Preheat steel for reforming

Objective
Preheat low carbon steel rivets and handrail bars for reforming for construction

Material
Low carbon steel rivets 7/16” (11.1mm) dia x 1.5” (38mm) & 1.9” (47mm) long, low carbon bar 1.25” (32mm) dia x 3” (75mm) heat zone

Temperature
1922 °F (1050 °C)

Frequency
248 kHz for the rivets
155 kHz for the bars

Equipment
- Ambrell 10 kW induction heating system, equipped with a remote workhead containing two 1.5μF capacitors for a total of 0.75μF
- An induction heating coil designed and developed specifically for this application.

Process
A three turn encapsulated helical coil is used for the rivets and a four turn encapsulated helical coil is used for preheating the handrail bars. The rivets are heated to the 1922 °F (1050 °C) in 22-25 seconds and the bars are heated to the 1922 °F (1050 °C) in 4 mins 43 seconds.

Results/Benefits
Induction heating provides:
- Controllable heat pattern
- Ease of on site location use
- Safe, no open flames
- Even distribution of heating
Rivet heating in encapsulated coil then it is formed

Handrail being heated and then end is formed into a ball