



Annealing a steel shaft for stress relief

Objective Heating a steel rod to 1200°F (649°C) for an annealing, stress relief application

Material 1.062" (26.97mm) dia type T-410 stainless steel bar 6' (1.82m) long & 1.25" (31.75mm) dia T-416 stainless steel bar 6' (1.82m) long

Temperature 1200°F (649°C)

Frequency 126 kHz

Equipment

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

Process A two position 8 turn helical parallel coil is used to heat the stainless steel rod for 30 seconds to reach the requested 1200°F (649°C).

Results/Benefits Induction heating benefits:

- Process currently done in batch furnaces, induction heating allows process to be done in-line saving time and energy.
- No rotation of part needed
- Flameless process



Steel rod in coil for annealing application



End view of stainless steel pipe passing through coil