

Brazing and De-Brazing Diamond Carbide Inserts

- Objective:** Heat steel cutting bits with diamond-carbide inserts for brazing and de-brazing; the end products are cutting tools
- Equipment:** Ambrell EASYHEAT[™] 4.2 kW, 150-400 kHz induction heating system with a workhead and coil specifically designed for this application
- Frequency:** 245 kHz
- Material:** Steel cutting bits with diamond-carbide inserts
- Temperature:** 1400 °F (760 °C)
- Testing:** A specially designed single-turn hairpin coil was developed for this heating application. Initial tests were conducted to optimize power delivery. Temperature indicating paint was applied to the part, and it dissolved when the part reached 1400 °F (760 °C). It took 25 seconds with a 4.2 kW EASYHEAT to reach temperature, meeting the client's objectives.
- Benefits:**
- **Speed:** The client requested a system that would meet their time objectives, which the 4.2 kW EASYHEAT did
 - **Reliability:** The client had been using an imported system that had suffered from reliability issues and down time, and consequently was looking for a reliable Ambrell unit
 - **Footprint:** An EASYHEAT and a workhead requires a minimal footprint, saving the client floor space compared to their bulky old unit
 - **Integration:** An EASYHEAT can be easily integrated into the client's manufacturing process



Test material: steel cutting bit with diamond-carbide insert