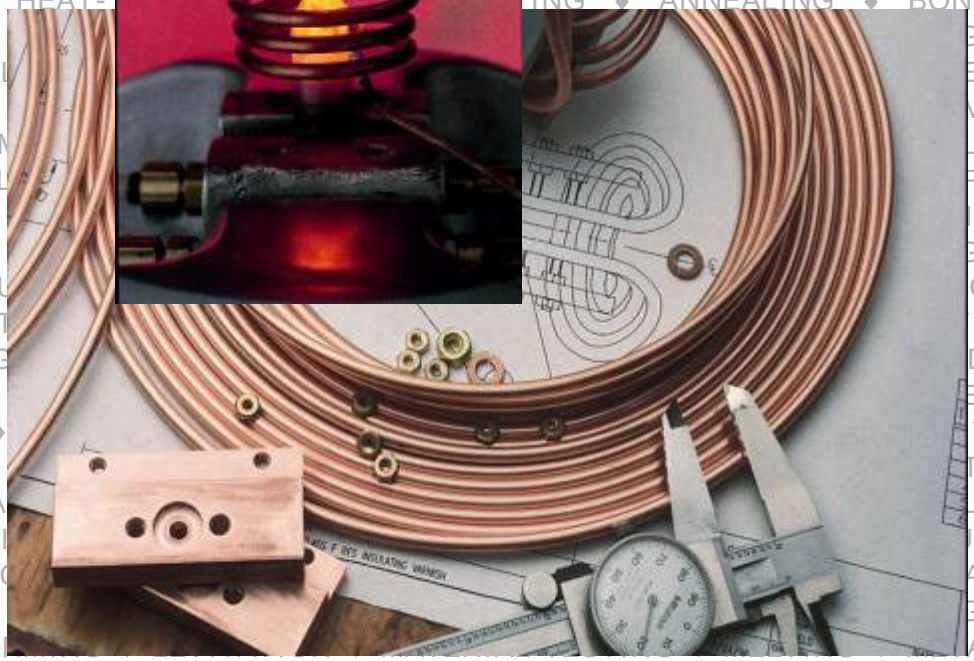
AMBRELL

Precision Induction Heating

Solving Your Precision Heating Problems



ANNEALING ♦ BONDING ♦ RUBBER/METAL ♦ BRAZING ♦ CAP SEALING ♦ CARBIDE TIPPING ♦ CATHETER TIPPING CRYSTAL PULLING ♦ CURING ♦ FORGING ♦ GETTER FIRING ♦ HARDENING ♦ HEATING ♦ HOT FORMING ♦ LEVITATION ♦ MATERIAL TESTING ♦ MELTING ♦ METAL-GLASS SEALING ♦ METAL-PLASTIC STAKING ♦ MOCVD ♦ PIN SEALING ♦ PLASTIC REFLOW ♦ SHRINK FITTING ♦ SOLDERING ♦ SUSCEPTOR HEATING ♦ ANNEALING ♦ BONDING ♦ RUBBER/METAL ♦ BRAZING ♦ CAP SEALING ♦ CARBIDE TIPPING ♦ CATHETER TIPPING♦ CRYSTAL PULLING ♦ CURING ♦ FORGING ♦ GETTER FIRING ♦ HARDENING ♦ HEATING ♦ HOT FORMING ♦ LEVITATION ♦ MATERIAL TESTING ♦ MELT-

AMBRELL

Worldwide heating resources at your fingertips...

Reputation Built on Experience:

With a reputation for quality built on our 60 years' experience, the Ambrell companies — Ameritherm Inc. in the USA, Cheltenham Induction Heating Ltd. and Ameritherm France SARL in Europe — provide you with effective precision heating solutions. Our equipment, installed in over 40 countries, is supported by our network of dedicated induction heating experts.

If you want to improve your heating — anywhere in your process — consult with the Ambrell team for cost-effective, high-efficiency solutions. Ambrell's technical experts throughout the world design and manufacture a range of systems to bring you the best induction heating solutions available.

Re-investing over 10% of revenue, we are dedicated to inventing, developing and introducing innovative technology to improve our customers' manufacturing processes. Ambrell group engineers and scientists hold over 20 technological patents, supporting you with the newest induction heating advances.

Manufacturing and Research:

Ambrell equipment is used by a variety of manufacturers — both large and small — and for research by leading universities, research centers and material testing laboratories. Our systems are used worldwide on manufacturing lines and laboratories, producing results 24 hours a day, seven days a week.

