

Application Note

Annealing a Weld Seam (Steel Assembly)

Objective: To use induction annealing to heat the weld seam of the manufacturer's steel part assembly.

Equipment:

- Ambrell EKOHEAT 15 kW, 50-150 kHz induction heating power supply
- A workhead and coil specifically designed for this application

Frequency: 71 kHz

Material:

- Steel part assembly

Temperature: 700 °F (371°C)

Testing: Initial tests were conducted to optimize the power delivered to the part and to understand the heating patterns achieved.

Induction was applied only to the top portion of the weld bead. Temperature indicating paint was applied to evaluate the heating performance. This allowed THE LAB to design the optimal coil for this process, and they were able to confirm feasibility and heat the part to temperature in seven seconds.

Benefits:

- **Speed:** The heating process took seven seconds, which met the client's requirement.
- **Repeatability:** Induction delivers the same result every single time, making it a great 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.
- **Size of System/Workhead:** Induction will easily fit into their process thanks to its modest size/required footprint.



The coil over the weld seam