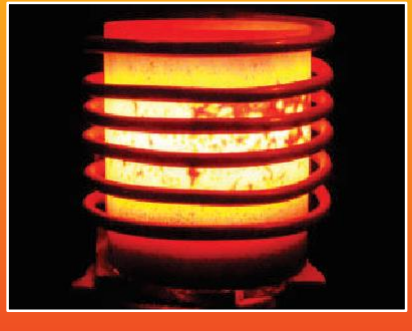
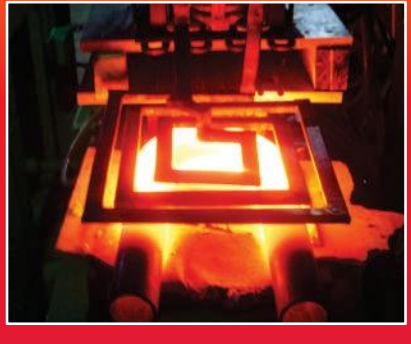
GROW CONTROL
POWER TECH PVT. LTD.
We Provide Solutions....

Induction Heating Solutions

- Indigenous Technology
- IGBT/MOSFET Resonant Conversion Technology
- PLL Based Frequency Tracking
- Power Range - Kilo Watt to Mega Watt
- Frequency Range - 400Hz to 1000KHz
- CNC / Computer / PLC Control
- Temperature Feedback Control
- High Reliability & Rugged




An ISO 9001:2008 Company

GROW CONTROL
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About Us

GROW CONTROL Induction Heating Equipment Manufacturer that blends technology, innovation and engineering to transform concepts into world-class products and solutions.

With a core competency in High Frequency Inverters GROW CONTROL caters to Defence, Nuclear science, Space science, Research and General Industry Globally.

GROW CONTROL is backed by experienced and committed team of engineers, with in-depth Knowledge of technology. We have world class infrastructure and in-house research facilities and labs.

GROW CONTROL is actively involved in Design and Development of Induction Heating Systems and Solutions for Automotive, Aerospace, Ammunition and General Industry. We offer IGBT / MOSFET resonant conversion technology based solutions to the specific needs of the various industries.

GROW CONTROL is committed to develop advanced technology solutions from concept to final product.

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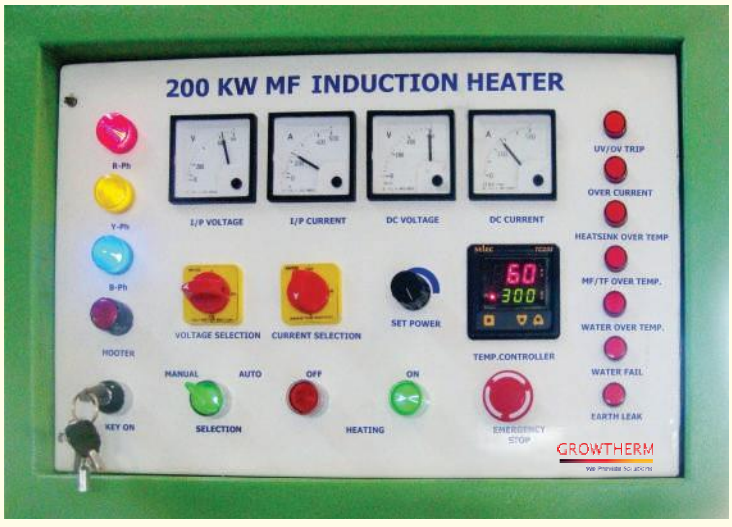
RESONANT INVERTERS FOR INDUCTION HEATING APPLICATIONS.



GROW CONTROL has expertise in developing resonant inverter for induction heating applications. We are the pioneers in INDIA to make IGBT based Resonant Inverter.

We are Specialized in providing complete Induction Heating Solutions to suit specific applications.

We have proven credentials of design, development and manufacturing of Induction Inverters from Kilo Watt to Mega Watt power and 400 Hz to 1 MHz frequency.

Having core competency in Induction Heating Technology, Machine Building and Control Engineering. We develop systems from concept to final solutions. We have developed many indigenous systems as import substitutes for Defence Production Centers, Power Sector, Railways , Aerospace Industry, Nuclear Research and General Industry.

Applications

- **Hardening**
- **Brazing**
- **Annealing**
- **Forging**
- **Pipe Bending**
- **Melting**
- **Bolt Heating**
- **Pre-Post Welding Heat Treatment**

Technical Features :

- Input Voltage : 415V±10%, 3Phase, 50Hz±3%, or any user specified voltages
- Output : Power up to MW level
- Frequency : 400Hz to 1MHz
- Input Power factor : 0.8
- Inverter topology : Resonant Inverter
- Power components : IGBTs or MOSFETs
- Output power factor : Near unity with PLL frequency tuning
- Controls : Manual or PLC/PC based
- Power Control : Output Power control "Manual / Auto" modes

Protection & Safety Interlocks

All necessary protections and safety interlocks are incorporated in all our Induction heating systems for safe operation of the Power source against over Voltage , over Current , over Frequency, phase failure, interlocks for doors, cooling water, temperature and pressure.

