Shrink fitting a steel liner into a cylinder for a mud pump liner

Objective Shrink fitting a steel liner into a cylinder to create a mud pump liner used in the oil industry

Material Steel cylinder 10.625” (27cm) OD with a 2.625” (6.6cm) thick wall and 21.75” (55.2cm) long, liner 5.5” (14cm) OD and 26.375 (67cm) long

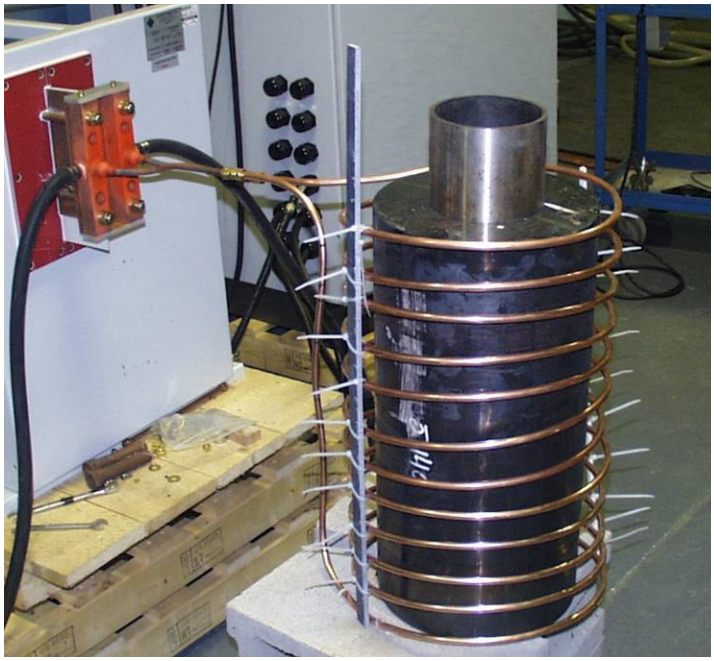
Temperature 900 ºF (482 ºC)

Frequency 7.8 kHz

Equipment
- Ambrell 250 kW, 10 kHz induction heating system, equipped with a remote workhead containing one 53.6µF capacitor.
- An induction heating coil designed and developed specifically for this application.

Process A eleven turn helical coil is used to heat the cylinder. The cylinder is placed inside the coil and power is applied for 10 minutes to reach the temperature of 900 ºF (482 ºC). Once the temperature is reached the steel liner slides easily into the cylinder and the assembly is cooled to create the shrink fit

Results/Benefits Induction heating provides:
- Faster heat cycle
- Increases production rate versus furnace systems
- No preheat cycle or controlled cooldown required, reduces energy cost
- Even distribution of heating



Cylinder with liner inserted once part has reached 900 ºF (482 ºC)