

## 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

**Process** 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