

Brazing brass and steel for valves and end plugs

Objective Heating brass and steel end plug assemblies for brazing.

Material 0.5-2.03“(12-52mm.) brass pipes, 0.31-0.5“(7-13mm.) brass end caps, braze, flux

Temperature 1300°F (704°C)

Frequency 136 kHz

Equipment

- Ambrell 10kW induction heating system, equipped with a remote workhead containing four 1.5 μ F capacitors for a total of 1.5 μ F
- An induction heating coil designed and developed specifically for this application.

Process A three-turn single-position coil is used to generate the necessary power for the smaller parts and the largest part with the shoulder built into it. A braze pre-form is placed on the assembly. All braze joints are then fluxed prior to heating. The induction heating is turned on and the braze flows well. After the power is turned off, the parts are washed with water to remove the excess flux.

Narrative

- The process currently takes 60 seconds per joint. The customer is currently using a torch to complete the braze joints. They wish to improve repeatability for a better process.

Results/Benefits Induction heating provides:

- Hands-free heating that involves little operator skill for manufacturing
- Even distribution of heating
- Repeatable, consistent precise heat.
- **Safety:** flame is not used; no bottled gasses required



Smaller steel tube and end plug assembly being brazed



Larger steel end plug prior to brazing



Multiple steel and brass assemblies brazed in this application