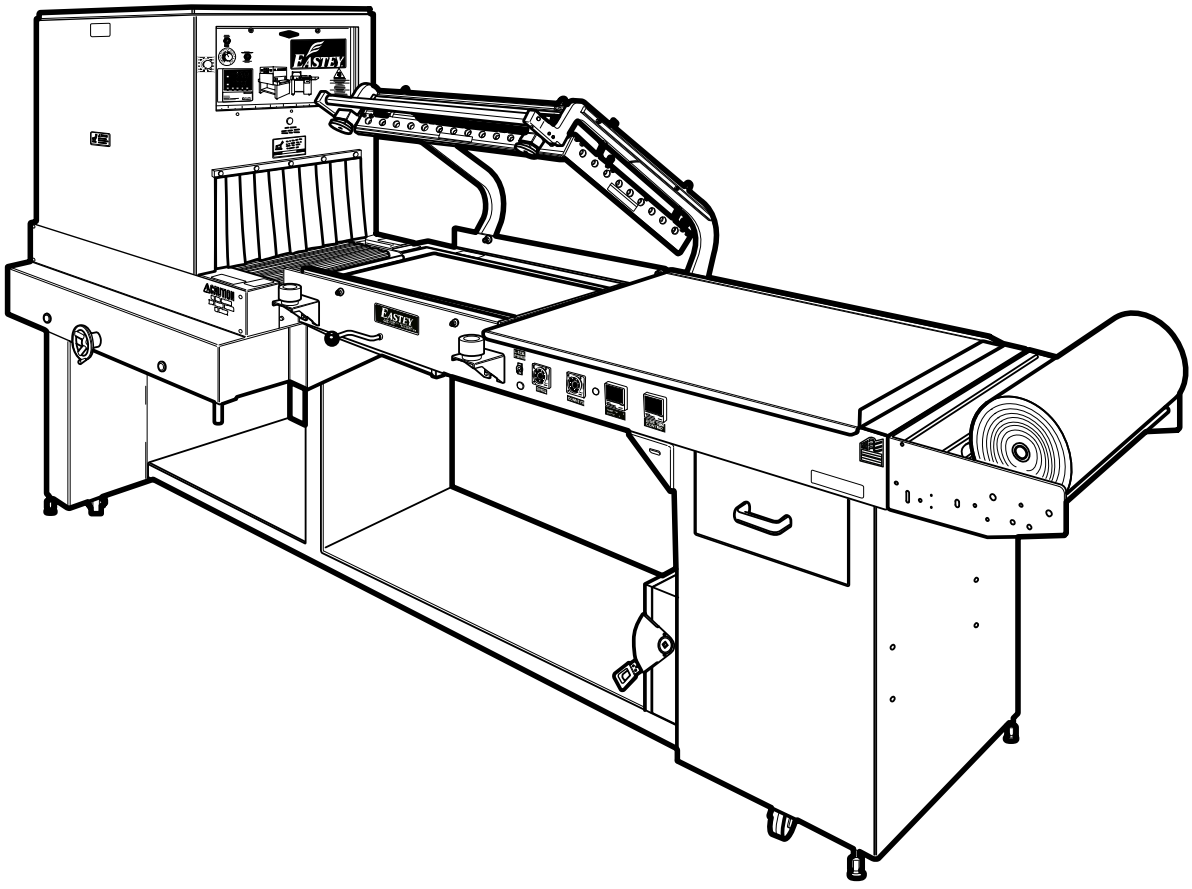
EC

EC2016T, EC2016TK,
EC2028T & EC2028TK

Combination Series
Semi-Automatic L-Sealer & Tunnel

User Guide



EASTEY®

EC

EC2016T, EC2016TK,
EC2028T & EC2028TK

Combination Series
Semi-Automatic L-Sealer & Tunnel

User Guide

Revised 01/03/2018

P/N EC001000 Rev A

Eastey Enterprises
7041 Boone Ave. N.
Brooklyn Park, MN 55428

Phone: (763) 428-4846; Fax (763) 795-8867; 1-800-835-9344
www.eastey.com

Contents

Safety

Read this manual carefully and make it available to everyone connected with the supervision, maintenance, or operation of this machine. Additional copies are available on request (Eastey.com/contact-us).

