

Application Note

Heating a Flanged Part Before Welding

- Objective:** To heat a Nickel-flanged part (a mold) for a preheat before welding application.
- Equipment:** Ambrell EKOHEAT 15 kW, 50-150 kHz induction heating power supply with a workhead and coil specifically designed for this application.
- Temperature:** 900 °F (482 °C)
- Frequency:** 84 kHz
- Material:** Two different Nickel parts
- Testing:** A custom-designed single position multiple-turn oval coil was built to generate the required heating for the preheating application. Initially, a helical coil design was used which did heat the part faster, but the pattern wasn't uniform. With the oval coil and an EKOHEAT 15 kW induction heating system, the heating time was 45 seconds and a uniform heating pattern was evident. The speed and heating pattern met the client's objectives.
- Benefits:**
- **Speed:** Induction met the client's time objective for this preheating application.
 - **Repeatability:** The client can expect the same result in the same amount of time every single time, which is ideal for their manufacturing process.
 - **Conductive to Manufacturing Processes:** The client had been using an offline oven, but preferred the heating occur in a cell, which is an application induction heating is commonly used for.
 - **Size of System/Workhead:** With induction the workhead can be placed away from the system itself, making it a great fit for a work cell.



The part inside the oval coil during heating.