Heating a Kovar Ferrule for Glass Soldering

Objective: To heat a Kovar ferrule to 428 ºF (220 ºC) for a glass soldering application.

Frequency: 195 kHz

Equipment:

- Ambrell EASYHEAT™ 2.4 kW, 150-400 kHz induction heating system equipped with a remote workhead
- A single position single-turn open C coil designed specifically for this application

Material:

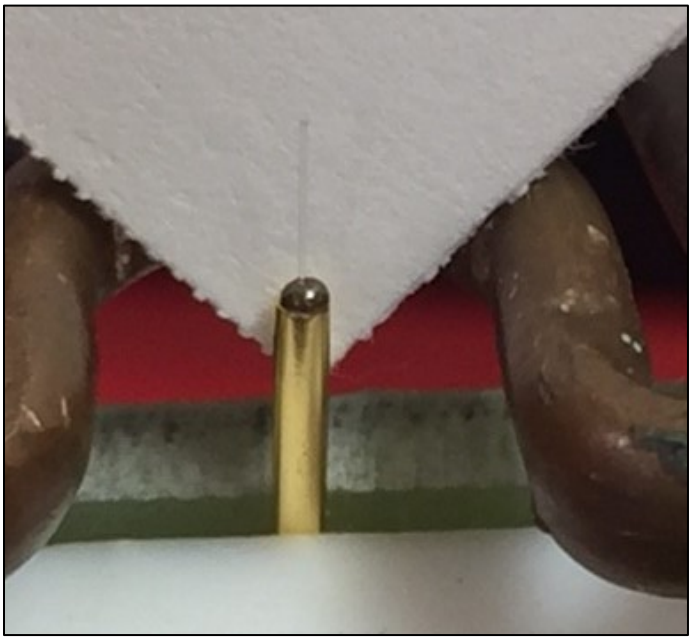
- Kovar ferrule
- Glass fiber
- Glass solder preforms

Temperature: 428 ºF (220 ºC)

Process: Initial tests were conducted to optimize the power delivered to the part. The ferrule was clamped between two non-conducting surfaces. The solder preform was placed over the glass fiber to rest on the end of the ferrule farthest from the side opening. It took nine seconds for the part to heat to 428 ºF (220 ºC). The solder formed a relatively uniform domed seal around the fiber despite the asymmetry of the open C coil.

Benefits:

- Speed: It took under 10 seconds to heat the part to soldering temperature
- Precise, repeatable heating: Quality was the most important attribute to this client, and induction's precision and repeatability meets that objective
- Footprint: The EASYHEAT takes up a modest footprint, making it an easy addition into this client's new process



The assembly after soldering was completed.