



Heating magnetic steel for insertion into polypropylene for pallet manufacturing

Objective Heating magnetic steel to 300°F (149°C) for insertion into a polypropylene board

Material Hollow steel beam with two rails 3" (76.2mm) apart with steel barbs 0.25" (6.35mm) long & 0.04" (1.02mm) thick on each rail and a polypropylene sandwich-ribbed reinforced board .50" (12.7mm) thick

Temperature 300°F (149°C)

Frequency 108 kHz

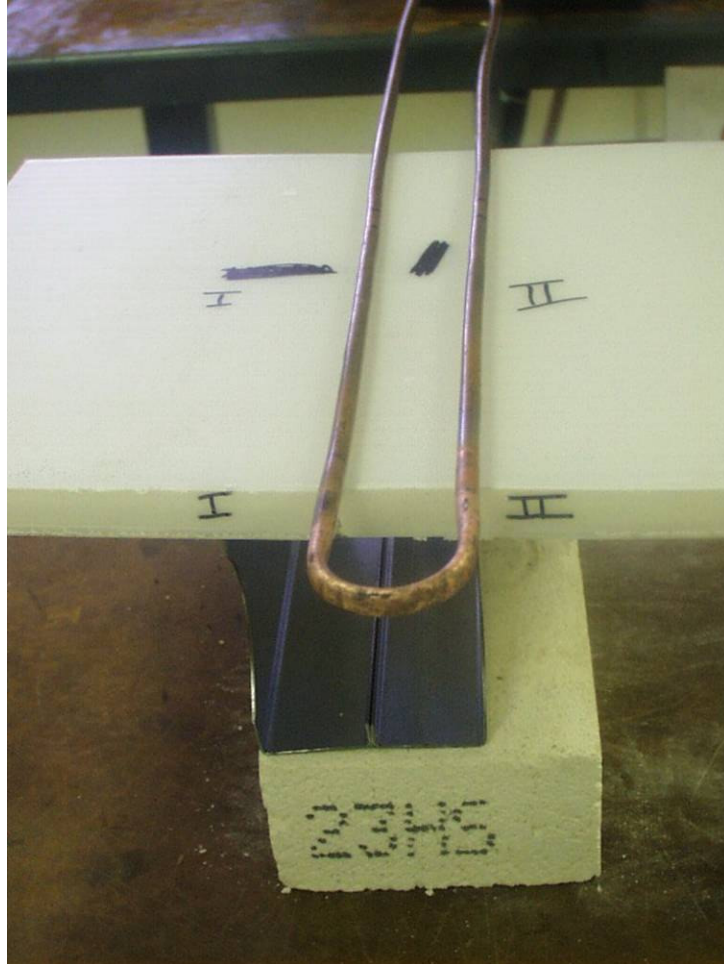
Equipment

- Ambrell 40 kW induction heating system, equipped with a remote workhead containing eight 1.0μF capacitors for a total of 2.0 μF
- An induction heating coil designed and developed specifically for this application.

Process A single turn channel coil is used to heat the steel beam. The rail reaches 300°F (149°C) in 20 seconds. The polypropylene board is pushed down on the steel beam to join the metal to plastic bond.

Results/Benefits Induction heating provides:

- New process, "Greener" manufacturing of pallets using reusable, recyclable materials
- Hands-free heating that involves minimal operator skill for manufacturing
- Even distribution of heating



Coil in place over one rail prior to heating