What is induction heating?

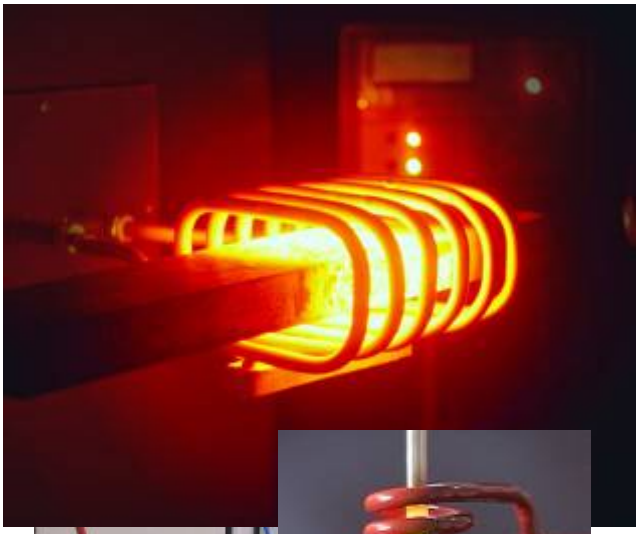
Induction heating is an efficient, rapid, non-contact, flameless method to heat electrically conductive materials. This process relies on induced electrical currents within the material to produce heat. Michael Faraday discovered the phenomenon of electromagnetic induction in 1831, and its uses are widespread throughout today's modern manufacturing processes.

Components of induction systems:

- **Power supply** : generates radio frequency alternating current
- **Work head** (heat station): contains resonant and system-matching components
- **Coil**: wraps around or near part to heat. Unique to every application; precisely delivers the power.
- **Cooling system**: for the coil and the power supply.

...with maximum return on your heating investment!

Engineered with the most advanced induction heating technology, our innovative, state-of-the-art equipment will generate value with:



Improved Productivity:

- Increase production rates with faster heating cycles
- Reduce defect rates with repeatable, reliable heat
- Eliminate variability from operator-to-operator, shift-to-shift

Improved Energy Efficiency:

- Use less energy — immediate heating
- Generate heat only where needed; no wasted energy
- Produce no harmful exhaust gases
- Reduce energy costs with our high AC mains power factor
- Convert AC mains to RF power with our advanced product designs

Improved Design; Integration:

- Requires a small footprint
- Integrates well into production cells
- Uses compact workhead, optimizing workspace
- Integrates with automated controls systems (analog & digital I/O)
- Presents user-friendly interface
- Carries built-in operator safety features

Improved Features:

- User-friendly adjustable tap settings, interchangeable coils
- Convenient bench models
- Wide range of frequencies (1-400 kHz) and power (50 watts to 350 kW)
- Interchangeable induction coils

Ambrell group engineers and scientists have over 20 technological patents and our equipment is installed in over 40 countries.

