Heating cylinder liners for insertion into aluminum engine blocks

Objective
To heat steel cylinder liners so they can be inserted into aluminum engine blocks

Material
- Customer supplied steel cylinder liners

Temperature
500 °F (260 °C)

Frequency
76 kHz

Equipment
- Ambrell EKOHEAT 15 kW, 50-150 kHz induction heating power supply with a remote workhead containing three 1.0 μF capacitors
- A single position eight-turn helical coil induction heating coil designed and developed for this application

Process
Temperature indicating paint was applied to the part for testing purposes. The part was then placed into the induction heating coil and the power was turned on. In just under 30 seconds, the part achieved temperature. This met the client's targeted heating time of 30 seconds per part.

Results/Benefits
- Speed: The client needed the part heated to temperature within 30 seconds, and testing confirmed the viability of this requirement
- Increased production rate: The client was using a competitor’s 10 kW system which required twice as much time to reach temperature as Ambrell's solution that included a 15 kW system and a custom-designed coil
- Energy savings: Induction is a targeted, precise heating method with instant on/off, which can save users energy
The steel cylinder liner inside the helical induction heating coil.