



Shrink fitting an assembled wrist pin into a connecting rod

Objective Assemble connecting rods with a more accurate control of the heat

Material Rod has an OD of .9125" (23.18mm), knuckle has an ID of .9125" (23.18mm) with an interference of .0001" (.0025mm). Knuckle assembly is forged steel

Temperature 400 °F (204 °C)

Frequency 210 kHz

Equipment

- Ambrell 3.5 kW induction heating system, equipped with a remote workhead containing two 1.0µF capacitors for a total of 0.5 µF
- An induction heating coil, designed and developed specifically for this application.

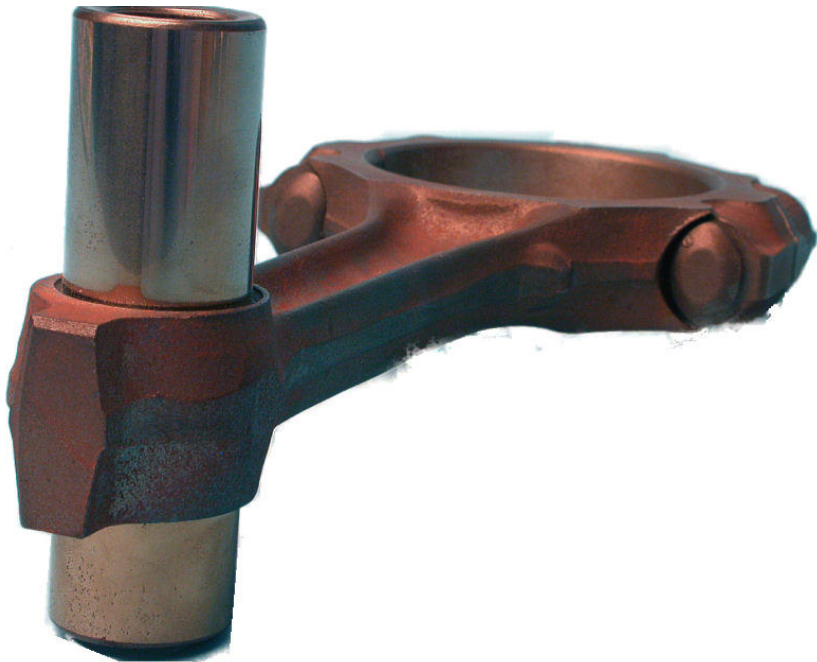
Process A six turn helical coil is used to heat the connecting rod for 13 seconds. The coil is perpendicular to the axis of the bore to promote even heating around the circumference. The connecting rod is then assembled with the piston for shrink fitting.

Results/Benefits Induction heating provides:

- More accurate control of heat vs a flame burner. Only heats knuckle, not the whole part.
- Lower temperature used to prevent discoloring.
- Increased productivity due to repeatability & ease of operation. A foot pedal & timer is used.
- No product contamination.



Coil is perpendicular to the axis of the bore when heating the knuckle



Final assembly of wrist pin & rod