Brazing a dental assembly; the client is replacing resistance heating with induction

**Objective**
To heat a steel and carbide dental assembly for a brazing application to manufacture dental tools; the client was using resistance welding units

**Material**
- Stainless steel shafts (0.032 in/.81 mm diameter)
- Carbide part
- Braze flux

**Temperature**
1400 °F (760 °C)

**Frequency**
357 kHz

**Equipment**
- Ambrell EASYHEAT™ 10 kW, 150-400 kHz induction heating system equipped with a remote workhead
- A single turn, specially designed channel induction heating coil designed and developed specifically for this application

**Process**
Initial tests were conducted to optimize power delivered to the assembly. The parts were painted with temperature indicating paint. A braze shim was placed on the joint along with some flux. The part was then placed inside the coil and the induction power was turned on. Within seven seconds the temperature indicating paint melted and the parts reached the targeted temperature with an EASYHEAT 10 kW induction heating system. This achieved the client’s objective. The channel coil – specially designed by THE LAB at Ambrell– was critical to the application’s success.

**Results/Benefits**
- Speed: With a 10 kW EASYHEAT, heating took less than seven seconds
- Footprint: Induction can be easily integrated into the client’s high-volume manufacturing process due to the EASYHEAT and its workhead’s modest space requirements
- Repeatability: Induction is a highly repeatable process, so the client can expect the same high quality result every time in their manufacturing process
The parts after brazing.