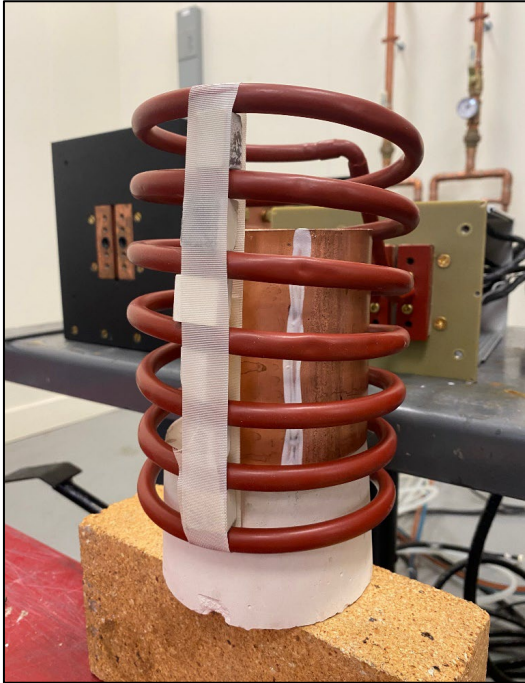


## Application Note

### Annealing Copper Tubing

- Objective:** To heat copper tubing for an annealing application; the application is in the power components industry.
- Equipment:** Ambrell EKOHEAT 45 kW, 50-150 kHz induction heating power supply with a workhead and coil specifically designed for this application.
- Temperature:** 1200 °F (649 °C)
- Frequency:** 70-145 kHz
- Material:** Copper tubing
- Testing:** A specially designed multi-turn helical coil was used to provide the required heat to the various copper tubes. Initial tests were conducted to optimize the power delivered to the part. Testing was successful, with a time-to-heat of 5 seconds for the smaller copper tubing and 15 seconds for the larger copper tubing. This achieved the client's objective.
- Benefits:**
- **Speed:** The heating process took five seconds for the smaller tubing and 15 seconds for the larger tubing, which met the client's requirement.
  - **Repeatability:** Induction delivers the same result every single time, making it an ideal heating process for repeatability/quality.
  - **Safety:** With induction, there is no open flame, resulting in a safer, cooler work environment.
  - **Efficiency:** Induction is highly efficient only heating where required and it is instant on/off, making it a green choice.



The larger tube section in the helical induction coil.