The development of a good safety program that is rigidly enforced is absolutely imperative when involved in the operation of industrial equipment. Our machinery is well designed and includes extremely important safety features. Proper installation, safe operation, and regular maintenance and upkeep are of far greater importance than our design. Only properly-trained individuals following rigidly enforced safety rules, as recommended by ANSI and OSHA should be allowed to operate these machines.

Be very careful when operating, adjusting, or servicing this equipment. If in doubt, stop and obtain qualified help before proceeding.

General Safety Precautions

Before installing, operating or servicing this equipment, please read the following precautions carefully:

- Always disconnect electrical power before attempting maintenance for any electrical or moving parts. Do not place hands, head, or any part of the body inside the confines of the machine unless the mechanism is securely fastened and the electrical supply is shut off.
- Do not tamper with electrical wiring. Use only the specified power-supply cable. Use only licensed electricians to check or repair electrical wiring.
- Do not by-pass any factory-designed safety features such as guards, interlocks, switches, etc.
- In order to prevent damage to the machinery or injury to personnel, do not increase the factory settings on either the electrical or mechanical overload safety devices. Do not operate a machine if such modifications have been made.
- Keep hands away from moving conveyors and moving parts. Conveyor belts that have become worn or frayed can be hazardous and should be replaced promptly.
- Never operate this or any moving equipment without all covers and guards in place. The internal mechanism of most packaging machinery contains numerous shear, pinch, and in-running nip points, many of which are capable of causing severe injury and permanent disfiguration.
- To minimize the potential for personal injury, always be sure that the machine operators and others working on the machinery are properly trained in the correct usage of the equipment and properly instructed regarding the safety procedures for operation.

- Heat sealing arms and jaws on packaging machinery can become very hot after a period of use. Keep hands away while in operation and use caution if the machine has been running recently. If optional cutting blades have been installed, these can be very sharp. Exercise caution.
- Tunnel sides and conveyor surfaces can become very hot after a period of use. Keep hands away while in operation and use caution if the machine has been running recently.
- Do not make any modifications to either the electrical circuitry or the mechanical assemblies of this machinery. Such modifications may introduce hazards that would not otherwise be associated with this machinery. Eastey will not be responsible for any consequences resulting from such unauthorized modification. Do not operate a machine if any modification has been made
- This equipment is designed for indoor operation in a typical clean, dry factory environment. Do not operate the machine in any extremely wet or oily environment that may exceed operating specifications. Outdoor use is not recommended.
- The use of certain types of plastic films in sealing and/or shrink-wrapping equipment may result in the release of hazardous fumes due to degradation of the film at high temperatures. Before using any plastic film in this equipment, the manufacturer or supplier of the film should be contacted for specific information concerning the potential release of hazardous fumes. Adequate ventilation should be provided at all times.
- Keep combustible materials away from this equipment. The equipment may be a source of ignition.
- Do not wear loose clothing such as ties, scarves, jewelry, etc. Long hair should be pulled back and/or covered while operating this machine.

Explanation of Symbols

Caution sign or Safety Alert symbol. Indicates caution, be alert, Your safety is involved. Knowledge of safe operation is required.

Ground symbol. Indicates ground. Use Class-3 (lower than 1000) cable to ground to earth. Incomplete grounding may lead to electrical shock.

Electrical hazard. Indicates electrical danger. Only a trained electrician can uncover the electrical panel or box.

Electrical shock hazard. Indicates electrical shock danger from exposed or broken wires or electrical components. Only a trained electrician can uncover the electrical panel or box.

