



**Ambrell®**

INDUCTION HEATING SOLUTIONS

an inTEST Company



# **Induction Heating for Aerospace and Defense Manufacturing**

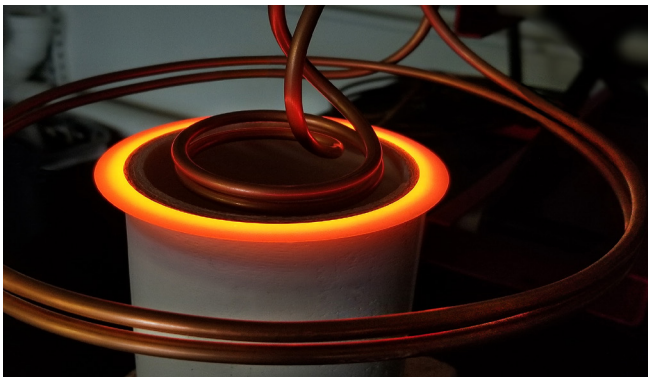
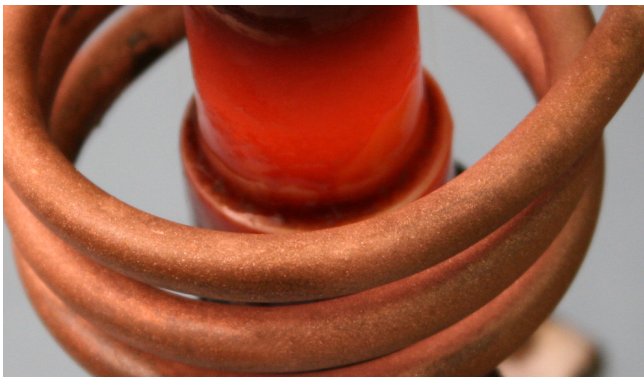
*Experience the Excellence.™*

## What is Induction Heating?

Induction heating is a non-contact heating process that uses electromagnetic induction to heat electrically conductive materials.

An alternating current is passed through a coil, which creates a magnetic field. When a conductive part is placed in the magnetic field, an electric current is induced in the object. The resistance of the object to the current generates heat, which in turn heats the part.

Induction heating is used for a number of manufacturing applications in the aerospace and defense industry. This is because of induction heating's versatility and efficiency among other benefits, and the applications are numerous including preheating for welding, brazing, heat staking, heat treatment and much more.



## Benefits of Induction Heating for Aerospace and Defense Manufacturing

### Efficiency

Induction heating is very efficient, with up to 90% of the electrical energy converted to heat for exceptional energy savings and environmental benefits.

### Accuracy

Induction can be used to heat specific areas of a workpiece with extreme accuracy while excluding areas that do not require heating. This is important for aerospace manufacturing, where parts must be manufactured to precise tolerances.

### Repeatability

Induction heating is a very repeatable process so you can expect the same results in your production process and ensure consistency and quality in your aerospace and defense components.

### Speed

Induction heating is a rapid heating method – often faster than competitive heating methods – which can reduce cycle times and increase production throughput.

