



Hardening steel screw threads

Objective Heat steel roofing screw to 1650 °F to harden the threads

Material Steel roofing screws of varying diameters less than 1.25" (31.75mm) diameter, 5" (127mm) long

Temperature 1650 °F (899 °C)

Frequency 291 kHz

Equipment

- Ambrell 2 kW induction heating system, equipped with a remote workhead containing two 0.33 μ F capacitors for a total of 0.66 μ F
- An induction heating coil designed and developed specifically for this application.

Process A five turn helical coil is used heat the screw threads. The screw is placed in the coil, heat is applied for 8 seconds to achieve a 2" long zone at the required hardness.

Results/Benefits Induction heating provides:

- Very rapid heating, faster production rates, efficient
- Ability to incorporate into existing production lines
- Repeatable, consistent results
- Even distribution of heating



Roofing screw in coil
hardening a 2" zone

Please also view video