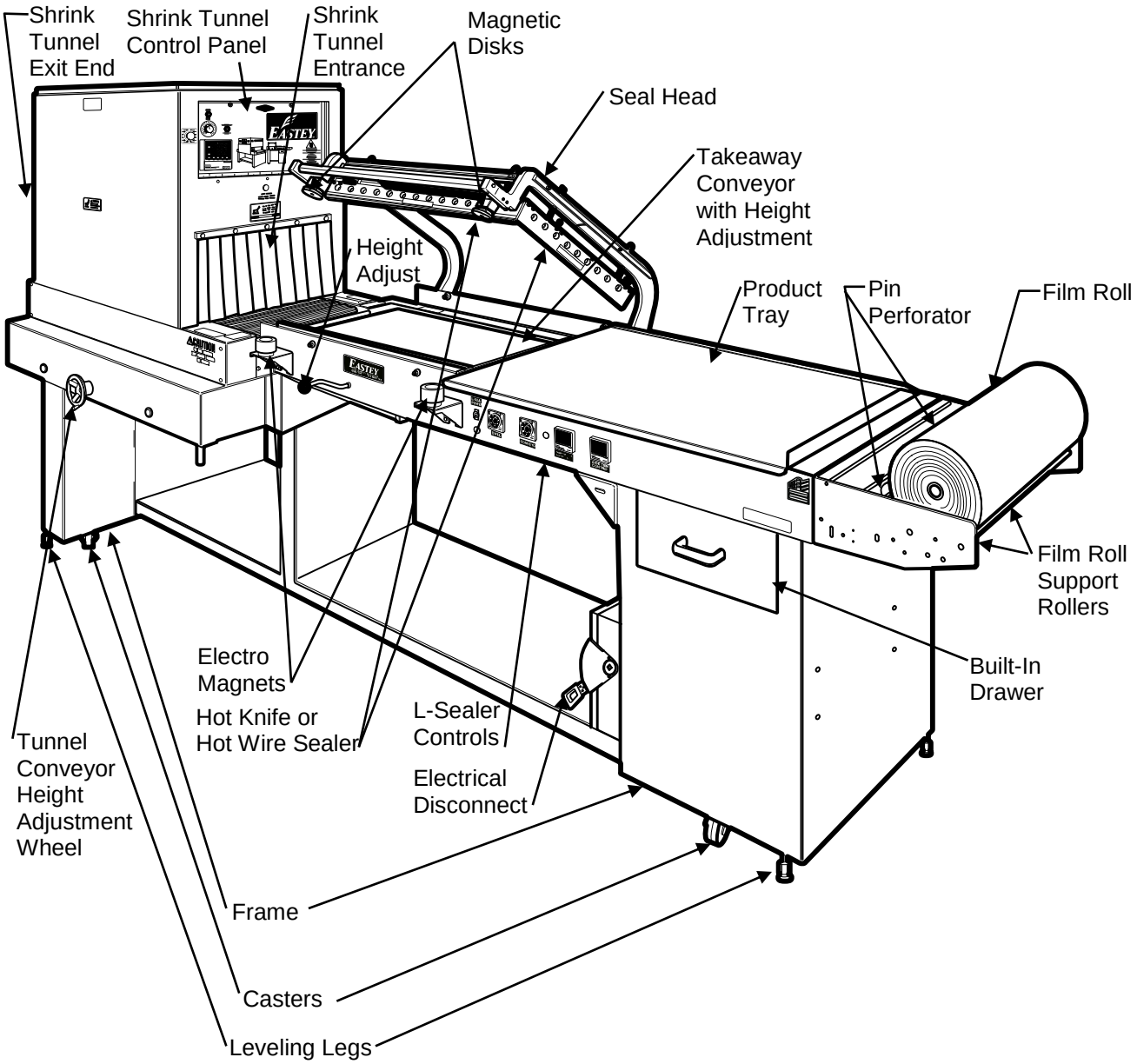
Burn hazard. Indicates a hot surface. Do not place your hand on or touch the hot surface, as doing so could result in burns. Shut down the machine and allow the surface to cool before touching surface.

Pinch hazard. Do not place your hands or any object on the moving mechanism. Shut down the machine before performing maintenance.

Moisture hazard. Keep equipment dry. This equipment is designed for indoor operation in a typical clean, dry factory environment, protected from rain and moisture. Do not operate the machine in any extremely wet or oily environment that may exceed operating specifications.

