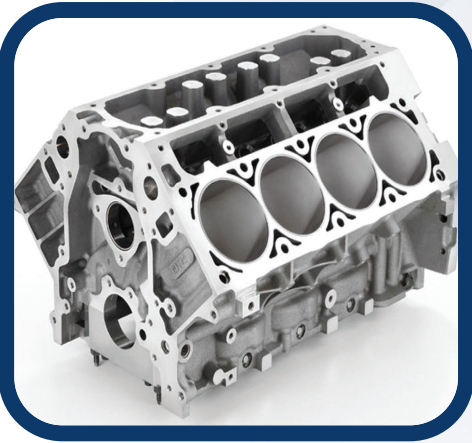


Manufacturers select ITS as their partner.

Partnership Philosophy: ITS approaches each project like a Partnership.

Technical Engineering: Drawing from decades of experience in various thermal applications, ITS engineering expertise and technical knowledge is unparalleled. Utilizing the best tools for the job, from the latest in engineering software packages to the most advanced control systems to actual field operations results, ITS engineering staff can design and manufacture the best solution for the thermal processing application.

Quality Control: Each piece of equipment is fully tested for performance in function, accuracy, safety systems, air management and temperature uniformity prior to shipment.



Technical Service Department

Our Technical Service Department provides international support for ALL makes/models of thermal processing equipment to keep the heat processing equipment running efficiently.

- Provide international service support for new installation, upgrade or modification to existing equipment.
- On-site engineering energy analysis of existing ovens and furnaces of all makes and models of thermal processing equipment.
- Experts with equipment manufactured by OSI, IHEI, LTG and ITS.

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We deliver specific heat processing solutions to diverse industries.

Partner with ITS for your heat processing needs. Contact a representative today to arrange for an on-site consultation to learn how we can maximize production efficiencies and minimize energy consumption.

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Batch Oven

Batch Ovens process products one at a time or in a single group.

Batch Oven configuration styles include truck, walk-in, and pass-thru and are engineered to accommodate various sized products. Batch Ovens can be used for a wide variety of heat processes including drying, curing, aging, annealing, stress relieving, bonding, tempering, preheating and forming. Batch ovens are essentially heated boxes with insulated doors that process products one at a time or in groups. The part(s) to be processed are brought into the oven in batches on racks, carts, or trucks. Production requirements can accommodate manual or automated loading.

Conveyor Ovens offer a variety of conveyance configurations.

Conveyor Ovens can be used for a wide variety of heat processes including drying, curing, aging, annealing, stress relieving, bonding, tempering, preheating and forming. In either a horizontal or vertical configuration, the Conveyor Oven offers the ability to handle high production rates. Loading product(s) into the Conveyor Oven can be manual or automated.

Conveyance Systems

Belt Conveyance Systems horizontally convey the parts through the oven on a conveyor belt. A Belt Style Conveyor typically interfaces with a processing line. The oven conveyor belt is set to the line pass height and speed (continuous or indexing).

Overhead Conveyance Systems feature an I-beam, enclosed track, or power and free conveyor where the part(s) are typically hung from a carrier or rack and travel through the oven in a continuous or indexing mode.

Chain Conveyance Systems convey the product thru the oven, in a horizontal or vertical configuration, where the parts or carriers are transported on a single strand or multiple strands of engineered chain.

Powered Roller Conveyance Systems convey the product or pallets horizontally through the oven on powered rollers in a continuous or indexing mode.

Walking Beam Conveyance Systems are typically used in indexing type applications where product spacing is critical or where environmental conditions preclude other conveyance styles. Bearings, drive components, and position sensors are located outside the oven.

Pusher Conveyance Systems feature an internal or external pusher mechanism that indexes the parts through the oven. Pusher Conveyance Systems use rollers, low friction rails, or slide beds to support the product thru the oven.



Conveyor Oven



Oven with vertical conveyor configuration

For every application that requires heat processing, the Industrial Products Division will design an industrial oven or furnace to exact standards with reliable, repeatable results. Focused on the specific needs of diverse industries, our experienced engineers create heat-processing solutions ranging from annealing to calcining and from epoxy curing to thermal degreasing. Equipment is designed for the specific application and environment.

