Brazing a brass screw cap and a steel tube

**Objective**
To heat a brass hex screw cap and a steel tube to temperature for a brazing application

**Material**
- Screw cap
- Steel tube
- Braze rings
- Flux

**Temperature**
1400 ºF (760 ºC)

**Frequency**
109 kHz

**Equipment**
- Ambrell EKOHEAT 15 kW, 50 to 150 kHz induction heating system equipped with a remote workhead containing four 1.5 uf capacitors for a total of 1.5 uf
- A four-position, two-turn helical induction heating coil designed and developed specifically for this application

**Process**
White brazing flux was used on the parts. Samples were assembled using the braze rings, a batch of four samples were heated for 60 seconds, the braze flowed, and an aesthetically-pleasing joint was created. The process met the client’s time objective of 15 seconds per part. A faster heating time is not recommended due to the limitations of thermal conduction of brass to the center of the part.

**Results/Benefits**
- Speed: Induction enabled the brazing process to be completed at a rate of 15 seconds per part
- Consistency: Induction enables consistent joint quality, which a torch often doesn’t deliver
- Safety: There is no open flame with induction, so it’s a safer heating option than other options such as torch heating
- Efficiency: Induction delivers heat only where it’s required, making it more efficient than many competitive heating methods
The assembly after the conclusion of the brazing process.