

AN AMBRELL COMPANY

Hardening teeth on a steel motorcycle gear

- **Objective** Hardening teeth on a steel motorcycle gear to a hardness of 48 55 HRC
- **Material** Carbon steel gear 6.9" (175mm) diameter
- **Temperature** 2000 °F (1093 °C)
 - Frequency 78 kHz
 - Equipment Ambrell 90 kW induction heating system, equipped with a remote workhead containing eight 1.0μF capacitors for a total of 8μF
 - An induction heating coil designed and developed specifically for this application.
 - **Process** A single turn helical coil is used to heat the gear. The gear is placed on a spindle and rotated at 300-350 RPM's. Heat is applied for 10 seconds to reach the desired hardness. The gear is immediately quenched to remove the heat, dried and then coated with a lubricant.

Results/Benefits Induction heating provides:

- Easy control of depth of hardness
- Energy savings due to efficiency of process
- Hands-free heating that involves no operator skill for manufacturing
- Even distribution of heating



Precision Induction Heating

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Gear rotating in coil as heat is applied

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