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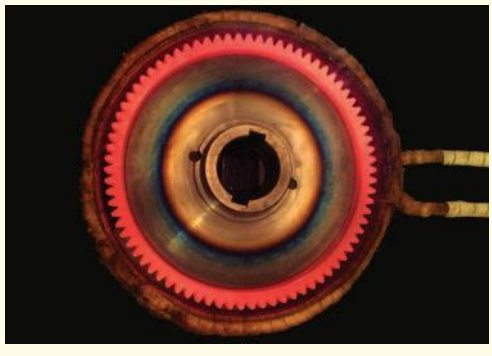
INDUCTION HARDENING SYSTEM

GROW CONTROL has rich experience in Design & development of Resonant Power Converters, has developed customized Induction Inverters for the Case Hardening Applications of Automotive , Aerospace and critical Defence Components. Our systems deliver consistent output power and repeatable accuracy to meet stringent requirements of the Aerospace and Defence components, Automotive and General Industry.

Features :

- **Solid State IGBT / MOSFET based design**
- **Resonant inverter controlled by feed back control ensures stable output power**
- **Highly efficient and reliable systems**





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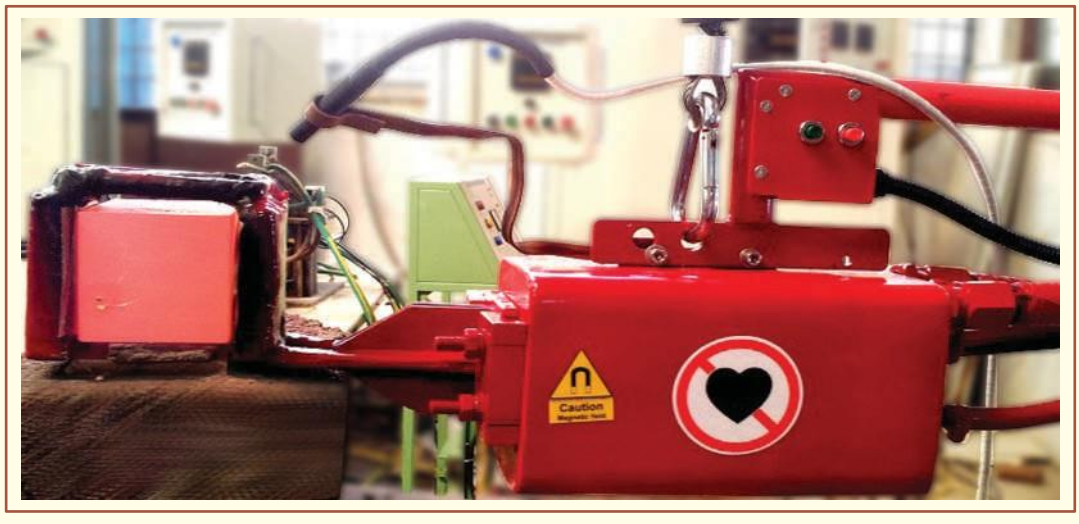
INDUCTION BRAZING SYSTEM

GROW CONTROL has developed special purpose Induction Brazing Machines for Brazing applications for Automotive, Aerospace, Defence sector and General Industry .

IGBT based Resonant Induction Inverter delivers precise heating power to the location where subsystems are to be brazed. Semi automated system facilitate faster and accurate brazing of subsystems.

We have successfully developed Brazing solutions for various applications for Industrial components, Automotive, Aerospace and other components. Brazing can be performed on various metals such as Aluminum, Brass, Copper, Copper alloys, Iron and Steel etc.

Induction Brazing process offers major advantage of heating the brazing location precisely, the heating of the brazing components are uniform, and it facilitates uniform flow of brazing filler material. The heat input can be controlled, timer can be provided for better repeatability. This can reduce the risk of overheating, which can lead to higher porosity and weaker joints.



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CARTRIDGE CASE INDUCTION ANNEALING SYSTEM

GROW CONTROL has developed complete reliable cartridge case annealing systems these systems consists of component orientation hopper, component feeding system.

Component conveyor feeds components to induction annealing coil. Components are rotated while passing through induction coil to anneal cartridge uniformly. IGBT resonant inverter based induction inverter delivers stable High Frequency heating power to the Induction coil.

PLC based supervisory control is having temperature monitoring system and data logging facilities which results in proper quality of components.

This system is capable of processing more than 15000 components per hour.

