Annealing stainless steel tubes

Objective To heat stainless steel tubes of various sizes for an annealing application

Material
- Stainless steel tubes (up to an OD of 4 mm/0.16”, thickness of 0.3 mm/0.012” and a length of 5 mm/0.2”)

Temperature
- 1500 ºF (816 ºC)

Frequency 266 kHz

Equipment
- Ambrell EASYHEAT 1 kW, 150-400 kHz induction heating system equipped with a remote workhead containing one 0.66 µF capacitor for a total capacitance of 0.66µF
- A single position four-turn helical induction heating coil

Process A ceramic ramp was constructed to keep the tubes inline and moving through the coil. A vibratory ramp will keep the tubes moving smoothly. The tubes were placed in the ramp and progressed through the coil at a constant feed rate. Testing was conducted on the largest and smallest tubes to demonstrate that the requirements can be met. The parts were heated to temperature in less than three seconds.

Results/Benefits
- Speed: The client’s gas oven required twice as much heating time
- Efficiency: Induction is an energy-efficient medium of heating when compared to a gas oven
- Footprint: An induction system requires less space than a gas oven
- Ambrell Lab Expertise: The client leveraged the lab to come up with the induction solution

Ambrell
www.ambrell.com
+1.585.889.9000

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

Ambrell SARL
fr.ambrell.com
+33 970 440 335

Ambrell
www.ambrell.com
+31 (0)880 150100

The tubes in the ramp being heated via the induction coil

Ambrell
www.ambrell.com
+1.585.889.9000

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

Ambrell SARL
fr.ambrell.com
+33 970 440 335

Ambrell
www.ambrell.com
+31 (0)880 150100