

# WARRANTY

(Effective January 1, 2007)

HIX will automatically register the equipment on the date it was shipped to you or your distributor. If the equipment was not purchased directly from HIX, but through a distributor (either domestic or foreign), please keep a copy of their sales invoice showing the serial number and date it was sold/shipped to you with this warranty. In this case, we will use the distributor's invoice date as the beginning warranty date. **STAPLE A COPY OF YOUR RECEIPT TO THIS WARRANTY** and keep in a safe place to provide verification of your warranty should a problem occur. Thank you.

Please fill in the following information and attach a copy of your receipt for your records.

Date Purchased: \_\_\_\_\_ From: \_\_\_\_\_

Model #: \_\_\_\_\_ Serial #: \_\_\_\_\_

This warranty applies to equipment manufactured by the HIX Corporation (HIX), Pittsburg, Kansas, U.S.A. HIX warrants to the original purchaser, its Conveyor Dryers, Heat Transfer Presses, Mug Presses, Mug Glazer, Retensionable Screen Frames, Textile Printers, Spot Heaters, and Exposure Units against defects in workmanship and material, except for wear and tear for a period of "One Year" from the date of purchase. HIX warrants its Accessories, Reten Spines/Hardware/Tool Kit, and Shuttle for a period of 90 days from the date of purchase. DoughXpress and Thermatrol products are covered under separate warranty.

In the event of a defect, HIX, at its option, will repair, replace or substitute the defective item at no cost during this period subject to the limitations of insurance and shipping costs stated below.

In the case of heat transfer presses (except the Mug Press, Hobby Lite), HIX warrants the heat casting for the "Life" of the machine for the original purchaser. If a part becomes obsolete at the time for repair, and/or cannot be reasonably substituted for, HIX will credit, at half the then current list price or last recorded price, only that part toward a new machine or any product HIX offers. This credit offer shall be the sole responsibility of the HIX Corporation in the event of an obsolete part.

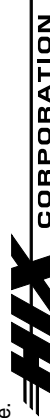
This warranty does not cover belts, pads, mug wraps, mug press liners, canvas, rubber blankets, bulbs, glass, PTFE or finish, rod ends, turn buckles on printers, or mug press or damages due to accident, misuse/abuse, alterations or damage due to neglect, shipping or lack of proper lubrication or maintenance. HIX shall not be responsible for repairs or alterations made by any person without the prior written authorization by HIX. This warranty is the sole and exclusive warranty of HIX and no person, agent, distributor, or dealer of HIX is authorized to change, amend or modify the terms set forth herein, in whole or in part.

In the case of a problem with the equipment identified herein, HIX Corporation should be contacted during regular business hours to discuss the problem and verify an existing warranty. HIX personnel will assist the customer to correct any problems which can be corrected through operation or maintenance instructions, simple mechanical adjustments, or replacement of parts. In the event the problem cannot be corrected by phone, and upon the issuance of a return authorization by HIX, the equipment shall be returned to HIX or an authorized service representative. All insurance and shipment/freight costs are solely the responsibility of the customer, and not that of HIX, and HIX shall not be responsible for improper handling or damage in transit. HIX offers a reconditioning service and a core exchange/credit policy on some models. HIX customer service personnel may be contacted for complete return authorization and reconditioning information.

This expressed warranty is given in lieu of any and all other warranties, whether expressed or implied, including but not limited to those of merchantability and fitness for a particular purpose, and constitutes the only warranty made by HIX Corporation.

In no event shall HIX's liability for breach of warranty extend beyond the obligation to repair or replace the nonconforming goods. HIX shall not be liable for any other damages, either incidental or consequential, or the action as brought in contract, negligence or otherwise.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.



