

Induction Brazing a carbide to a stainless steel shaft

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
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Objective : Brazing a cone shaped carbide to a stainless steel shaft for a digger

Material : Cone shaped carbide 1.12" (28.4mm) dia, 1.5"(38.1mm) tall, stainless steel shaft 1.12" (28.4mm) dia and various length, black brazing flux and braze shims

Temperature : 1500 °F (815 °C)

Frequency : 227 kHz

Equipment :

- HF 15kW induction heating system, equipped with a remote workhead containing two 1.0µF capacitors for a total of 0.5µF

- An induction heating coil designed and developed specifically for this application. Process A three turn helical coil is used to braze the carbide to the shaft. The steel shaft is fluxed and the braze shim placed on top. The carbide tip is fluxed and placed on top of the shim, lining up the countersunk hole in the carbide.

The hole is not fluxed because the flux outgases and causes the carbide to build up pressure and attempt to repel from the shaft. Power is applied for 85 seconds for the braze shim to flow and make a good joint.

Results/Benefits

- Rapid localized heating only where needed
- Creates clean, controllable joints
- Hands-free heating that involves no operator skill for manufacturing

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Bottom of carbide (showing countersunk hole) and shaft

