Brazing a copper pipe seam assembly

Objective  Heating a copper pipe assembly to 1350ºF (732ºC) for a brazing application.

Material  Ambrell copper pipe, silver phosphorous braze pieces

Temperature  1350ºF (732ºC)

Frequency  216 kHz

Equipment  • Ambrell 8kW induction heating system, equipped with a remote workhead containing two 1.5μF capacitors for a total of 0.75μF
• An induction heating coil designed and developed specifically for this application.

Process  A single position 2-turn pancake coil is used to generate the required heating for the application. A silver phosphorous braze is cut into small pieces and placed at each of 12 points that a junction is desired. The part is then placed under the coil and the power is turned on for 60 seconds to flow the braze.

Narrative  • The customer is seam brazing copper pipes together. They will reduce the brazing of the seam down to 15-30 seconds. This customer is currently using a torch, but is not getting uniform quality, and hopes to improve on this. Also, it is dangerous for the operator.

Results/Benefits  Induction heating provides:
• Reliable, repeatable aesthetically pleasing braze joint
• Even distribution of heating
• Faster, repeatable and consistent results
Profile of copper pipe assembly

Power is turned on to flow the braze

Junction points where braze is placed