Introduction

General System Description



Specifications

Explanation of Model Numbers

- E = Manufactured by Eastey Enterprises Inc., division of Engage Technologies.
- C = Combination (“Combo”) L-sealer and Shrink Tunnel. EC Combination Series L-sealer and Shrink Tunnels combine an L-Sealer and Shrink Tunnel on a single chassis. The L-Sealers incorporate an electromagnetic hold-down system on that allows the operator to load the next package while the preceding package is being sealed, assuring uniform sealing pressure over the entire length of the seal bars to provide consistent sealing results. Packages are then transported to the Shrink Tunnel where the sealed plastic bag is heated then allowed to cool outside the tunnel to shrink around the package.
- _ _ = 20 — First two digits indicate length of sidebar or nominal maximum length of side seal in inches: 20 inches.
- _ _ = 16 or 28 — Remaining two digits indicate length of front bar or nominal maximum length of front seal in inches: either 16 or 28 inches.
- T = Takeaway conveyor — The L-Sealer is equipped with a takeaway conveyor that conveys the sealed package to be transferred onto the conveyor of the Shrink Tunnel.
- K = Knife — Indicates hot knife seal bar. The hot knife seal bar is an option and the unit can be ordered with hot knife or hot wire seal bar options.
- V _ = Voltage and Phase. Models are configured for V5 = 480V AC single phase.

Option Indicators

- -INV Indicates film Inverter.
- -PFU Indicates Power Film Unwind.

Standard Features

- Designed to seal and then shrink-seal most polyolefin, polyethylene, and PVC* shrink films
  *With hot knife systems only.
- All-welded main frame from ¼-inch cold-rolled steel
- Built in drawer for tools or spare parts
- Seal head casting equipped with head return cylinder
- Stainless steel film clamps hold film in place while sealing
- Available with hot wire or hot knife seal systems
- Hot knife seal systems available with mushroom (standard), pancake, or arrow inserts

- Dual locking magnet clamps apply even pressure across the seal-bar
- Adjustable dwell time for better seal control
- Solid state temperature control adjustable for a variety of films
- Adjustable product tray accommodates wide variety of product sizes
- Takeaway conveyor can be raised or lowered to center the seal with the product
- Automatic takeaway conveyor
- Heavy duty film cradle allows for easy changeovers and adjustments
- Adjustable pin perforator provides air evacuation
- Side seal size from 16 in. to 28 in.; front seal size of 20 in.
- Maximum film width up to 24 inches
- Maximum film roll O.D. up to 12 inches; 10 inches with power unwind
- Heavy duty casters for transportation within plant
- Leveling legs provide sturdy base once in place
- Custom two-part epoxy finish resists scratching
- Side seal size of 16 in. × 20 in. or 28 in. × 20 in.
- 480V 50A Single Phase standard power requirement
- Easy to use design requires minimal training and maintenance, and provides trouble-free operation
- Made in the USA

Options

- Power Film Unwind (PFU)
- Film Inverter
- Hot knife inserts
- Right-hand and left-hand models available
- Lower conveyor (2” maximum)
- Custom product guides or product tray.