Manufacturers of the Finest Quality Textile and Graphics Screen Printing and Heat Transfer Equipment

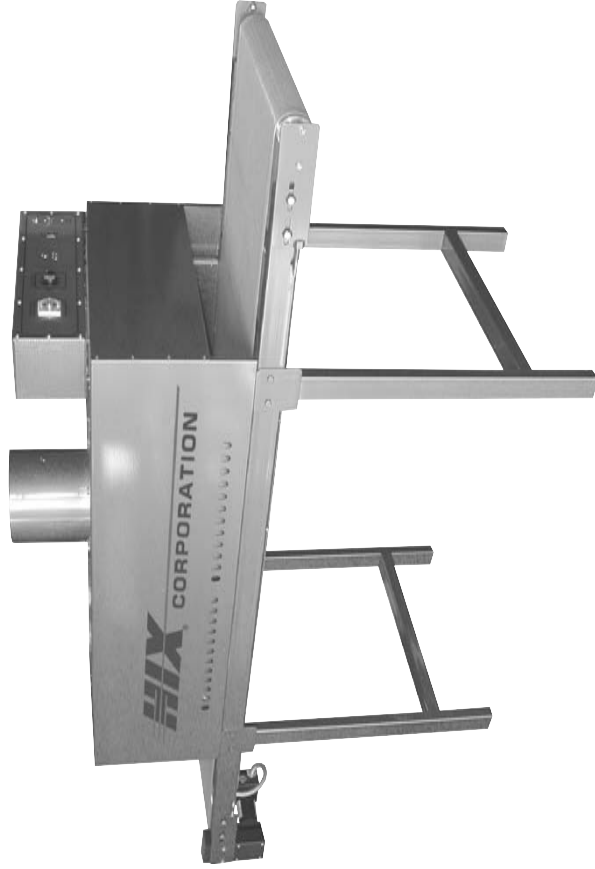
1201 E. 27th Terrace • Pittsburg, KS 66762 • U.S.A.

Web site: [www.hixcorp.com](http://www.hixcorp.com) • Phone: (800) 835-0606

E-Mail: [customerservice@hixcorp.com](mailto:customerservice@hixcorp.com) • Fax: (866) 561-0894

E-Mail: [sales@hixcorp.com](mailto:sales@hixcorp.com) • Fax: (866) 563-4600

# E/AE CONVEYOR DRYERS OWNER'S MANUAL



For Customer Service, Call **1-800-835-0606**  
**ext. 209, ext. 211, ext. 220, ext.221** or  
Visit [www.hixcorp.com](http://www.hixcorp.com)

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**BEFORE warranty repair you MUST get Prior Authorization:**  
Call **1-800-835-0606**

## Introduction / Specifications

E and EA dryers use custom built infra-red heaters to eliminate any cold spots within the oven chamber. Air circulation within the oven chamber is also provided on EA models for processes that require a minimum amount of airflow.

E Models are strictly infrared dryers.

## Installation Instructions

### **Models 2410 and under:**

The control box end is the feed end of the oven. This is so the printer may monitor the controls and make any adjustments as necessary from the feed end of the dryer. Position the dryer in the desired location so the product may be easily loaded onto the feed end of the conveyor before continuing.

The exhaust duct (10" diameter) exiting out the top of the dryer must be ducted outside. The internal fan (300CFM) is sufficient for vertical runs of no more than 10 feet. If the duct is run horizontally over 6 feet or more than 10 feet vertically a booster fan (300CFM or greater) must be added to provide proper exhausting of the heat and fumes. A rain cap must be installed where the exhaust duct exits the roof to prevent any water from entering the oven. Do not reduce the duct size diameter from the 10" provided.

## Dryer Maintenance Schedule

### **Every 6 Months:**

1. Remove exhaust motor from duct and lubricate as indicated on the motor (two places) with SAE 20 weight oil or equivalent.
2. Vacuum any lint/dust accumulation around air intake holes on both sides of oven and perforated ends on control box.

### **Every Year:**

1. Remove top chainguard cover and lightly lubricate drive chain with SAE 20 weight oil. Replace cover after lubricating, **DO NOT** leave off!
2. Have a qualified electrician check the heater elements with either an Ohm meter or amp clamp. Specifications should be as follows:  
Ohms: 17-27 ohms per heater (+/-1 ohm)  
Refer to your model's wiring diagram for exact specifications.  
Amps: 7-14 amps per heater (measured with amp clamp)
3. Check brushes on conveyor drive motor for wear, replace if necessary.