Features :

- **IGBT based resonant induction inverter**
- **Highly efficient & reliable**
- **Complete system consisting of component feeding hopper, component orientation mechanism and conveyor**
- **Rejection of unprocessed components**
- **Component counter**

INDUCTION HEATING FOR FORGING / PIPE BENDING

Induction heating is the preferred heating method for bending of larger thicker walled pipes. This is due to the focused narrow band heating offered by the induction process with the resulting higher quality bends with lower ovality and wall thinning than other bending methods. Because of this quality and accuracy, induction hot pipe bending is the preferred alternative to traditional fit-and-weld procedures, and can help companies meet the rigorous safety demands of the chemical and energy industries.

Hot pipe bending with induction involves placing an induction heating coil around the pipe at the bend point. Infra-Red (IR) Temperature measurement and control ensures proper temperature at bend location.

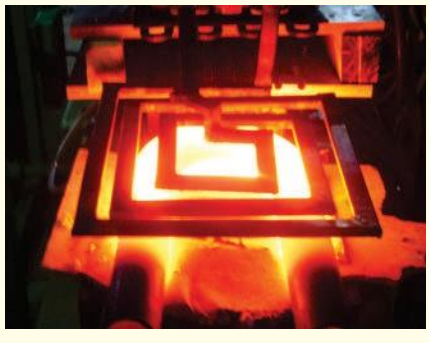
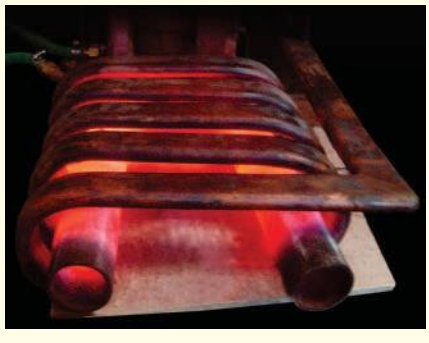
Induction heating is preferred heating method for billet heating for forging applications as it evenly heats the billets to the required temperature and also each billet is heated evenly.

Advantages

- **Temperature control**
- **Power distribution to match production rate**
- **High efficiency**
- **Standby and Rapid Start**
- **Flexibility**





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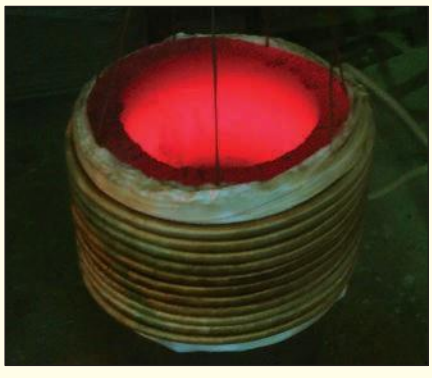
PRE & POST HEATING

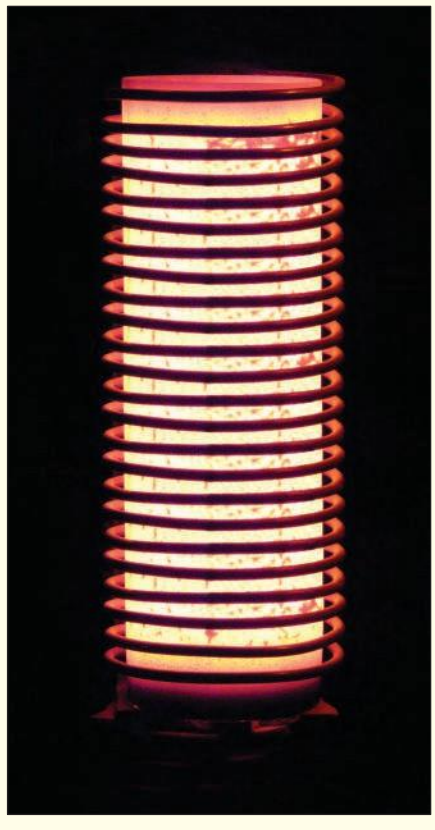
Induction Heating is used in industries for Pre-Heating primarily for Pre and Post welding in power sector, boiler tubes, pipe industries, Automotive sector and General Industry. In many cases, our preheating solutions are integrated into production lines.

In Induction heating, heat transfer is direct into the job there by minimizing heat loss and energy consumption while increasing the production rate and improving quality.

Feed back temperature control is possible for precise temperature control and long duration stress relieving cycle times. This makes it possible to reduce the temperature when welding and then achieve a lower cooling rate. Less risk of cold cracking and excessive hardening are some of the benefits.

We have provided solutions for several applications upto Mega Watt power levels.





INDUCTION SHRINK FITTING

Modern Induction Heating systems provides speed, accuracy and repeatability necessary to produce quality shrink-fitted joints. With a properly designed work coil, induction heating can uniformly heat the bore hole, producing repeatable expansion. With the remote heat station capability of solid state induction heating power supplies, shrink fitting can be done on the production line.