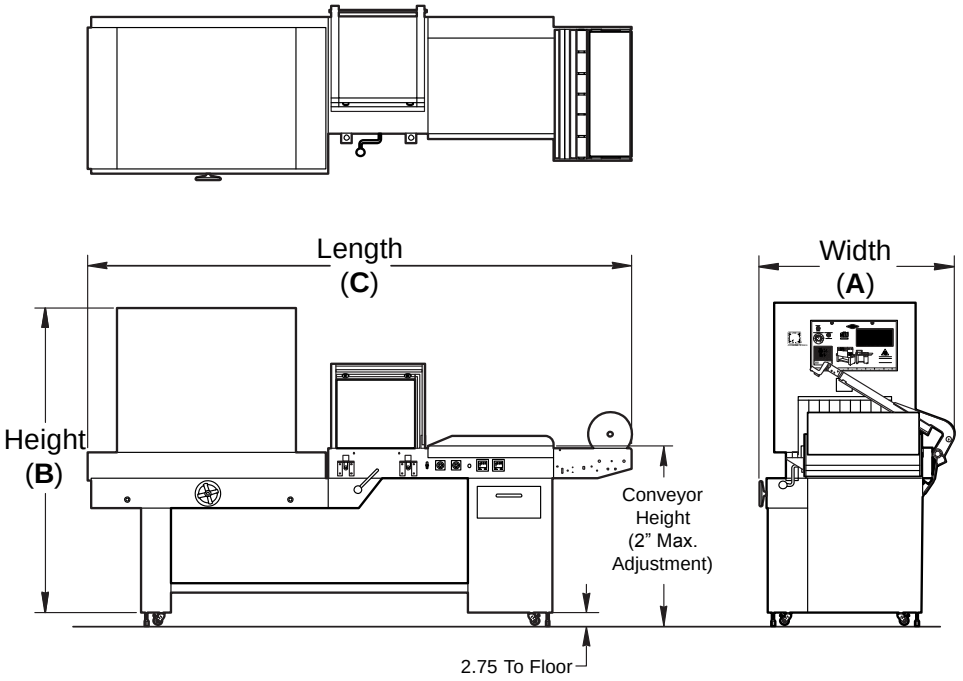
Standard Power Requirements

Voltage / Phase	Standard Power		
Designator	Volts	Amperes	Phase
V5	480	50	1

Dimensions and Weights

Model Number	Machine Dimensions			Seal Dimensions		Chamber Dimensions			Net Weight	Shipping Weight
	Width (A)	Height (B)	Length (C)	Front (F)	Side (S)	Width (W)	Height (H)	Length (D)		
EC2016	40.5 in. 103 cm	65 in. 165 cm	111 in. 282 cm	16 in. 41 cm	20 in. 51 cm	16 in. 41 cm	10 in. 25 cm	36 in. 91 cm	1450 lbs. 658 kg	1600 lbs. 726 kg
EC2016 PFU	49.0 in. 124.5 cm	65 in. 165 cm	104 in. 264 cm	16 in. 41 cm	20 in. 51 cm	16 in 41 cm	10 in. 25 cm	36 in. 91 cm	1700 lbs. 771 kg	1875 lbs. 851 kg
EC2028T	48.5 in. 123 cm	65 in. 165 cm	132 in. 335.3 cm	28 in. 71 cm	20 in. 51 cm	16 in. 41 cm	10 in. 25 cm	36 in. 91 cm	1550 lbs. 703 kg	1700 lbs. 771 kg
EC2028T PFU	57 in. 145 cm	65 in. 165 cm	114.5 in. 289.6 cm	28 in. 71 cm	20 in. 51 cm	16 in. 41 cm	10 in. 25 cm	36 in. 91 cm	1800 lbs. 817 kg	1975 lbs. 896 kg