### **Every 3 Years:**

1. Replace thermocouple.

## APPLICATIONS

### Application Procedures (Cont.)

#### Screen Printing of

#### Transfer Release Paper:

Single color prints on transfer release paper are printed with a sharp squeegee of medium durometer, 60 to 65 hardness. The bed on which the paper is mounted should be hard (plexiglass or Formica is suitable). The printing procedure recommended is One light stroke to flood the screen and then one print pass. For multi-color transfer printing on paper for subsequent release, each color must be gelled before overprinting. This is accomplished with approximately 200°F for 25-30 seconds. The final color is also gelled. The transfer sheet can now be safely handled and shipped. A transfer which has been fully fused at 320°F will not release acceptably. Consult applicable Ink Manufacturer's Data Sheets for specific details on curing times and temperatures.

**Water-Based Dye Systems:** Unlike Plastisol Inks, water based dyes require an evaporation process before curing can take place. For proper cure, good airflow in the oven is required to drive off the water from the printed garment. Some water-based inks will air-dry, but most must be heat-cured at 300°F for 2 to 3 minutes.

**NOTE:** When working with water-based inks, screens must be made with water resistant emulsions or films.

**Nylon Jacket Ink Systems:** Most nylon jacket inks are the two part nature. These systems require the addition of a catalyst to the ink before they are printed. Refer to Ink Manufacturers for mixing instructions for details. After two part jacket inks are fully cured in a infra red dryer (@ 320°F for 60-90 seconds), chemical crosslinking continues for several days before the ink film reaches its total cure.

**CAUTION:** *Mix only enough ink and catalyst for a 3 to 4 hour period. Pretest all nylon for ink adhesion and resistance to oven temperatures.*

**NOTE:** You must flash-cure before the first color to pre-shrink the jacket and in between each color when printing nylon jackets to prevent blurring and ink buildup.

## INSTALLATION / OPERATION

### Models 3610 and Up:

The 3610 and larger dryers are wired 3-phase and requires that an electrician "hardwire" the power to the dryer. A licensed electrician is responsible for supplying wire and selecting the proper size according to the length and local code requirements. Position the dryer in the desired location so the product may be easily loaded onto the feed end of the conveyor before continuing.

The exhaust duct (10-12" diameter) exiting out the top of the dryer must be ducted outside. The internal fan (300-425 CFM) is sufficient for vertical runs of no more than 10 feet. If the duct is run horizontally over 6 feet or more than 10 feet vertically a booster fan must be added to provide proper exhausting of the heat and fumes. A rain cap must be installed where the exhaust duct exits the roof to prevent any water from entering the oven.

**NOTE:** Do not reduce the duct size diameter from that on the exhaust blower.

### Operating Instructions

1. Turn "Main Power" Switch on.
2. Turn the belt speed control up and observe the belt moving. Now would be a good time to "chart" your actual oven retention times for any given speed control setting. Place a coin on the belt to use as a reference when checking time through the oven.
3. Turn the temperature control up to the desired temperature setting. Heater light will come on to indicate that the unit is heating. After the dryer has reached the desired temperature the control will start cycling the heaters on and off to maintain the temperature selected. Normal warmup time should be only 20-30 minutes to reach 325°F (163°C).

4. After the oven has reached operating temperature (indicated by the heater light cycling on and off), you may run belt temperature tests to determine proper temperature control and belt speed control settings. Many things factor into finding the “right” combination depending on garment type (t-shirt, sweatshirt, jacket etc.), its weight (heavier garments take longer to heat), water content (usually determined by the garments material composition, ie: 100% cotton will hold more water and take longer to dry than a 50% cotton/50% polyester garment), and ink deposit (more or thicker ink deposits will take longer to dry). The best rule of thumb is to set the temperature control just slightly higher (5-10°F or 2-3°C) than the ink manufacturers recommendations for cure temperature. In most cases for plastisol this means setting the temperature control for 325-330°F (163-165°C). At this point the belt speed can be adjusted to ensure that the garment and ink deposit has adequate “soak” time to reach the temperature desired. Depending on the garment and ink combination required, retention time inside the oven can typically range from 1 to 2 minutes so pretesting your particular combination is a must to ensure a properly cured print. Remember to always read and follow the ink manufacturers recommendations as temperature requirements do vary between different manufacturers and within their own product lines. Confirm you are achieving proper temperature by using either thermolable tapes or thermocouple probes on the garment. When testing garments don't use the same one twice. The first time through the oven will evaporate most all the water trapped in the garment and if passed through a second time (even if allowed to cool down) it will heat up much quicker as the cooling effect of the water evaporating is no longer present. This will result in an erroneous test result (a much higher temperature reading) and will be confusing.

