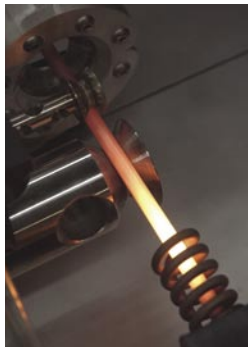
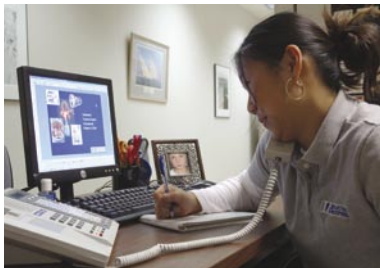


IA

INDUCTION ATMOSPHERES



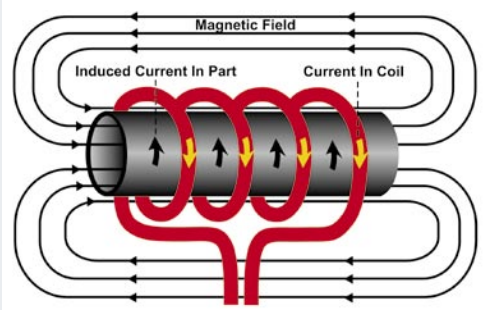
Turnkey | Induction Heating | Solutions



**For Brazing, Welding, Hardening,
Annealing, Heat Staking & General
Purpose Heating**

How Induction Heating Works

How exactly does induction heating work? It helps to have a basic understanding of the principles of electricity. When an alternating electrical current is applied to the primary of a transformer, an alternating magnetic field is created. According to Faraday's Law, if the secondary of the transformer is located within the magnetic field, an electric current will be induced.



In a basic induction heating setup, a solid state RF power supply sends an AC current through a copper coil, and the part to be heated is placed inside the coil. The coil serves as the transformer primary and the part to be heated becomes a short circuit secondary. When a metal part is placed within the coil and enters the magnetic field, circulating eddy currents are induced within the part. These currents flow against the electrical resistivity of the metal, generating precise and localized heat without any direct contact between the part and the coil.

Advantages of Induction Heating

Why choose induction heating over convection, radiant, open flame or another heating method?

OPTIMIZED CONSISTENCY - a repeatable, consistent heat pattern with precise temperature control

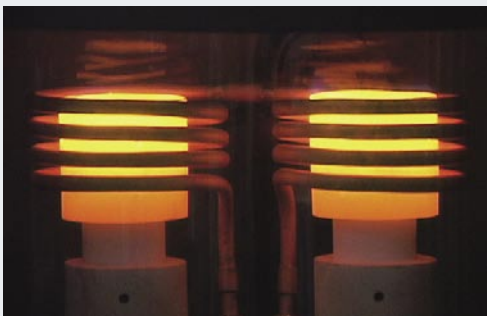
MAXIMIZED PRODUCTIVITY - virtually instantaneous startup, without ramp up or cool down time

IMPROVED PRODUCT QUALITY - the part being heated never touches a flame or other heating element, minimizing warpage, distortion & reject rates

EXTENDED FIXTURE LIFE - precise heat control maximizes life of the surrounding mechanical setup

ENVIRONMENTALLY SOUND - a clean non-polluting process which requires no fossil fuels

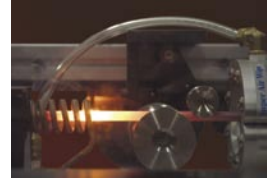
REDUCED ENERGY CONSUMPTION - up to 90% energy-efficient, no warm up or cool down required



Turnkey Induction

Induction Atmospheres (IA) designs and manufactures customized, turnkey induction heating systems for industrial brazing, welding, heat treating, heat staking and many other applications. IA is the only independently-owned industrial heating system integrator working solely with induction-based technology.

As an independent integrator, we're not limited to a single brand or line of induction heating equipment. We've worked with power supplies from all the leading manufacturers and understand that identically-rated models from different suppliers will have unique performance/reliability characteristics. We take pride in utilizing the brand and model of power supply that is best suited to your long-term application requirements.



Testing

The first step of our product development process is to determine how induction heating can be integrated into your manufacturing process. Although the basic principles of induction heating theory are well known, it requires many years of experience to refine these principles into cost-effective industrial manufacturing solutions. In our Application Lab, we'll evaluate your part samples and determine the best heating approach.

The efficiency of an induction heating system for a specific application depends on several factors: the characteristics of the part itself, the coil design, the power supply's capacity and the degree of temperature change required. IA's independent engineering staff has the experience to take your part and design an induction heating solution around it, determining the optimum coil design, capacitor configuration and power supply for effective, consistent heating.



In his three decades of induction heating experience, IA's chief engineer has worked on hundreds of applications and understands what made each one successful. To be able to draw on this experience of what worked in the past – and what didn't work – is a key factor in determining the best solution for each new application. His experience with induction heating technology includes the design of an entire series of

induction power supplies. The development staff has over 100 years of combined experience and has worked together since 1998.

