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Burn-Off Oven with **ONE TOUCH CONTROL** **-RT Series-**

ULTIMATE IN ENERGY SAVINGS

The new ACE (RT) Radiant Tube Heat Cleaning Ovens are big on performance and have the ultimate in energy savings, about 20% over convection-only Burn-Off ovens. ACE introduces the radiant tube heater, which for the first time utilizes radiant plus convection heat. Heat from the radiant tube results in a consequent heat extraction efficiency of 90%. Heats even in the harshest environment.

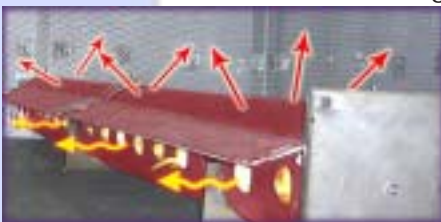
OVEN DESIGN

The ACE Heat Cleaning Oven System is designed to remove varnish, epoxy, paint, grease, oil, rubber or other combustible materials from metals. Heat clean motor stators, paint hooks, automotive engine parts, rubber-to-metal bonded parts, virtually any metal part. The ACE system will also debond brake shoes and clutch plates. Parts are loaded on a wheel-in cart and heated to 650° - 800° F (340° - 427° C), in an oxygen deficient atmosphere, where the combustible hydrocarbons decompose. Parts leave the oven completely dry and ash residue is easily removed.

ACE HYBRID HEATING DESIGN

The (RT) system consists of a radiant tube, which directs the radiant energy upward. The radiant tube is located under the oven cart. It is positioned in the center of the oven and extends from the back wall to oven door. A gas burner fires directly into the length of the Radiant Tube. Convection heat evenly comes out the numerous holes on the left and right side along the entire length of the Radiant Tube. Radiant energy is also evenly emitted

along the entire length of the Radiant Tube. The radiant tube is then mounted to the adapter tube.



Closeup of Radiant Tube heating oven chamber

Patent Pending



HYBRID Radiant Tube Burn Off Oven

CONSTRUCTION

The ACE Oven is fabricated from 11 gauge steel and coated with a high temperature, rust resistant paint. 4 inches of high temperature insulation rated at 2,300° F (1,260° C) lines the oven and self-supporting exhaust stack to offer maximum energy efficiency. The thick door is securely sealed by husky cam type latching mechanisms located on the top and bottom of the door. For reasons of safety, the latch is designed to accept a lock, as the door should not be opened during the heating cycle.

ONE TOUCH CONTROL (OTC)

OTC is a new automatic self-adjusting control system. It monitors the combustible vapor in the oven and controls them at a safe level. Requires no program selection by the operator, thus removes the possibility of operator error. An accurate, simple, yet highly effective system to automatically provide the shortest possible safe heat cleaning cycle times. The OTC system automatically self adjusts the cycle time to the weight of the non-combustible and combustible load. Naturally, lighter combustible loads automatically take less processing cycle time than heavier combustible loads.

BURN OFF OVEN with ONE TOUCH CONTROL (OTC)

The automatic self-adjusting system permits no margin-of-error for over or under processing. It does not require an experienced operator to select a menu or estimate the amount of combustible material in the load. One touch of the start button, then let the OTC do the work for any size load.

HOW IT WORKS

A digital temperature control is programmed at the factory to heat your load on high fire in the shortest possible time. The primary and secondary water systems activate and or the main burner goes to low fire to control the heat cycle at a safe rate. If the primary and back up secondary water spray systems cannot control a rapid increase in temperature, the main burner will go to low fire. The afterburner stays on, and both primary and secondary water spray systems continue to operate until the temperature is under control.

Rest assured, the OTC will not turn off the burners until there are no combustible materials remaining on the oven load. When the load is done, the oven is automatically turned off by the OTC.

OTC continuously monitors the heat-up rate of the oven chamber. If it heats up too rapidly, indicating excessive combustible vapor, the load is cooled by the water spray system or oven burner goes to low-fire until the heat-up rate is acceptable. The system starts working immediately after the process starts. Thus, controls are automatically set for much faster processing time.

OTC is a successful system, because it has a "sixth sense", a fast heat sensitive response time, which anticipates and prevents excessive combustion vapor in the oven at a safe level. It works on a principle called thermoelectricity, in which extremely small heat variations creates instant current flow to the OTC system.

OPTION

As an option, should there be a power failure, the water spray system is activated to cool down the load. Thus, helping to prevent smoke, fumes and odor emissions from the exhaust stack. The water system is automatically turned off when oven temperature drops below 300°F. (149°C) to prevent flooding the oven.

COMPARISON OF (3) CONTROL SYSTEMS

OTC has many important improvements over the other three commonly used control systems:

- (1) Ramp & Soak control,
- (2) Rate-Of-Change control and
- (3) Batch Cycle Timer control.

PATENT PENDING

1. Ramp & Soak Control

Requires the operator to select the proper ramp and soak profile program for the size load to be processed. OTC is not a Ramp & Soak control system. OTC completely eliminates ramp & soak profile programs in the controller for various size loads. OTC requires only one touch of the start button, then lets the OTC do the work for any size load. OTC does not require the operator to make any decisions. It helps prevent operator error. OTC automatically adjusts to safely run any size load in the safest and shortest possible time. OTC continuously monitors the heat-up rate in the oven chamber during the entire cycle. OTC automatically turns off the oven when the load is done.

2. Rate-Of-Change Control

OTC is not a rate-of-change control system that continuously monitors the heat-up rate of **both** the oven chamber and the afterburner. OTC only has one digital control. Our automatic self adjusting control system's "sixth sense" anticipates and prevents excessive combustion vapor in the oven and controls it at a safe level. Vapors are generated in the oven and should rigidly be controlled by one sensor in the oven and not shuttled off to yet another interfaced sensor in the afterburner.

"Rate-of-change control requires two digital temperature controllers, one to monitor oven temperature and the other to monitor afterburner temperature. The rate-of-change control system is a factory programmed system that continuously monitors heat-up rate of **both** the oven chamber and the afterburner. If either heats up too rapidly, indicating excessive combustible vapor, the load is cooled until the heat-up rate is acceptable."

Rate-of-change control requires two digital controls, which are hard wire interfaced to shuttle data back and forth to monitor the temperature rate-of-change of **both** the oven and afterburner.

3. Batch Cycle Timer Control

OTC is not a batch cycle timer control system. A batch cycle timer is not installed in the OTC system. In the batch cycle timer system, an experienced operator is required to select an estimated length of time the oven will run to do the job. The operator could very easily under or over estimate the required processing time for the load. This could result in the oven prematurely shutting off during processing, resulting in partially cleaned loads, and emissions of smoke, fumes and odors out the exhaust stack. Extra time inadvertently added to the cycle will result in wasted fuel and cycle time.