

Heating a Kovar tube for a glass sealing application

Objective To heat a Kovar tube for a glass sealing application; the end product is a vacuum tube

- Material**
- Glass tubes
 - Kovar tubes

Temperature 1800 °F (982 °C)

Frequency 216 kHz

- Equipment**
- Ambrell EASYHEAT 4 kW, 150-400 kHz induction heating power supply with a remote workhead containing two 1.5 μ F capacitors
 - A single position, two-turn helical induction heating coil designed and developed for this application

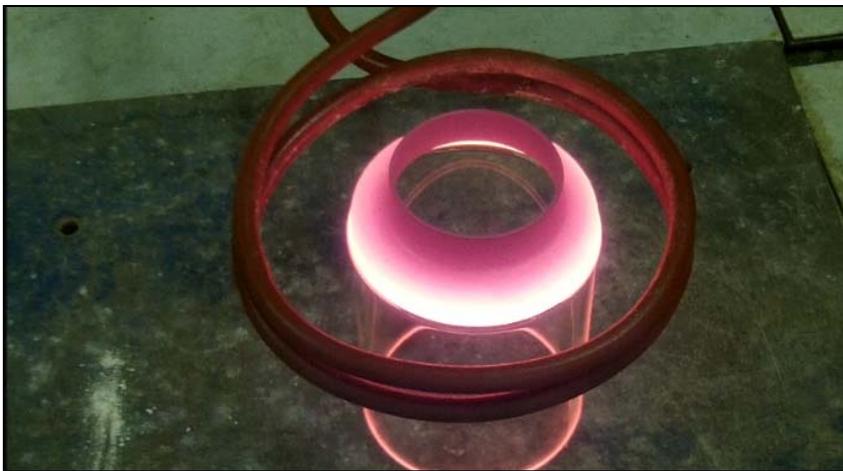
Process The Kovar tube was placed on the glass tube and the power was turned on. The Kovar tube began to heat and a constant output was maintained for 75 seconds. This enabled the Kovar to conduct its heat to the glass. At this point the Kovar began sinking into the glass and the power was turned down. A three minute ramp-down process ensued to ensure that the glass would not crack. A heating profile was set on the EASYHEAT for this process.

In order to increase throughput, the client can instead acquire a 10 kW EASYHEAT, a four-position coil, and heat four parts every four minutes.

- Results/Benefits**
- Speed: The client was using a torch, and operator error was slowing heating
 - Throughput: The repeatability of induction enables improved throughput
 - Energy savings: Induction is a more efficient heating method than torch heating
 - Quality: Consistency and repeatability equates to better quality and less scrap



The assembly prior to heating



The assembly during heating