Tools

SolidWorks® Office Professional	AutoCad	RS View®, RSLogix™, RSLinks™	Wonderware™	LabVIEW
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Controllers

Robot Language Controllers	PC Control	PLCs from Allen Bradley, GE Fanuc, XYCom, NIST, Siemens, Modicon, Automation Direct, Texas Inst.
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Communications

Data Highway	Modbus	Ethernet	DeviceNet™	Remote I/O	Profibus
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Chassis & Platforms

Synchronous motion machines	Servo, DC and AC rotary indexers	Linear motors, linear indexers, gantries
Cartesian, articulated and SCARA robotics	Power and free conveyor systems	Cam-driven machines

Integrated Equipment

Atmosphere Control Systems	Vibratory bowls, centrifugal feeders, step feeders, tray feeders, tape or reel feeders, vision-guided feeders
Encapsulation machines	Pressure decay, pressure rise, mass flow and mass spectrometry leak detectors
Screw, nut and torque drivers	US Welders, CO2 and ND:YAG laser welders, laser markers, electron-beam welders
Soldering units	Induction heating equipment

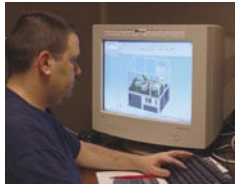
Heating Solutions

Induction Heating	Adhesive & Gasket Cleansing	Atmosphere Control (Argon, Nitrogen, Helium, Hydrogen, Oxygen)
Vacuum Systems	Parts Washing Systems	Pressure Decay, Pressure Rise, Mass Flow & Mass Spectrometry Leak Testing
Soldering	Swaging, Cutting	Vision Inspection, OCR, Defect Analysis, Dimension Verification
Forming	Impact Marking	Welding (resistance, ultrasonic, CO ₂ , ND:YAG)
Ink Jet Printing	Label Printing / Application	Gloss, Surface Profile, Durometer Inspection
Flow Testing	Heat Stamping	Thermal Transfer

IA Core Competencies

Engineering

The process of designing the mechanics to support the induction heating system along with the fixturing to move the customer's parts in and out of the heating zone requires an experienced engineering team that is not afraid of innovation. Quite simply, IA's mechanical engineering staff knows how to move parts, and consistently designs innovative, cost-effective systems which meet and frequently exceed our customer's process requirements.



After the effectiveness of induction heating for a specific application has been demonstrated in our Applications Lab, our system integration process begins with a two-dimensional concept drawing. With customer feedback, the drawing is refined and expanded into a three-dimensional solid model of the proposed system. Your Project Manager will coordinate all aspects of your system development and ensure that your budget, schedule and quality requirements are met.

Manufacturing

As system development proceeds to the manufacturing stage, periodic customer design reviews ensure that there are no surprises at any stage of development. Internal reviews – our entire group of mechanical engineers regularly meet to review each other's work – ensure that the evolving system design will have the benefit of the entire team's experience and input. Mechanical Engineers, Control Engineers and Senior Machinists participate in these reviews, while our customer monitors and provides feedback on the emerging three-dimensional model via a password-protected website. Our engineers will get to know your engineers very well before your system is completed.



Our in-house machine shop is equipped to supply a majority of the machined components for our turnkey systems. Having this capability reduces lead time and system costs, and ensures a higher quality product. Our machine shop does not handle any production work; they are exclusively dedicated to the production of IA integrated heating systems.

Bridgeport Mills	HAAS VF-4 CNC Vertical Mill	Shear, Bender, Brazing
17" Lathe	Horizontal and Vertical Band Saws	Paint Booth
Drill Presses	MIG, TIG, resistance welding	Powder Coating
Grinders	Large equipment, material handling	Encapsulation

Machine Shop Equipment

So if you're searching for an independent integrator to design and build a turnkey manufacturing system from top quality components...if your lean manufacturing initiatives dictate the replacement of outdated, energy-hogging production equipment...if your production requirements demand higher yields with reduced downtime...then call us today at 585-368-2120 to arrange a complimentary evaluation of your parts and process requirements!

Global Customer Satisfaction

IA has developed strong working relationships with Fortune 500 customers in the medical, aerospace and automotive industries. A partial client list includes:

General Electric	Bechtel
Boston Scientific	Saint Gobain
Siemens	Haworth
General Motors	US Army
Taiwan Power	Emerson
Worcester Polytechnic Inst.	Tyco
United Technologies Corp.	Dana
Lufthansa Technik	NASA
Magnum Shielding	Corning
Honeywell	Chromalloy

Free Parts Evaluation Service

Have You Ever Asked Yourself:

- *Isn't there a better way to heat these parts?*
- *Why can't I heat my parts with more precision and consistency?*
- *Isn't there a more energy-efficient way to run this heating process?*
- *Why does this process take so much time?*

IA's free parts evaluation service is designed to answer all these questions and more – before you commit to any investment! Simply send us samples of your parts and tell us about your process – we'll analyze your application requirements, determine the optimum combination of RF power and coil configuration for your parts and give you our best advice!

With this service, you can tap into our reservoir of induction heating experience without any purchase obligation. The IA engineering staff has worked with parts of virtually every size and shape in hundreds of different applications. Contact us today and make arrangements for a free evaluation of your part heating requirements!



Induction brazing in a controlled atmosphere can dramatically reduce oxidation, scaling & carbon build-up.

Heating Applications & System Solutions



Brazing, Welding



Brazing, Welding



Aerospace Welding



Heat Treating



Turntable Brazing



Brazing



Brazing, Melting, Heat Treating



Brazing, Whole Part Heating



Hydrogen Brazing



Brazing



Brazing, Welding



Rod Annealing



Heat Staking



High Vacuum Brazing



Aerospace Welding



Small Part Brazing