Features

- Economical operation is achieved with superior thermal process engineering practices that apply state-of-the-art insulation material, airflow management, and custom programming.
- Recirculation fans with high efficiency motors to reduce energy consumption.
- Recirculation ductwork designs provide precise airflow to specific areas of the product resulting in smaller foot print ovens thus reducing utility and factory space costs.
- High-efficiency heat sources are available in gas, electric, hot water, hot oils and steam to reduce energy costs.
- Robust structural oven frames and component supports.
- Application specific insulation materials are selected to provide optimum insulating characteristics and long term energy savings.
- Design considerations for easy access to process areas and oven components.
- Private labeled and purchased components meet UL, UR, and CE standards.
- Programmable controllers with HMI (Human Machine Interface) displays allow for user friendly operation and machine diagnostics.
- NEMA style control panels.
- Factory tested to ensure on time delivery and field start up.
- 24/7 factory direct technical service and spare parts group.

Available Options

- Inert atmosphere ovens and furnaces.
- Can construction oven and furnace bodies.
- Exhaust air to air heat recovery systems.
- Thermal and regenerative oxidizers.
- Industrial computers with Ethernet for remote diagnostic and communication capabilities.
- UL or CE certified control panels or complete systems.
- PE certifications to meet a variety of client or government specific requirements.
- Advance thermal, vibratory, and dB testing with certification.
- In-house laboratory featuring a custom test oven and other related thermal equipment.
- Factory direct installation services.
- On-site engineering energy analysis of existing ovens and furnaces of all makes and models of thermal processing equipment.
- Upgrade all makes and models of ovens and furnaces to meet today's process, energy, and government standards.

Heat Treat Processes



Annealing Oven

Annealing Ovens will eliminate internal stresses in materials such as glass, various alloys and polymer.

The function of an Annealing Oven is to perform the process of softening an object or changing other properties of the object through cycles of heating and cooling. The Annealing Oven can be configured in various chamber styles such as Batch or Continuous Conveyor. Typical Annealing applications will soften, enhance ductility and cold working properties in various materials. These materials include aluminum, brass, copper, steel, various alloys and polymers.



Calcining Oven

Calcining Ovens create phase change or remove moisture.

The function of a Calcining Oven is to heat solid materials or ores to induce phase transition, or for removal of a volatile fraction or crystalline water as water vapor. The system can be specially designed to accommodate a controlled heat up and release rate from the product.



Curling Oven

Curing Ovens cure parts, coatings and adhesives.

The function of a Curing Oven is to cure a part, coating, or adhesive. Depending upon the process and production requirements, a Batch or Conveyor Type Oven can be engineered. To meet both process and safety requirements, the exhaust system is engineered to accommodate specific moisture, solvent, and fume release rates. Multiple heat zone configurations can be designed to maximize curing efficiency.



Drying Oven

Drying Ovens remove moisture.

The function of a Drying Oven is to remove moisture from a product. Depending upon the process and production requirements, a Batch or Conveyor Type Oven can be engineered. To meet both process and safety requirements, the exhaust system is engineered to accommodate specific moisture, solvent, and fume release rates. Multiple heat zone configurations can be designed to maximize curing efficiency.



Radiator Core Bake Oven

Radiator Core Bake Ovens bond copper brass radiators and heat exchangers.

The function of a Radiator Core Bake Oven is to bond copper brass radiators and heat exchangers. The Core Bake Oven is available in either a Batch or Continuous Conveyor configuration. With the batch process (large cores or low volume), the cores are placed onto the cart. The cart is then loaded manually, or automatically, into the oven. The process time is controlled by a cycle timer to ensure proper bonding.

With the continuous process (high volume production), the cores are placed onto the conveyor system (belt or chain) and automatically conveyed through the oven. The process time is controlled by the conveyor speed which ensures proper bonding takes place. The system can be incorporated with other equipment including fluxers, blow-offs, and squaring fixtures.



Thermal Degreaser Oven

Thermal Degreasing Ovens cost-effectively remove tooling oils.

A function of a Thermal Degreasing Oven is to cost-effectively remove tooling oils from metal worked components or heat exchangers by vaporizing the oil. Thermal Degreasing Ovens replace aqueous wash style cleaning eliminating costly disposal fees while meeting strict environmental regulations. To meet air quality and other environmental requirements, a thermal oxidizer system can be incorporated into the oven. Our R & D Department can provide testing in collaboration with your machine tool oil supplier to help you develop a thermal degreasing process.



