

Brazing Aluminum with Induction



Experience the Excellence.™

A Smarter Brazing Solution

Replacing Torch and Furnace Brazing with Induction Brazing

Torch brazing is the most common form of brazing today, but requires a skilled operator. However, many manufacturers are finding it harder to find experienced brazing operators and the open flame raises regulatory and safety concerns in manufacturing plants.

Furnace brazing is another widely used brazing technique. Manufacturing companies today are looking to improve production efficiency, reduce manufacturing costs and replace energy and space inefficient furnaces while improving product quality.

Induction brazing addresses the issues of torch and furnace brazing by removing the requirement for a skilled operator, by reducing energy costs and by decreasing the equipment footprint while implementing a lean manufacturing process for higher quality parts.

Whether you're concerned with throughput, part quality or manufacturing efficiency, induction heating is the ideal brazing method for your process.



Will Induction Work for Me?

A hallmark of the Ambrell experience is complimentary laboratory testing. Ambrell's applications engineers will test your parts, determine the correct system based on your requirements and also determine the optimal coil design. While we're delighted to teach you about induction, we'll make implementing induction easy.



Why Ambrell?

Ambrell has over 17,000 systems installed in over 50 countries, and many of them are brazing application installations.

Induction heating is an ideal method for brazing. It's our most common application; used daily in many different industries across the world.

We also offer exceptional customer service before and after the sale. Your specific brazing application will be analyzed and tested in the nearest Ambrell Applications Lab. There is no charge, and you will receive a system recommendation designed to deliver the best possible solution for your brazing requirements. Ambrell delivers the expertise, innovation and system quality to give your company a competitive edge.

Induction brazing offers numerous benefits:

- Throughput: Induction generates heat only to the portion of the part needed for brazing
- Better efficiency
- Better quality with less part distortion
- Repeatability: After the coil and heating process are defined, you can count on a precise, consistent quality braze every time
- Easy Integration into a lean manufacturing process
- Safety: No open flame or hot furnace
- Small Footprint: Frees up valuable factory floor space

Aluminum Brazing

Aluminum requires a lot of energy to heat using induction and its thermal conductivity is 60% compared to copper. Coil design and time for the heat to flow is critical in a successful induction brazing process for aluminum parts. Recent advances in lower temperature aluminum braze materials have allowed induction to effectively replace flame and furnace heating in high volume brazing of aluminum assemblies.

Successful brazing of aluminum parts requires the correct braze filler material for the aluminum alloy used in the parts and the correct flux for the braze alloy. Braze filler manufacturers have their own proprietary aluminum braze alloys and flux materials that work with their alloys.

Braze manufacturers supply filler materials with the flux inserted in a core or channel making the aluminum brazing process much easier.

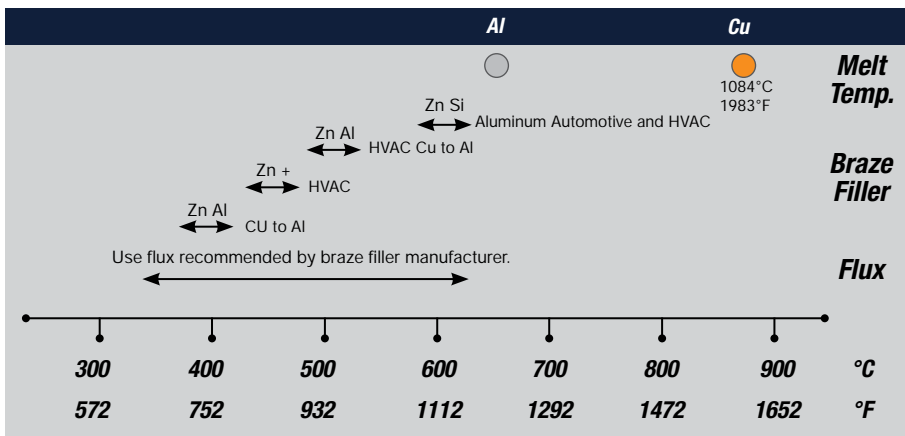


Replacing torch brazing of aluminum tubing to air conditioning evaporator. Using flux cored aluminum braze rings and a split helix induction coil for easy access to the joint area. 5 kW at 260 kHz for 12 seconds to 565°C (1050°F).



Brazing an aluminum cable fitting onto an aluminum tube for bicycle manufacturing. 20 kW at 10 kHz for 45 seconds to 482°C (900°F) using stick fed braze. Two parts were brazed simultaneously in a two position coil.

Aluminum Brazing Materials Temperature Spectrum



There are many suppliers providing braze fillers and flux designed for different materials and different brazing temperatures.

Custom Service and Solutions

We will work closely with you to design an induction heating solution for your aluminum brazing needs. Ambrell stands by a firm commitment to service and support that goes well beyond the sale. Our service department is always on-call for preventive maintenance and timely emergency support. We'll be there to maintain operational excellence and to be sure our solution continues to meet your needs – now and in the future.

EASYHEAT™



EASYHEAT™
1.2 and 2.4 kW
Used for brazing small parts.



EASYHEAT™
4.2, 6, 9, and 10 kW
Used in many brazing applications where parts are small or thin walled, or several parts are brazed at the same time.

EKOHEAT™

With VPA Technology™



EKOHEAT™
10 and 15 kW
Used in many brazing applications where the parts have more mass.



EKOHEAT™
30 and 45 and 50 kW
Used in brazing applications where faster heat up times are required and larger parts are being brazed.



About Ambrell

Founded in 1986, Ambrell is a global leader in the induction heating market renowned for our application and engineering expertise. Exceptional product quality and outstanding service and support are at the core of our commitment to provide the best customer experience in the industry.

We are headquartered in the United States with operations in the United Kingdom and the Netherlands. All products are engineered and made at our manufacturing facility in the United States, which is ISO 9001:2015-certified. Over the last three decades we have expanded our global reach through an extensive distribution network and today we have more than 17,000 systems installed in over 50 countries.



Ambrell[®]
INDUCTION HEATING SOLUTIONS
an InTEST Company

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