

Bonding a plastic handle to a surgical knife

Objective Bonding handle of a stainless steel surgical knife into a plastic handle

Material Plastic tool handle, 0.125" (3.18mm) diameter steel knife

Temperature 450 °F (232 °C)

Frequency 390 kHz

Equipment

- Ambrell 4.2 kW induction heating system, equipped with a remote workhead containing one 0.66 μ F capacitor.
- An induction heating coil designed and developed specifically for this application.

Process A four turn split helical coil is used for this application. Power is applied to the steel knife for 2.0 seconds to reach 450 °F (232 °C). The steel knife is then inserted into the plastic handle to create a solid bond.

Results/Benefits Induction heating provides:

- Fast, accurate, repeatable heat
- Able to heat very small areas within precise production tolerances
- Hands-free heating that involves no operator skill for manufacturing
- Even distribution of heating

