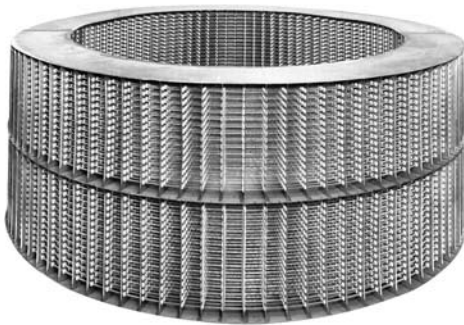


Custom Designs

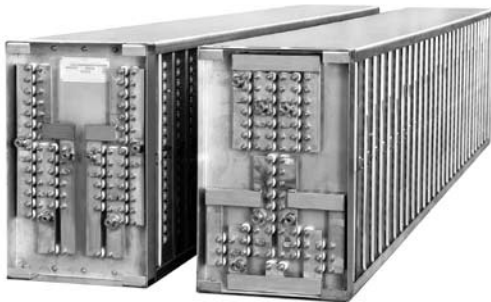
Heatrex has the ability to customize heaters for unusual or special applications. The following are a few examples of our construction and design capabilities.

Autoclave Heater

This 1500 KW heater accommodates a fan in the center that can either draw or blow air through the open coils. The assembly is typically mounted on the door of an airtight batch oven, eliminating duct work. The design assures uniform air distribution over the coils without a pressure plate or other air straightening device. Units can be built to customer-specified KW ratings, inside and outside diameters, and for outlet temperatures up to 750° F. Field power connections are made to terminals inside the donut.



Two of 15 modules, each rated 624 KW, producing a total of 9360 KW in an autoclave installed in an aircraft facility. Structural components of the aircraft are made from lightweight composites such as boron or graphite fibers bonded with epoxy. Thin sheets of the metal are cut with computerized cutting equipment, layered in a crisscross pattern, then bonded together in the autoclave at pressures up to 300 psi and temperatures up to 1300° F. A nitrogen atmosphere prevents combustion of volatile vapors given off as the epoxy cures. Severe space limitations dictated a unique bus bar pattern, resulting in terminals at both ends of each module.



Crucible Preheater

Four flanged tubular heaters are mounted into an insulated cap and factory wired to a common junction box (not shown) in the center. The heaters preheat the air in a crucible to 1000° F before molten aluminum is poured into it. This energy saving design replaced an open gas flame which was shot into the crucible before pouring. The low watt density elements generate no heat in the U-bent portions so as to concentrate the heat in the crucible's vertical walls. Terminal boxes are ventilated to prevent overheating of internal wiring. One set of incoming power lines feeds the entire 60 KW load.



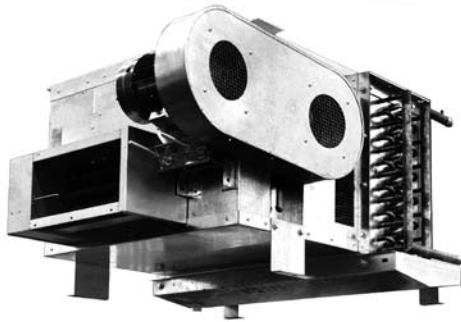
Processing Agricultural Products

This assembly of heaters, angle iron rack frame and panelboards is typical of systems built to process agricultural products. Applications include drying barley for malt production and dehydrating alfalfa for animal feed. Ratings up to 4300 KW in a single assembly and multi-heater installations up to 72,000 KW have been furnished. The finned tubular design is usually recommended because of environmental job conditions. Heatrex designs and builds all components of the system, giving the owner a turn-key installation. Electric heat is normally preferred over gas since there are no products of combustion, making the end product suitable for human consumption.



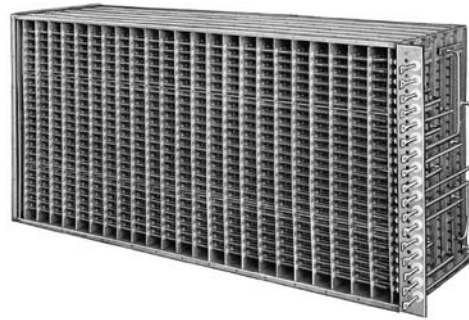
Ripening Room Heater

Heater installed in a package unit that maintains proper temperature and humidity in produce storage rooms. Typical applications include banana ripening and potato or apple storage. Stainless steel finned tubular elements, complete with moisture-proof seals, withstand corrosion caused by water carry-over from the cooling coil and gases released in the ripening process. Heater has built-in controls.



Environmental Test Chamber Heater

This 543 KW heater operates in an environmental chamber where aircraft components are tested at temperatures up to 1475° F. Stainless steel rods are welded to the bus bars linking the elements together to form circuits of various KW ratings. The rods are bent at 90° and project through the wall of the test chamber so that incoming power connections can be made in a cool location. The entire unit is made from stainless steel.



Ink Drying

Filtered room air passes over this open coil heater (terminal box only shown) through a high speed blower. The 250° F pressurized air is then piped to a printing press where it bombards the web at a high velocity to evaporate and scrub off ink solvents. Solvent laden air is vacuumed away from the press and back to the dryer by a second high speed blower, then exhausted through a vent.



Paint Curing System

Part of a shipment of 26 identical tubular oven heaters, rated 240 KW each, to dry paint at temperatures ranging from 300° F to 700° F. Eighteen heaters are installed in a 4320 KW electro-coat cure oven and the remaining eight in a 1920 KW flow-coat cure oven at a tractor fabrication plant. Factory furnished vertical bus bars connect directly to bus duct feeding the entire system. Heating elements are individually replaceable and are secured to the insulated terminal box with compression fittings to prevent air leakage. Each heater slides into the oven on roller bearings to facilitate maintenance. Each oven is divided into several zones and the entire load is SCR controlled.



Custom Designs

Bonding Oven

This 13 foot long, 550 KW heater is installed in a batch oven for drying sealants and curing adhesives on parts wrapped in fiberglass for the aerospace industry. This unit replaced a series of open coil heaters, whose coils shorted out due to fiberglass filings in the airstream. It heats 39,000 SCFM of air to 610° F.



High Temperature Core Construction

This unit produces 1400° F air for hot forming titanium used in aircraft components. Open coil elements are wound on grooved, ceramic cores, resulting in an extremely compact design: The heated chamber produces 60 KW, but measures only 18" cubed. The heater slips through the top of the furnace, with an insulation plug under the mounting flange that matches the thickness of the furnace wall. Electrical connections are made externally to stainless steel lugs, factory welded to stainless bus bars that interconnect the elements below.



Load Bank

This 126 KW open coil load bank was built to test large stand-by generators. With the use of a separate control panel, the 22 circuit design allows for testing of variable resistance loads at different RPM levels. Routine testing with load banks confirms that generators are functioning properly and are ready for use when needed. This is critical for facilities that cannot be without power, such as hospitals, police stations, fire stations or prisons. Load banks are also used in the testing of main or stand-by generators found on commercial or military aircraft and nuclear submarines.