Applications

- **Turbine blades mounting and dismounting**
- **Fitting of rotors over shafts**
- **Compressor shells over the motor stator**
- **Axle housing extensions into axle beam bodies**

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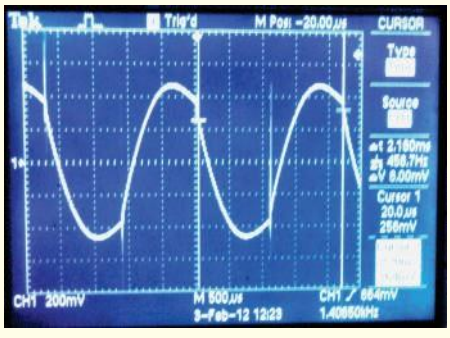
STUD HEATING / BOLT HEATING

Induction bolt heating is very versatile and effective heating method for heating bolts of heavy machinery like turbines, and very large size pumps. Induction heating effectively expands the bolts and facilitates easy tightening of bolts. The same principle can be used for loosening the bolts also. We have supplied several bolt heating induction heaters for various industries including NTPC.

Features :

- **IGBT based resonant induction inverter**
- **Highly efficient & reliable**
- **Hand held light weight MF transformer**
- **Quick change Induction job coils**
- **PLL frequency tracking for better power coupling**
- **Timer / temperature feed back operation**



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INDUCTION MELTING FURNACE'S

- **Self - Tunning Peak Power tracking circuit gives highest production & lesser power consumption**
- **IGBT Technology**
- **Customized induction melting furnace for all applications.**
- **Output Power Rating: 10 kW to 5000 kW**
- **Melting Capacity: 10 kg to 10ton**

These furnaces are ideal to melt all metals like Copper, cast iron, Aluminium, Steel, Brass, Silicon, Gold, Silver. These furnaces used in the Foundry, Castings. A high efficiency of the electrical output that drastically reduces electricity consumption while maintaining the production rate thanks to frequency conversion system we have used.
The modular construction of the electric circuit board greatly simplifies maintenance operations and guarantees high reliability even in the most demanding working conditions.
The highest technical standards used to design the inductors along with the modular construction and the use of only high quality materials guarantee maximum production.

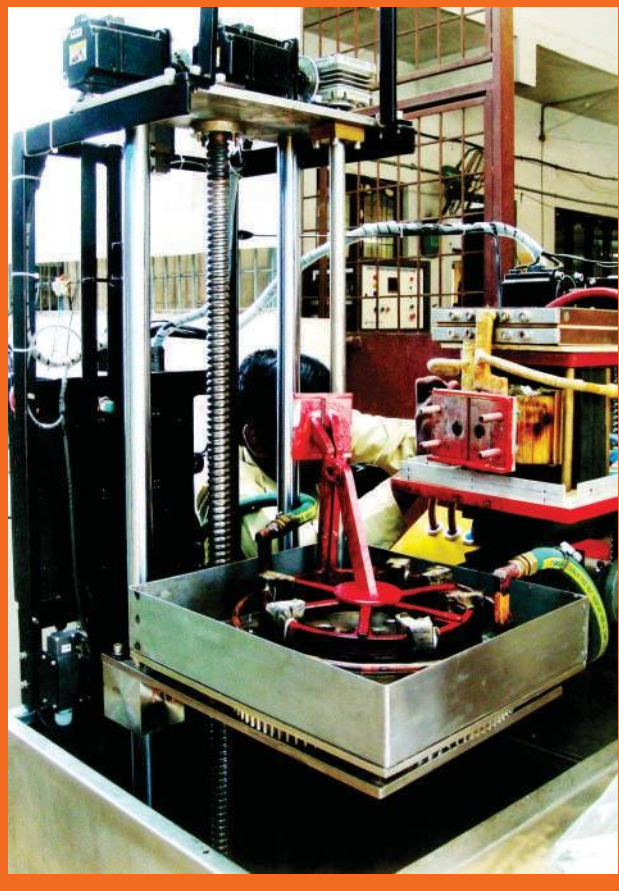
Features :

- Efficient IGBT based Induction Furnace
- Hydraulic operated tilting furnace.
- Self-diagnosing power source.
- Dedicated Technical support.
- Space-saving, compact designs that require less of your working space
- Hassle-free maintenance and minimal downtime
- Unparalleled durability for a long crucible life
- Improved production values through higher melting rates

DESIGN AND PROCESS CONSULTANCY

GROW CONTROL is having expertise in Induction Heating Technology and capability of building complete Induction Heating turnkey Solutions. We offer complete Design and Process consultancy for NEW Product / Process development for customized systems.

Turnkey Projects



OUR CLIENTS

BHEL · NTPC · NTECL Tamil Nadu Energy Company Limited, Vallur · BARC · BHARAT FORGE · THERMAX

and many more

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