AMBRELL

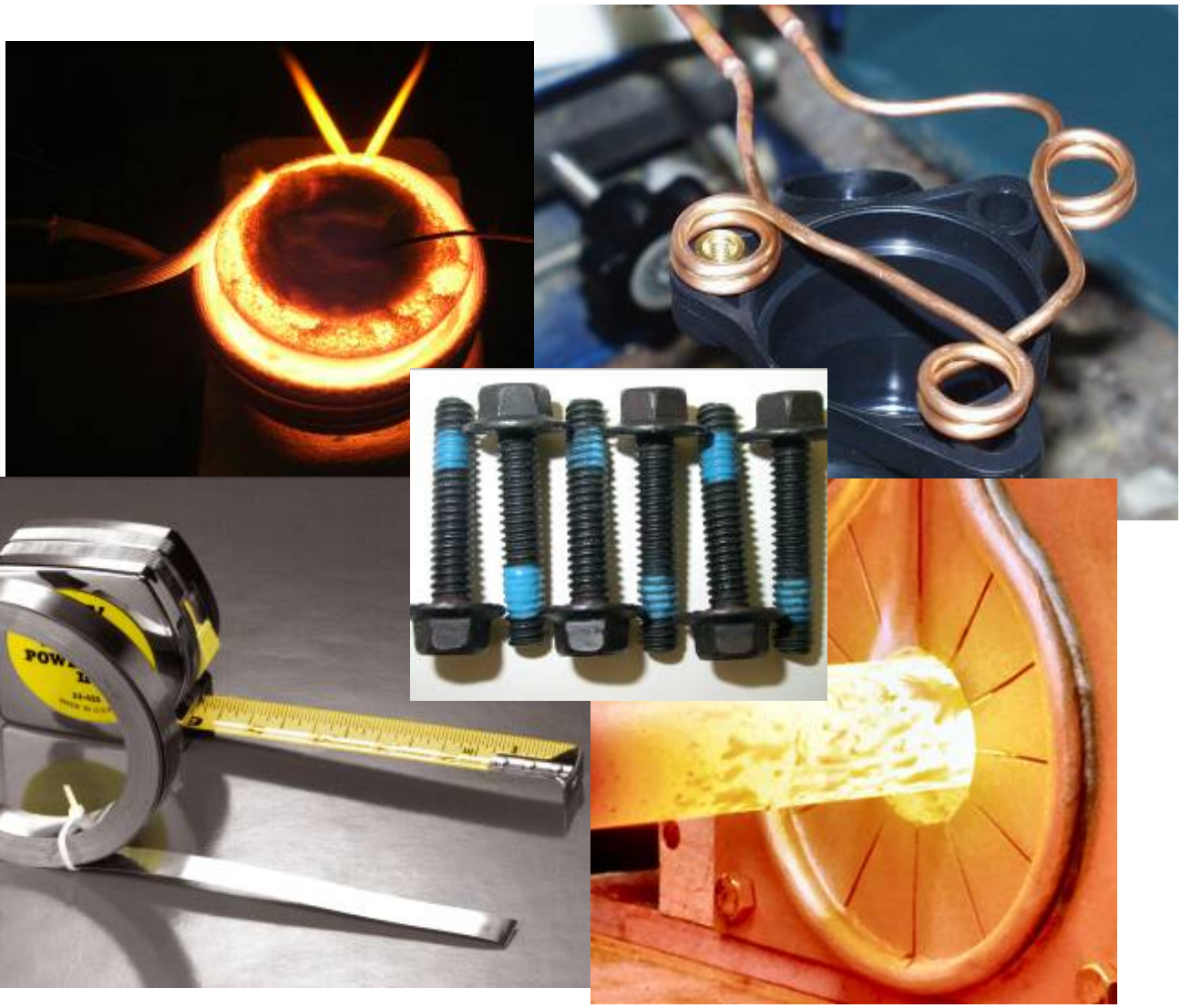
With solutions across many applications and industries...

Expert Solutions:

Our application engineers have provided induction heating solutions for thousands of applications across a wide range of industries. Our broad scope of knowledge is constantly increasing as new uses of induction heating principles are developed in our labs and in cooperation with our customers.

Heating versatility:

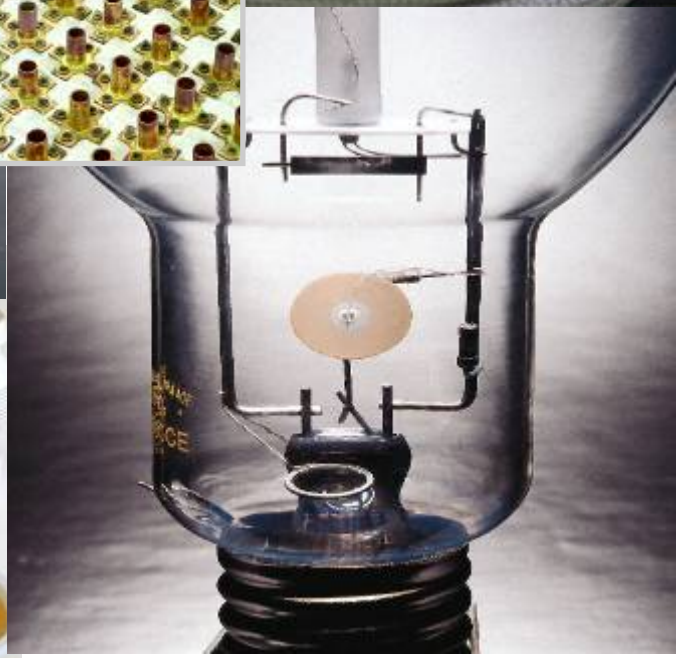
- Very quick heat cycles — as short as milliseconds
- Very long heat cycles — as long as days
- Heating of very small parts — down to nano-particles
- Heating of very large parts — such as undersea piping and steel billets



For the **stories** behind these pictures, visit http://stories.ambrell.com

...we may have already solved your heating challenge!

