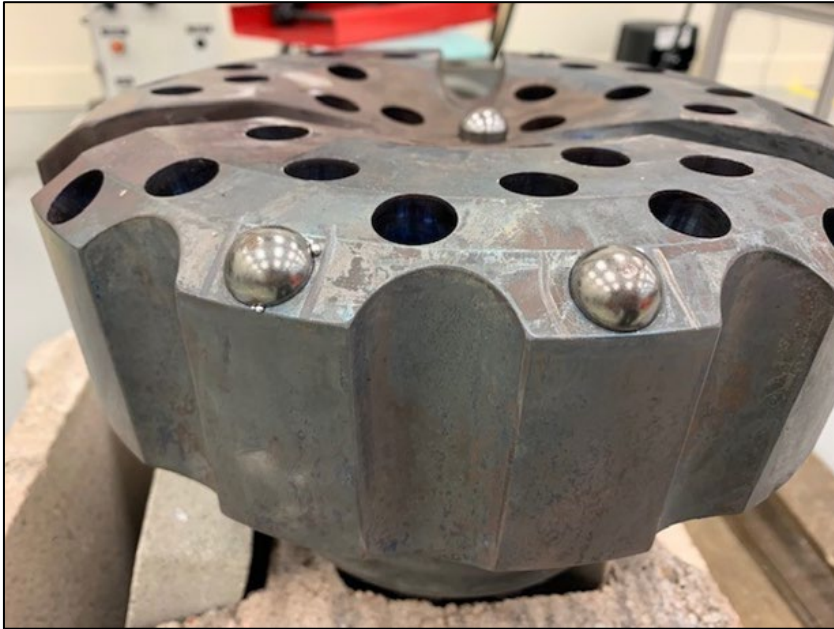


## Application Note

### Heating Hammer Bits for Shrink Fitting

- Objective:** To heat hammer bits for the insertion of carbide buttons; the end product is a drilling tool for the oil and gas industry.
- Equipment:** Ambrell EKOHEAT<sup>®</sup> 50 kW, 5-15 kHz induction heating power supply with a workhead and coil specifically designed for this application.
- Frequency:** 8.9 kHz
- Material:** Magnetic steel hammer bits
- Temperature:** 500 °F (260 °C)
- Testing:** A custom-designed single position multiple-turn pancake coil was built for this application. An infrared camera was used to monitor the temperature of the part. The large drill head was then tested. The outer area of the part heated more quickly than the center. The power delivered to the part was adjusted to keep the maximum temperature between 570° F (299° C) and 580° F (304° C) while the center came up to the target temperature through induction and conduction. The carbide bits were then inserted into the part.
- Benefits:**
- **Speed:** Induction is typically faster than torch heating for this application
  - **Efficiency:** Induction only heats what needs to be heated, so it tends to be more efficient than a torch.
  - **Safety:** Induction does not introduce an open flame into the work environment, which not only enhances worker safety but also leads to a more comfortable work environment.



The drill head with carbide bits.