Brazing copper and brass valve assemblies for the HVAC industry

Objective

Heating copper and brass valve assemblies to 1300 ºF (704 ºC) for a brazing application

Material

- Copper tube (1/8”/3.2mm)
- Flared copper tube (1/4”/6.4mm)
- Brass fitting
- Braze rings (1/8”/3.2mm)

Temperature

1300 ºF (704 ºC)

Frequency

280 kHz

Equipment

- Ambrell EASYHEAT 8310, 10kW 150-400 kHz induction heating system equipped with a remote heat station containing two 1.5 µF capacitors
- A four-position helical induction heating coil designed and developed specifically for this application

Process

The copper tube (1/8”/3.2mm) was inserted into the flared copper tube (1/4”/6.4mm). Two braze rings were placed on the copper tubes and the power supply was turned on and heating began. The heat cycle for the brazing process was 10-15 seconds. Two braze rings instead of one ensured a good quality joint.

A second brazing application involved brazing the 1/8”/3.2mm copper tube to the brass fitting. Two braze rings were placed on the joint area and the part was heated. The heat cycle time was also 10-15 seconds.

Results/Benefits

- Speed: The proposed process met the client’s time objective
- Production rate: Given the fast cycle time, the client can meet its production rate goals
- Part quality: A good braze joint was formed in both cases, which is critical to ensuring a good quality valve

Brazing the copper tubes together

Brazing the copper tube to the brass assembly

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)548 659044