5. After the oven has reached operating temperature some adjustments in the belt tracking may have to be made. See instruc-

## Application Procedures (Cont.)

### **The Printing Bed**

**(Pallet, Platen or Shirtboard):** The surface should be hard and level to ensure an even contact with the screen. A pad can be applied to the pallet to achieve a surface print when printing light ink on dark fabrics or when printing puff inks. (The pad also expedites flash-curing times).

**Direct Printing:** Plastisol inks need to be stirred prior to printing. The screen should be set up off-contact (approximately 1/16”) to the shirt or substrate you are printing. In most cases, you can lay down a good deposit of ink with one squeegee pass and medium pressure. When using water-based ink, flood the image area in-between prints.

**Fusion:** The final step after direct printing of a garment with Plastisol Ink is fusion (sometimes called heat curing). It is vital that the printed garment is subjected to the proper temperature for the required time. Too little temperature will cause the print to fade when the garment is washed and crack when stretched because the Plastisol Ink has not formed a continuous film. Too much heat will scorch the fabric. Complete fusion takes place at 320°F/160°C from 60 to 90 seconds, depending on the amount and thickness of the ink deposit. The required temperature must be reached on the printing surface itself and not merely taken from a thermostat reading of the heat source. This must be carefully checked at the substrate by use of temperature test strips which are placed on the surface of the garment and sent through the oven. These strips will give a true reading (plus or minus 5°F) of the actual temperature of the substrate. There are also many digital heat probes available on the market to check substrate temperature. The heat source recommended for the most efficient fusion of Plastisol Ink is infrared radiant energy. The air/infrared combination will also help provide even heat dispersion and prevent fabric scorching. Airflow must also be used when curing water or solvent-based inks.

## APPLICATIONS

### Application Procedures

**Plastisol Inks:** Plastisol Inks are vinyl compounds especially formulated for screen printing applications. The term, plastisol, indicates that these compounds consist of PVC resins which are suspended in liquid plasticizers. The combination of resins and plasticizers produces a fluid mixture which can range in viscosity from a heavy paste to a pourable liquid. Plastisol Ink forms a continuous plastic film deposit after it has been subjected to the Heat/Fusion process. Once this film is properly deposited on a garment, either by direct printing or by heat transfer method, the garment will have excellent washability.

**The Screen:** Polyester screen fabrics are ideally suited for printing with all Plastisol Inks. These fabrics have good dimensional stability and low absorption, so the Plastisol Inks release easily from the screen mesh. The mesh count range of monofilament polyester (60 to 230 mesh), is recommended for most textile applications. The deposit of Plastisol Ink desired on the substrate determines the mesh count to be used. Screens must have high tension to achieve a satisfactory print.

**Screen Prep:** Before applying the stencil material (direct emulsion or film) the mesh must be degreased with a commercial degreasing agent and rinsed with water.

**The Stencil:** The stencil is referred to as the emulsion applied to the screen mesh. It is a light sensitive emulsion that hardens when exposed to light (exposure unit). A water-resistant emulsion is required when printing water-based inks, solvent-resist emulsion for plastisols and enamel inks.

**The Squeegee:** The squeegee is a polyurethane blade mounted in a wooden handle. The hardness of the blade (referred to as a Durometer classification) is numbered according to the degree of hardness or pliability. The squeegee is selected by its Durometer hardness, depending upon the intended application.

