

## Hardening the teeth of a large saw blade

**Objective** Heating the teeth of a large saw blade for a hardening application; the objective is to reduce the heating time

**Material** • Section of the saw blade

Temperature 1650 °F (899 °C)

Frequency 134 kHz

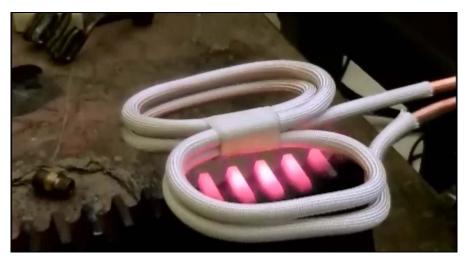
- **Equipment** Ambrell EKOHEAT 30kW 50-150 kHz induction heating system equipped with a remote workhead containing eight 1.0 µF capacitors
  - A multiple position two-turn helical induction heating coil designed and developed specifically for this application

The coil was developed so that it would not concentrate heat in the outside edge valley of the tooth. The part was placed under the coil approximately 1/8" (3.2 mm) away and the power was turned on. With the 30 kW EKOHEAT power supply the part heated to temperature within the targeted rate of five teeth per four seconds.

## Results/Benefits •

- Speed: The customer was already using induction, but wanted to upgrade to a higher power system to increase their production rate (Prior to first using induction from Ambrell, the client used a torch.)
- Precision and Repeatability: A torch isn't as precise as induction nor is it repeatable, whereas induction can be implemented to be highly repeatable
- Efficiency: Induction uses less energy than a torch and offers instant on/off heating





The heat pattern of the saw blade during heating