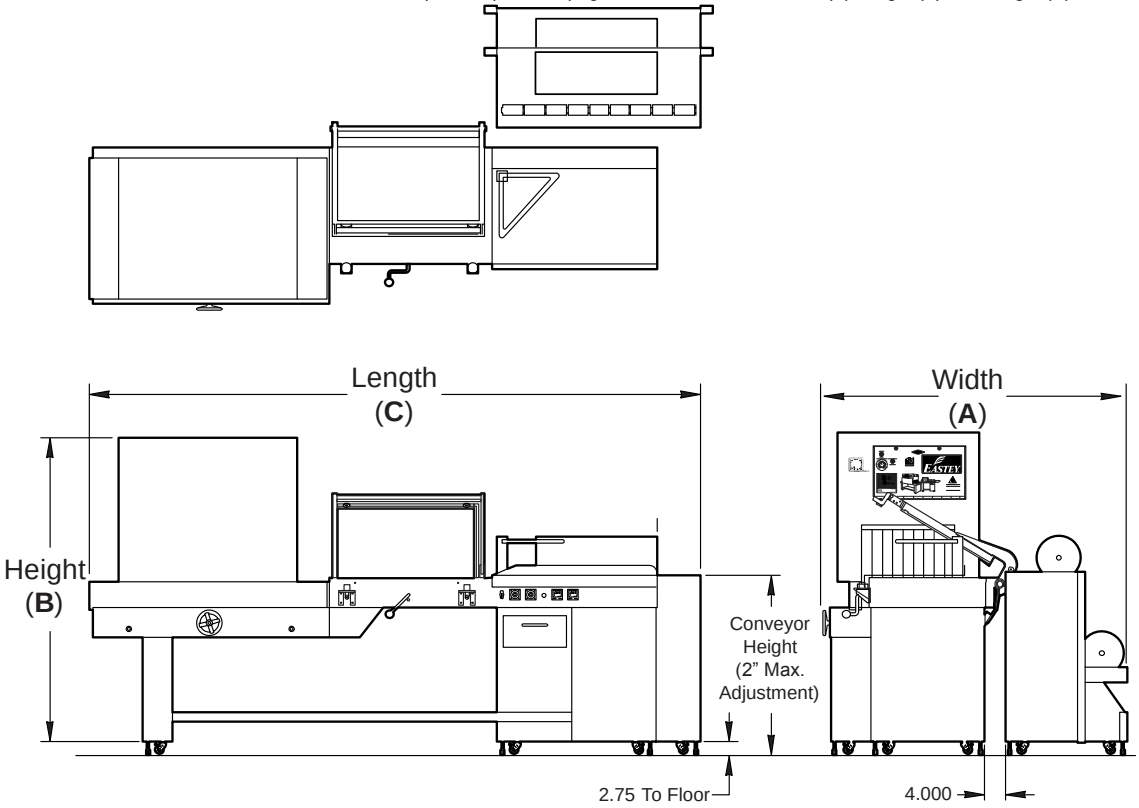
EC2016T Manual Feed (without PFU and without Inverter)



See Machine Dimensions in the above table for overall machine width (A), height (B), and length (C).

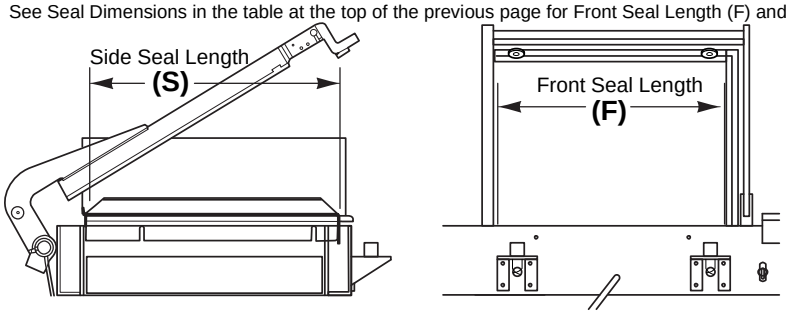
EC2028T with PFU and Inverter

See Machine Dimensions in the table at the top of the previous page for overall machine width (A), height (B), and length (C).

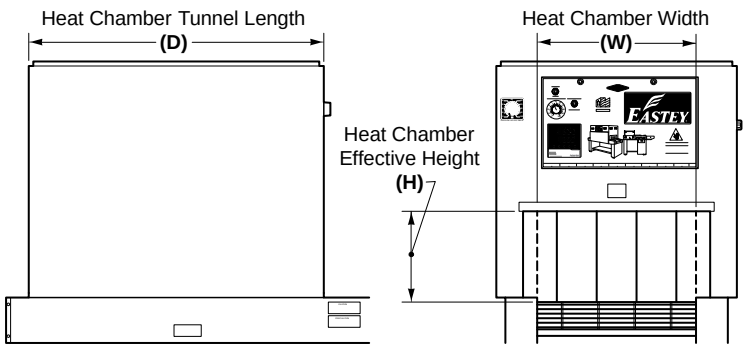


L-Seal Dimensions and Shrink Tunnel Chamber Dimensions

See Seal Dimensions in the table at the top of the previous page for Front Seal Length (F) and Side Seal Length (S)/



See Chamber Dimensions in the table at the top of the previous page for Heat Chamber Height (H), Width (W) and Height (H).



