

AN AMBRELL COMPANY

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 °F (482 °C)
 - 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 °F (482 °C). 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

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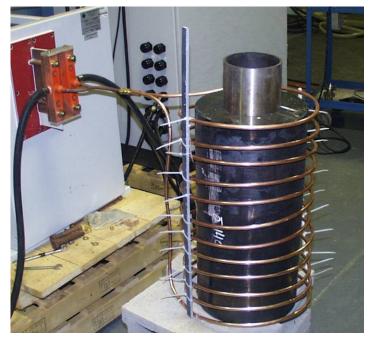
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Precision Induction Heating

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Cylinder with liner inserted once part has reached 900 °F (482 °C)

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