Our experts apply many years of induction heating experience and knowledge to **your** heating application. We've provided effective solutions for many different industries, not limited to medical, automotive, semi-conductor and aerospace. Our Application Engineers analyze your process, heat your parts and make recommendations. We encourage you to schedule a visit to any of our Applications Labs to work on your application with our induction experts.



Our broad scope of knowledge is constantly increasing as new uses of induction heating principles are developed in our labs and in cooperation with our customers.

AMBRELL

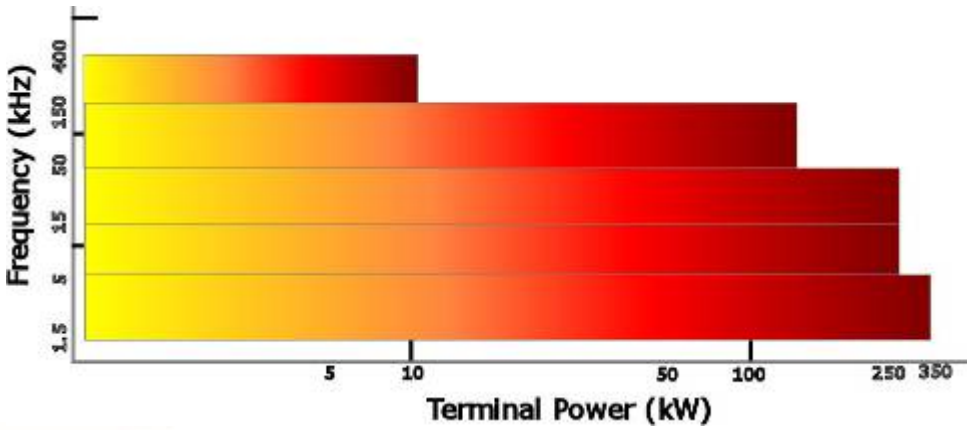
Whether you use induction now...

Systems for many requirements:

We can help you to improve your processes, whether heating nanoparticles, forming tiny medical devices, pre-heating large turbine blades or welding undersea pipe for the oil & gas industry.

Our systems are right-sized for a multitude of applications.

Delivering power from 50 watts to more than 350 kilowatts over a frequency range of 1.5 to 400 kilohertz, we have a system to ensure the optimal solutions for all of your heating challenges.



System benefits, features:

