Preheating steel bar stock to forge a hot formed u-bolt

**Objective**
Preheating round steel bar stock prior to forging a hot formed u-bolt

**Material**
.795" (20.19mm) diameter round steel bar stock 15" (381 mm) long

**Temperature**
1500 °F (816 °C)

**Frequency**
88 kHz

**Equipment**
- Ambrell 135 kW induction heating system, equipped with a remote workhead containing eight 1.0µF capacitors for a total of 2.0µF
- An induction heating coil designed and developed specifically for this application.

**Process**
A fifteen turn helical coil with ceramic insert is used to preheat the 15” (381 mm) section of steel bar stock. Power is supplied for 9.90 seconds to heat the whole piece to 1500 °F (816 °C). The piece is then placed in a die and formed into a u-bolt.

**Results/Benefits**
Induction heating provides:
- Uniform through heating
- High volume, rapid forging
- Scale formation reduced, steel does not remain above oxidation temperature for long periods of time
- Fast, energy-efficient heat
Steel bar stock in coil

Bar stock heated to 1500 °F (816 °C)