Preheating a brass assembly for forging blanks

Objective

Preheat two brass parts to 1652 ºF (900 ºC) for a forging application in the wrist watch industry -- a key objective was to heat at a faster rate than their current induction heating system

Material

- A brass assembly consisting of two components with an outside diameter of 2” (51 mm)

Temperature

1652 ºF (900 ºC)

Frequency

120 kHz

Equipment

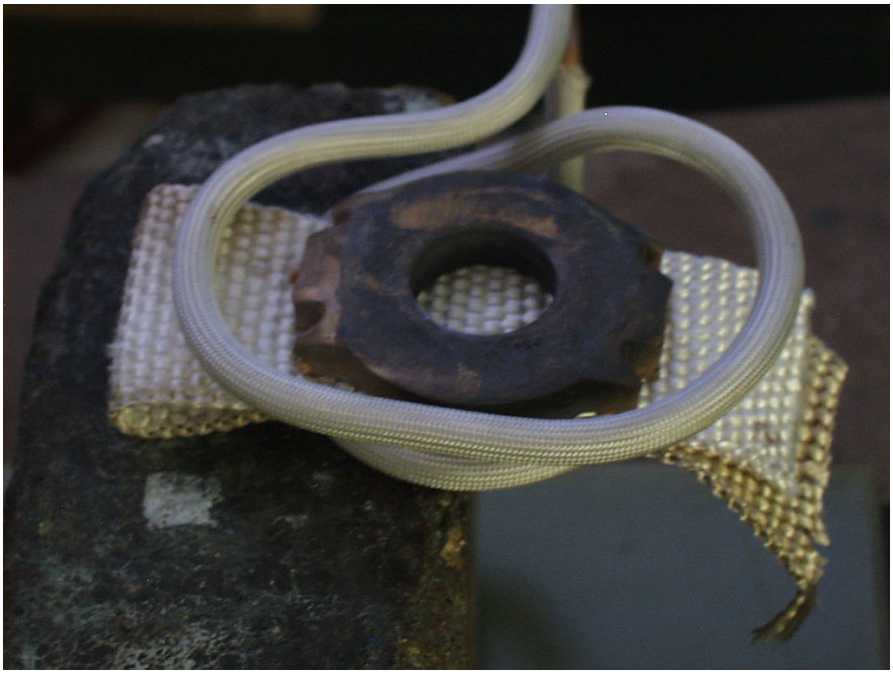
- Ambrell EKOHEAT 30 kW, 50-150 kHz induction heating system, equipped with a remote workhead containing four 1.5 µF capacitors
- A double position three-turn pancake style coil with one helical turn

Process

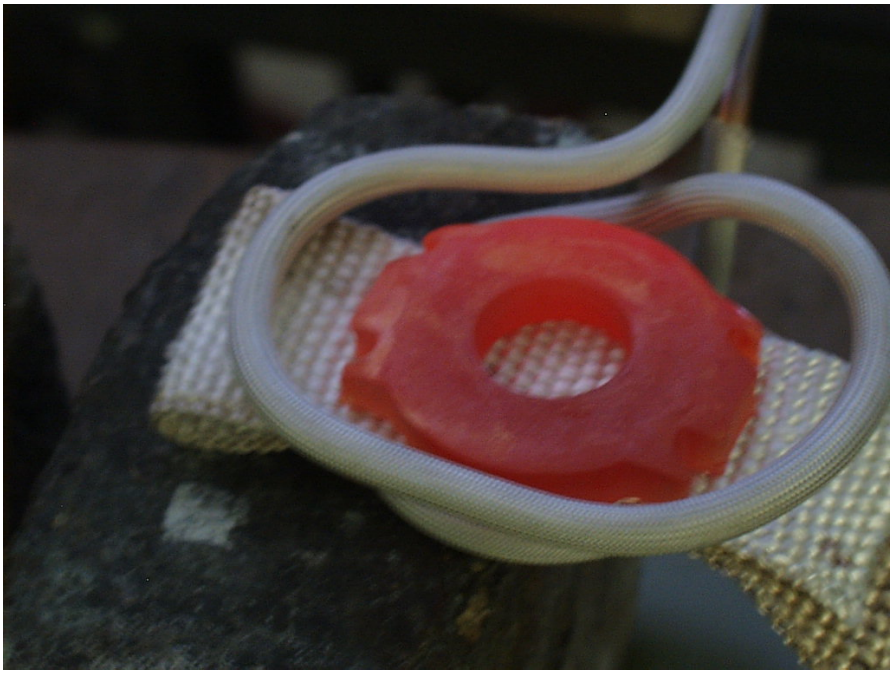
Initial tests were conducted to optimize the power delivered to the assembly. The assembly was placed 1 mm above the coil. The entire assembly was heated to 1652 ºF (900 ºC) in 16 seconds. Heat was generated in the bottom of the part, and heat was conducted to the entire assembly within 16 seconds.

Results/Benefits

- Speed: The client was using a competitor’s system, and it was heating the assembly at a slower rate. They needed to increase their production rate, which this solution was able to achieve.
- Service: The client was not receiving satisfactory support for their induction heating system, so they were looking to switch to a superior system that was built to their specifications and included the support they needed.



The assembly inside the coil prior to heating



The assembly being heated to 1652 ºF (900 ºC)