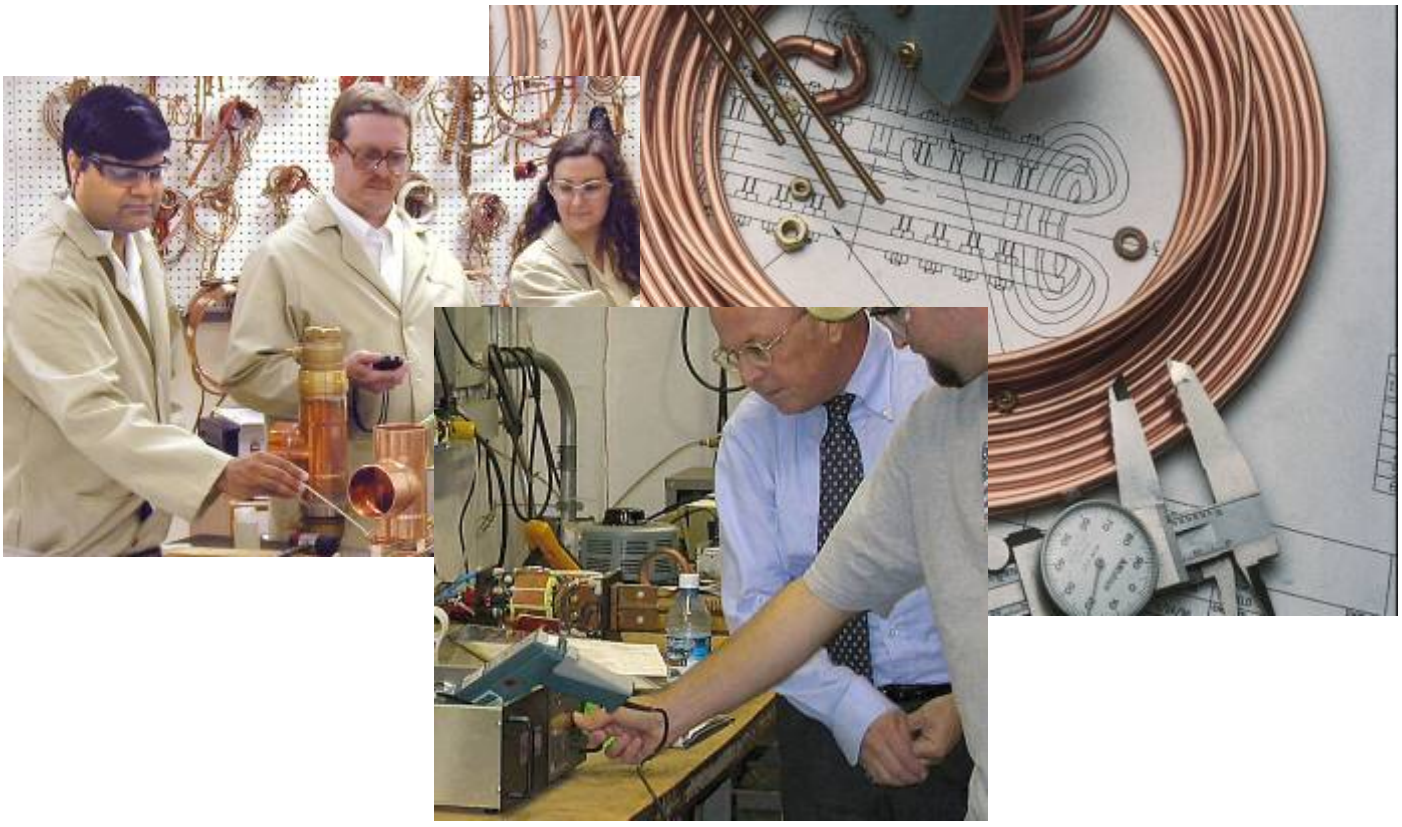
- Heats only your part; reducing wasted energy
- Easy-to-use display and control interface
- Movable workheads for versatile integrations
- 100% duty-cycle for demanding, automated processes
- Auto-tuning heats parts of many sizes, compositions and geometries
- Automation-ready with digital, 0-10 volt and 4-20 mA I/O
- RS 485 interface for serial control, monitoring and data logging
- Accepts a range of international mains voltages
- Configurable heating profiles for semi-automatic control and process management
- CE marked

Accessories for complete solutions:

- Range of water cooling systems for varying ambient conditions
- Temperature controllers and pyrometers
- Changeover switches for multiple workheads

...or you need our advice, expertise or experience!

Concentrate on your products and services; bring your heating challenges to our experts. We'll apply our extensive knowledge of applications and techniques to develop your custom solution. Partner with Ambrell for the very best technology, service and support to meet your unique heating requirements, cost-effectively, on time and with confidence.



How we can help:

- Application engineering experts work with you to understand your unique requirements.
- Feasibility testing is performed in our labs to determine the optimal equipment and settings.
- Our experience with the science of induction provides you the most efficient coil configurations.
- Coil fabrication and testing is conducted in-house.
- Systems are designed, built and tested in our USA and UK manufacturing facilities.

Factory-trained service technicians can be dispatched to your facility for:

- System set-up and start-up
- Post-installation service
- Preventive maintenance and training
- Emergency service

Concentrate on your products and services. Bring your heating challenges to our experts; we'll develop your custom solution.

AMBRELL

Precision Induction Heating

"The worldwide Ambrell team is dedicated to supplying the finest induction heating solutions, products, service and applications network. We are committed to provide local resources and innovative solutions in key locations to support our customers promptly and professionally. We are the best at what we do, and we will continue to improve our global organization to provide you with superior value."

Richard Rosenbloom, Ambrell CEO and Chairman

Ambrell group of companies:

Ambrell	www.ambrell.com	info@ambrell.com	
Ameritherm Inc. (USA)	www.ameritherm.com	info@ameritherm.com	+1.585.889.9000
Cheltenham Induction Heating, Ltd. (UK)	www.cihinduction.com	info@cihinduction.com	+44(0)1242.514042
Ameritherm France SARL	fr.ambrell.com	info@ambrell.com	+33(0)3.89.76.01.24

For the list of Ambrell's global partners, distributors and agents, visit contact.ambrell.com

411-0061-00 | rev A | ©2008 Ambrell | All information subject to change without notice