Induction Brazing Bourdon Tube

United Induction Heating Machine Limited

We are experienced in Induction Heating,induction heating machine,Induction Heating equipment.They are widely used in induction heating service, induction heat treatment, induction brazing, induction hardening,induction welding, induction forging,induction quenching,induction soldering induction melting and induction surface treatment applications http://www.uihm.com

Objective To braze a thin copper oval tube to a brass fitting at 1400 º F and to cap the other end of the copper tube with a brass plate.

Material Brass fitting – 0.875 in2 and 2.5 in long (22mm2 x 64mm) Copper tube 0.01 in (0.254mm) wall Brass plate 0.10 in (2.54mm) thick and 0.5 in X 0.25 inch Braze alloy shim and white flux

Temperature 1400 ºF (760 °C)

Frequency 320 kHz

Equipment Power of 30kW induction power supply equipped with a remote heat station using two 1.32μF capacitors (total 0.66 μF) Two custom-designed induction heating coils.

Process A split, f our-turn induction coil is used to deliver the heat energy into the brass fitting (Fig. 1). To prevent over heating of the edges of the brass fitting and the thin copper tube, a smaller coil diameter (Fig. 2) was added to deliver heat into the brass fitting. A braze shim preform is placed at the joint area, and is then covered with white flux. The height of the coil is adjusted to deliver proportional heat to the assembly. This setting raises the temperature of the thicker brass piece and the thin copper tube at the same rate enabling a uniform flow of the braze shim preform. The other end of the copper tube is brazed successfully using a 2-turn helical coil (Fig.3.)
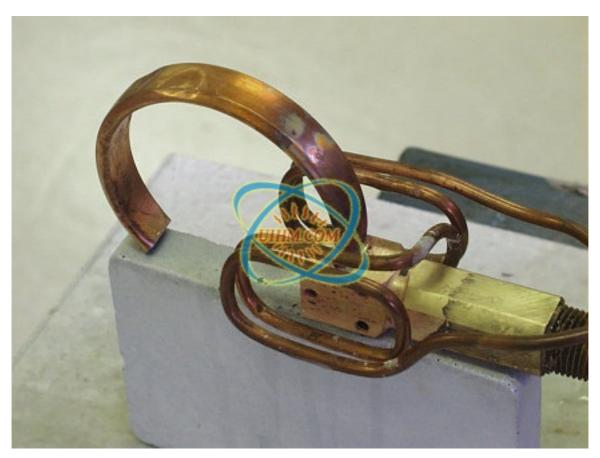
Results/Benefits • Preservation of the copper's mechanical properties

• Minimized heat migration along both ends of the tube

• Reduced heat-up time (under 60 sec.)

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