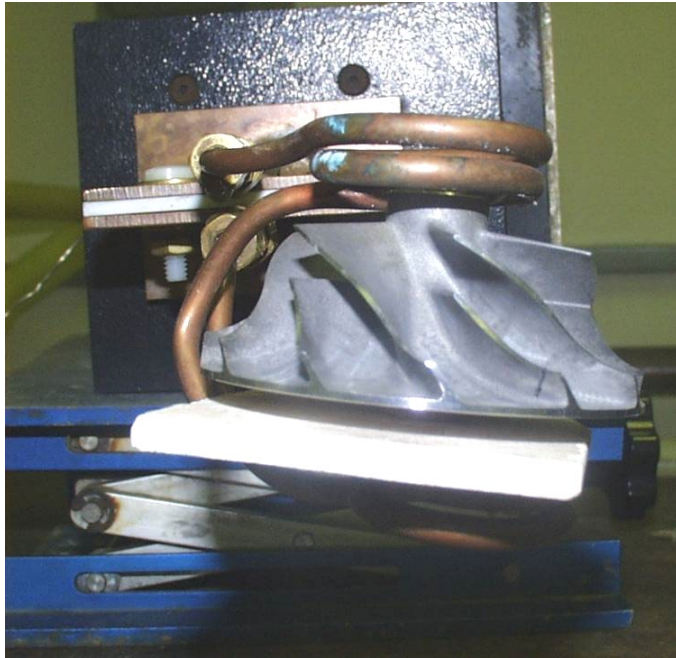
Material: Aluminum impeller blades with a .28" (7.109 mm) bore, aluminum shaft

Temperature: 200 °F (93 °C)

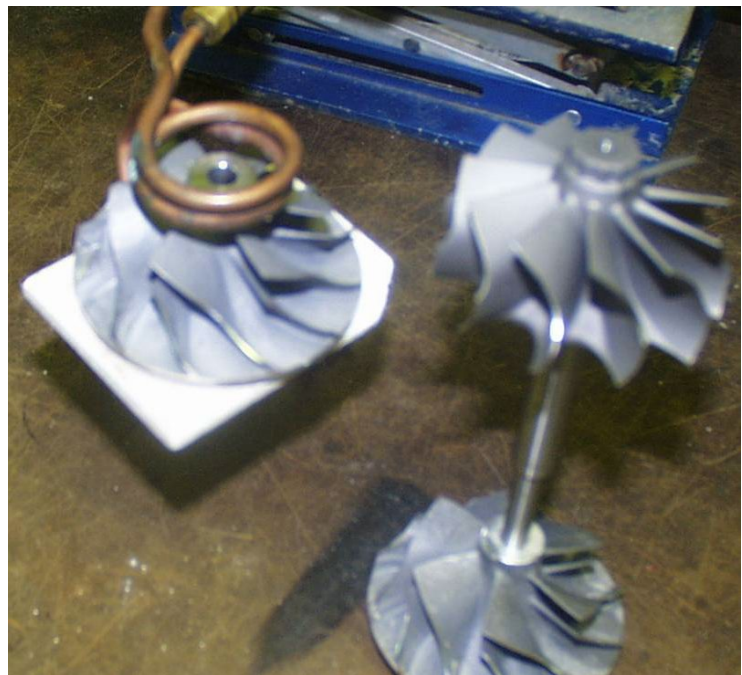
Testing: A split two-turn helical coil is used to evenly heat the opening on the impeller blade. The impeller blade is heated for 20 seconds to reach the target temperature of 200 °F (93 °C). The impeller blades are then removed from the coil and slipped over the shaft to complete the shrink fitting application.

Benefits:

- Accurate and repeatable results
- Reduced cycle time, lower consumable expenses
- Even distribution of heating
- Ease of integration into existing production lines
- Energy efficient
- Hands-free heating that involves no operator skill for manufacturing



Heating the bore on the Impeller blade



Impeller blade shrink fitted to the shaft