Heating stainless steel rod for hot forming

Objective  Heating 300 series stainless steel rod to 1800°F (982°C) for forming application

Material  1” (25.4mm) length of 300 series stainless steel rod ¾ “(19mm) diameter

Temperature  1800 °F (982°C)

Frequency  312 kHz

Equipment  • Ambrell 7.5 kW induction heating system, equipped with a remote workhead containing two 1.25µF capacitors for a total of .625µF
  • An induction heating coil designed and developed specifically for this application.

Process  A four turn helical coil is used to heat the stainless steel rod to 1800 °F (982°C) for 10 seconds. For manufacturing purposes a refractory shield should be used between the coil and rod to keep the heat directed on the rod. Refractory shield was not used during testing.

Results/Benefits  Induction heating provides:
  • Hands-free heating that involves no operator skill for manufacturing
  • Improved production rates with minimal defects
  • Low pressure and minimal residual part stress
  • Even distribution of heating
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