**40 duro extra soft:** Flock transfer printing and puff inks.

**40/55 duro soft:** Flock transfer printing, puff inks, water-base inks and printing on dark fabrics.

**60/65 duro medium:** Common applications, standard work.

**70/90 duro hard:** Common application and halftone printing. 70 duro is the most common durometer for printing plastisol on textiles.  
Note: Keep your squeegee blades sharp and straight.

## OPERATION

tions detailed on the next page.

- At the end of the production day, reduce temperature to its lowest setting and allow the dryer to “cool” for 10-15 minutes before stopping the belt or turning the dryer off.

### Temperature Control

(Analog Temperature Control)

- Temperature Control Setting Dial Adjust to desired temperature
- Operation Indicator - Heat “ON” Light
- Reset Shaft



### Belt Speed Controller

The belt speed is controlled by a simple rotary knob with graduations numbered from 0 to 10 as shown below.



**CAUTION:** Do not stop conveyor belt while oven is hot; belt Damage will result.

## OPERATION

### Belt Tracking Adjustment

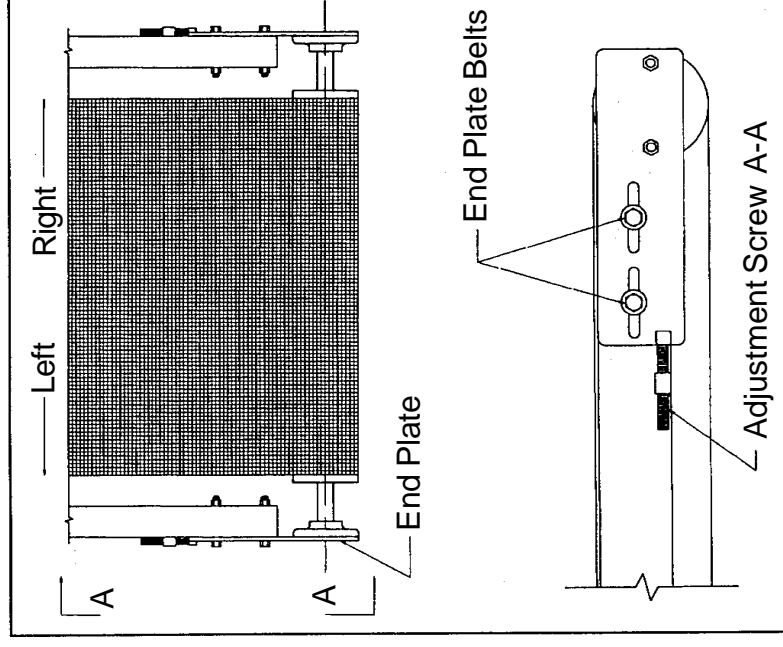
1. After the conveyor belt has been installed some adjustment may be necessary to ensure that the belt is tracking properly. The adjusting mechanism is shown in the diagram below.
2. Bring the oven up to normal operating temperature as the belt will track differently when hot than when it is cold.
3. Adjust the belt speed control to it's fastest setting.
4. Prior to making adjustment, loosen end plate bolts, just enough to allow end plate movement (see diagram on page 7). If the belt is moving to the left, tighten the left-hand adjusting screw by turning it approximately 1/4 turn in a clockwise direction. Move to opposite end of dryer and check for proper tracking. Make similar adjustment if necessary. Repeat procedure if belt is still not tracking properly.

**NOTE:** Allow at least one complete revolution of the belt between adjustments. If belt is moving to the right, repeat procedure above using right-hand adjusting screw.

5. Tighten end plate bolts and make final check of belt alignment. Do not overtighten belt as damage could occur not covered under warranty!

**NOTE:** Normal belt direction is toward the drive motor so that the top of the belt is under tension. It is not recommended to attempt to reverse the motor rotation or belt direction as the belt may slip under load and proper tracking of the belt will not be possible.

## OPERATION



### Circulating Air System

The EA models have a circulating single speed air system.

Air circulation provides these functions:

1. Drives off water/solvents from the garment and ink to provide quicker and more effective drying and curing.
2. Minimizes scorching of delicate fabrics and paper.

The air system is controlled by a simple on-off switch located on the control panel.

**NOTE:** The E and EA dryers are not recommended for the drying or curing of high content water or high content solvent based inks.