



Continuous annealing of copper wire to eliminate work hardening after the drawing process

Objective Continuously anneal a copper wire used in electric motors at a rate of 16.4 yds (15m) per minute to eliminate work hardening caused during the drawing process.

Material Square copper wire 0.06" (1.7mm) dia., temperature indicating paint

Temperature 842 °F (450 °C)

Frequency 90 kHz

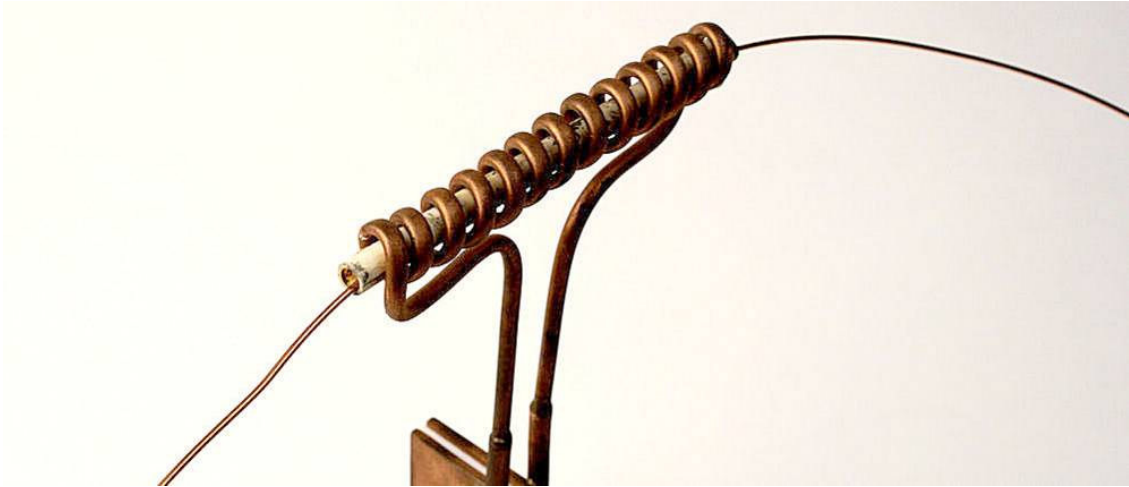
Equipment

- Ambrell 45 kW induction heating system, equipped with a remote workhead containing eight 1.0µF capacitors for a total of 8.0µF
- An induction heating coil designed and developed specifically for this application.

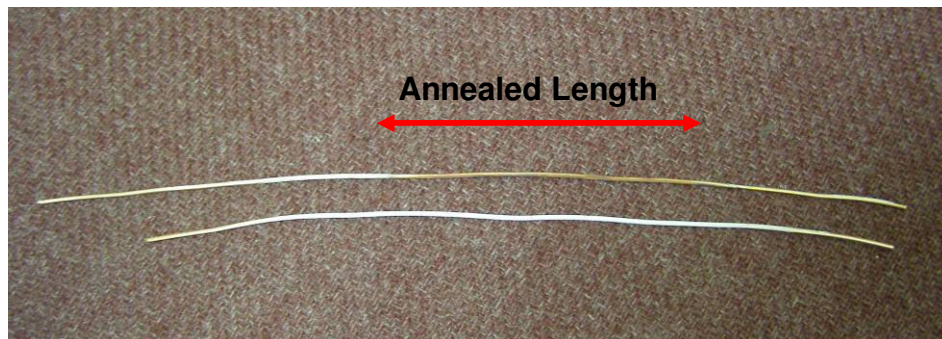
Process A twelve turn helical coil is used. A ceramic tube is placed inside the coil to isolate the copper wire from the copper coil and to allow the copper wire to flow smoothly through the coil. Power runs continuously to anneal at a rate of 16.4 yds (15m) per minute.

Results/Benefits Induction heating provides:

- Hands-free heating that involves no operator skill for manufacturing
- Flameless process
- Ideal for in-line production processes



Copper wire passing through coil



Annealed wire