### Cleanliness

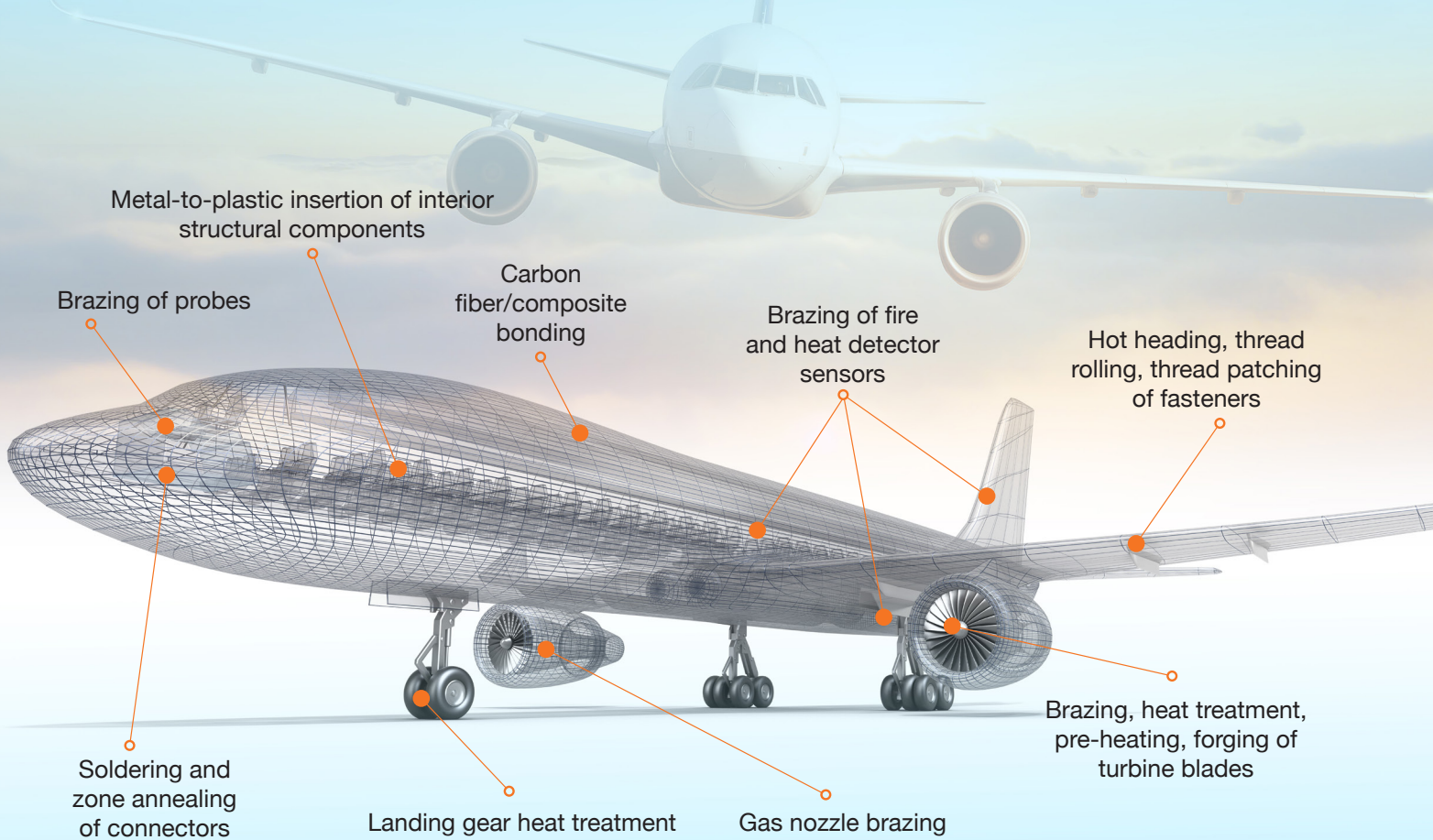
Induction heating is a clean process that does not produce any fumes or smoke making it a safe and environmentally friendly heating method.



## Experience the Excellence

Have our team of expert engineers design and test the optimal solution for your aerospace application, free of charge. Our innovative and effective induction heating solutions consistently deliver performance excellence in one application after another. It's why THE LAB is the gold standard in the industry.





## Aerospace and Defense Applications

### Brazing

Induction heating can be used to braze aerospace components for a strong and reliable joining method ideal for applications including but not limited to the brazing of probes, heat detector sensors and gas nozzles.

### Heat Treatment

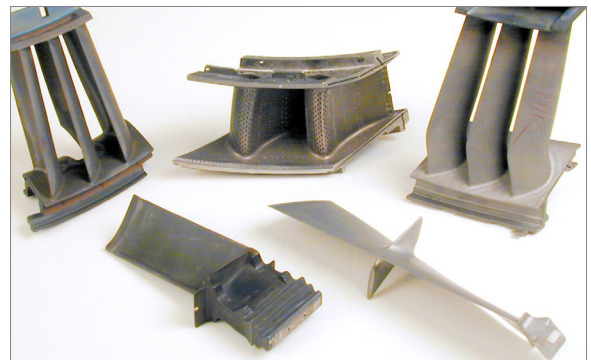
Heat treatment improves the durability, strength, and hardness of components. Ideal induction heating applications include landing gears, turbine blades, and engine parts.

### Preheating for Welding

Induction heating can be used to preheat parts prior to welding for aerospace components such as turbine blades. It's a fast, precise, and repeatable preheating method that reduces cycle times.

### Other Applications

Induction heating is also used for other applications in aerospace manufacturing, such as curing composites, soldering and zone annealing connectors, heat staking internal structural components, bonding materials, and shrinking fitting parts.





*Our global reach includes a direct sales team along with an extensive distribution, channel partner and OEM network.*

## About Ambrell

Founded in 1986, Ambrell Corporation, an inTEST Company, is a global leader in the induction heating market. We are renowned for our application knowledge and engineering expertise. In addition, our exceptional product quality and outstanding service and support are at the core of our commitment to provide a superior customer experience.

We are headquartered in the United States with additional operations in Europe including the United Kingdom and the Netherlands. All Ambrell products are designed, engineered and built at our manufacturing plant in the United States, which is an ISO 9001-certified facility. Over the last three decades we have expanded our global reach through an extensive distribution and OEM network, and today we have more than 20,000 systems installed in over 50 countries.



[www.ambrell.com](http://www.ambrell.com)

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