



## **EQUIPMENT SPECIFICATION ETTER JOB 1217 BRAKE LINER CURE OVEN**

Subject: Brake Liner Cure Oven With Conveyor

### **1.0 OVERVIEW**

ETTER Engineering has provided the equipment as described below. The oven design is based on curing from the top only, with infra-red heaters. The heaters typically cure standard powders in 5 minutes, assuming the coated areas can be seen by the IR heaters. If the part density is high, and the edges are coated, then a convection system may be required.

### **2.0 EQUIPMENT**

#### **2.1 OVERVIEW**

The oven is a belt conveyor type unit, with top heating of low intensity gas Catalytic Infra-Red Heaters. The oven will have a 4 foot long load section, a 24 foot long heating section, a 6 foot long cooling section, and a 2 foot long unload section. There will be 5 zones down the length of the curing section, which will be zoned independently for optimum control. Typically the inlet is set hotter, with the exit zones reduced for soaking. The oven is a single unit, fully assembled system. A single point electrical and gas connections are provided. The oven is sized with a 48" wide belt. All of the necessary control are mounted to the oven frame. The oven was built to the NFPA 86 code, current in 2002.

#### **2.2 OVEN FRAMEWORK**

The oven frame is fabricated out of tubular steel. The doors and walls are painted steel, insulated. The heaters are mounted to a racks that provides for mechanical adjustment of the distance from the belt. Access doors are provided along both sides.

#### **2.3 HEATERS**

The heaters are Gas Fired Catalytic heaters, with electric preheat. These heaters are commonly used and shown to provide full cure at 5 minutes. 18 of these heaters are spaced for 6 minutes to provide some margin. The first two zones are the inlets, which typically would be set high for starting the cure cycle. The last three zones will be left, middle, right down the oven for balancing the heaters.

## **2.4 CONTROLS**

All necessary controls for heater operation, belt control, and exhaust control are provided. All oven operations, including zone controls and belt controls, are controlled by door mounted operators and controllers. The control panel is mounted to the frame, and wired into all the components. Once the 15 minutes of electrical preheat is done, the system will run on approx. 15 amps. The control panel is UL labeled per UL 508A.

## **2.5 CONVEYOR/DRIVE SYSTEM**

A Stainless steel mesh “can” type belt is provided, with all necessary drives, idlers, and motor. There is a variable speed control integrated into the control panel.

## **2.6 EXHAUST SYSTEM**

The oven system is designed with 3 exhaust ports. Two are for the curing section, and one for the cooling section. The exhaust fan is provided. Operation of the exhaust fan is included into the control system.

## **3.0 UTILITIES**

### **-Electric**

- 460 volt, 3 phase power, 60 Amp Service

### **-Natural Gas**

- Natural Gas
- Inlet Pressure, 14” W.C MAXIMUM, 10” W.C. minimum
- Maximum flow 600 CFH (600,000 BTU/Hr)