Solution Heat Treat Furnace

Drop Bottom Solution Heat Treat Furnaces with quench meet the requirements of AMS, BAC, and client specifications.

The function of a Solution Heat Treat Furnace is to bring component parts to an elevated temperature and then rapidly transfer them to a quench (liquid or air) system. The transfer rapidly locates the part into the quench with minimal heat loss. Quenching solutions can include water, glycol, oil, salt bath, or air. Quench solution temperatures are tightly monitored and controlled. Typical quench systems are located at furnace level or in a pit and can be either stationary or mobile. If the quench solution must be removed from the part, a rinse system can be integrated into the design.



Stress Relief Furnace

Stress Relief Furnaces relieve stresses in materials generated by welding, machining, or heat processing.

The purpose of a Stress Relief Furnace is to raise the temperature of a component to slightly below the transformation temperature. This elevation in temperature eliminates internal stresses caused by secondary processes such as welding, machining, or cold forming. Upon reaching completion of the heat up and hold cycle, the parts are then cooled at a controlled rate.



Box Furnace



Car Bottom Furnace



Clam Shell or Tip Up Furnace

Box Furnaces process products one at a time or in a single group.

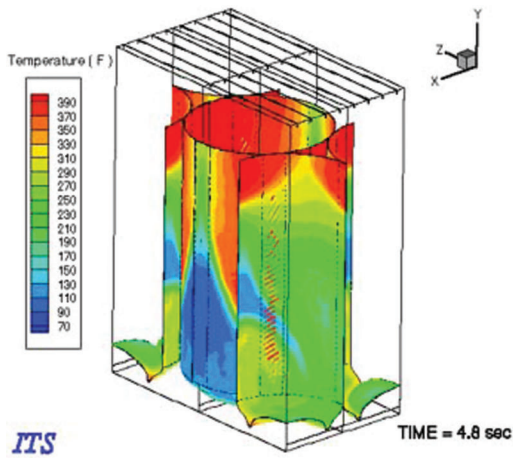
A Box Furnace features a vertical lift or swing out door allowing the various sized product(s) to be placed in the furnace. Box furnaces are used for heat-treating, calcining, curing, annealing, stress relieving, preheating, tempering, and other high temperature thermal processes. Multiple zone heating technology can be integrated to maintain exceptional part temperature uniformity, and achieve ramp/soak heating and cooling profiles.

Car Bottom Furnaces feature a manual or automated load car for processing large and heavy products.

A Car Bottom Furnace design incorporates a rail mounted product car to transfer parts into and out of the furnace. The Car Bottom Furnace is an excellent solution to heat-treat large and heavy welded fabrications such as gear blanks, oil drill pipe, drive shafts and similar type products. The product car also serves as the floor in the furnace and uses various mechanisms to seal the car to the furnace. The hearth of the car can be constructed with cast or fiber insulation with product support provided by piers, hearth plates or grating. The furnace door is typically integral to the car or can be fixed to the furnace body and vertically actuated to seal the chamber. Multiple zone heating technology can be integrated to maintain exceptional part temperature uniformity, and achieve ramp/soak heating and cooling profiles.

Clam Shell Furnaces are an excellent choice for an extremely heavy load.

A Clam Shell Furnace, also known as a Tip Up Furnace, features a pivoting furnace body to allow overhead crane loading and unloading of the parts. Clam Shell Furnaces are used for heat-treating, calcining, curing, annealing, stress relieving, preheating, tempering, and other high temperature thermal processes. Multiple zone heating technology can be integrated to maintain exceptional part temperature uniformity, and achieve ramp/soak heating and cooling profiles.



International Thermal Systems is unmatched with a full-time R & D Laboratory directed by a US Patent holder with a Ph.D in Thermal Science. Complete heat process tests are conducted in our R & D Laboratory to prove and confirm the process parameters prior to engineering /manufacturing. Proprietary heat transfer computer software and commercial CFD software are used to simulate the heating process with proven accuracy. The benefit to the customer is the confirmation of the exact process parameters prior to the engineering and manufacturing of the equipment.