

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

Ambrell Companies

Ambrell Corp. (U.S.)
www.ambrell.com
+1 585 889 9000

Ambrell Ltd. (UK)
www.ambrell.com
+44 (0)1242 514042

Ambrell Sarl (France)
fr.ambrell.com
+33 970 440 335

Ambrell EUME (Europe)
www.ambrell.com
+31 (0) 880 150 100



The parts after brazing.

Ambrell Companies

Ambrell Corp. (U.S.)
www.ambrell.com
+1 585 889 9000

Ambrell Ltd. (UK)
www.ambrell.com
+44 (0)1242 514042

Ambrell Sarl (France)
fr.ambrell.com
+33 970 440 335

Ambrell EUME (Europe)
www.ambrell.com
+31 (0) 880 150 100