Unpacking

Thoroughly inspect the equipment and packaging immediately on arrival.

Carefully remove the outer protective shipping wrapper. Inspect the machine for any damage that may have occurred during transit. If goods are received short or in damaged condition, it is important that you notify the carrier's driver before they leave your company and insist on a notation of the loss or damage across the bill of lading. Otherwise no claim can be enforced against the transportation company. Please note that a copy of this document is attached to the outside of every crate.

If concealed loss or damage is discovered, notify your carrier at once and request, **insist**, on an inspection. This is absolutely necessary. A concealed damage report must be made within ten (10) days of delivery of shipment.

Unless you do this, the carrier will not entertain any claim for loss or damage. The agent will make an inspection and grant a concealed damage notation. If you give the transportation company a clear receipt for the goods that have been damaged or lost in transit, you do so at your own risk and expense.

All claims must be filled within **five** (**5**) months of the delivery date or the carrier will not accept them.

We are willing to assist you in every reasonable manner to help you collect claims for loss or damage. However, this willingness on Eastey's part does not make Eastey or its parent or related companies responsible for collections or claims or replacement of equipment damaged or lost in transit.

Loading and Unloading Instructions

- ☐ Air-Ride suspension and shipping straps are required for transportation of the combination L-sealer and shrink tunnel.
- ☐ When transporting the combo unit, roll the machine into the truck or trailer, and then when the machine is in position for shipping, lock the locking casters.
- ☐ Use shipping straps to restrain the combo unit securely so it will not shift in transit.

Installation

Lift the machine up and off of the shipping pallet.

CAUTION! **The EC series Combo L-sealer and Shrink Tunnel is heavy and will require a forklift, floor crane, or several people to move safely off the shipping pallet. Use proper equipment when lifting the Combo unit and ensure it is secure and will not shift while being moved off the shipping pallet.**

Place the combo unit in the desired location with the required electrical power source available. (See power requirements for the specific model in the Standard Power Requirements table.) Make sure the electrical wiring is adequate to provide the required voltage. If the voltage provided is too low, the equipment will not operate correctly.
Selecting the proper location is one of the most important considerations for initial setup. When selecting the location, take into consideration the following factors.

1. Adequate power supply nearby?
2. Where is the machine in relation to the power source?
3. Where is the machine in relation to any conveyor(s) necessary to move the wrapped product? (Alignment with packaging line.)
4. Convenience for the operator.

If there is any doubt, get qualified assistance with your initial installation.

Location Requirements

When installing the combo unit please be aware of the following considerations:

1. The floor surface on which it is located is flat and level.
2. Conveyor or packing table height.
3. Alignment with packaging line.

When the combo unit is positioned in the operating location you will need access to:

1. Control panel switches: On/Off switch, dwell timer, sealer heat and conveyor timer controls and shrink tunnel control panel.
2. Height and width adjustments.
3. Film unwinder.

Provision should be made for exiting packages. For example, a table or bin to accumulate packages that have been sealed and heated in the shrink tunnel to cool.

If the combo unit is part of a longer packaging line, take into consideration the table and conveyor height in relation to adjacent machinery.

The machine should be placed on a flat, level floor so that it does not rock or move. We recommend that the machine be securely locked in place when used.

Set up the combo unit and move it to its location. The casters allow easy movement over smooth flat surfaces. If you need to lift the unit to move it, you will need to use a pallet jack, floor crane, or fork lift to move it to its location.

CAUTION! If the combo unit must be lifted for moving, use proper equipment when lifting and moving it to ensure it is secure and will not shift.

When the combo unit has been moved to its location, use the levers on the casters to lock the wheels to prevent rolling and keep the unit in place. A power cord (with optional electrical plug) should be installed by a licensed electrician.

CAUTION! Before operating, ensure the following.

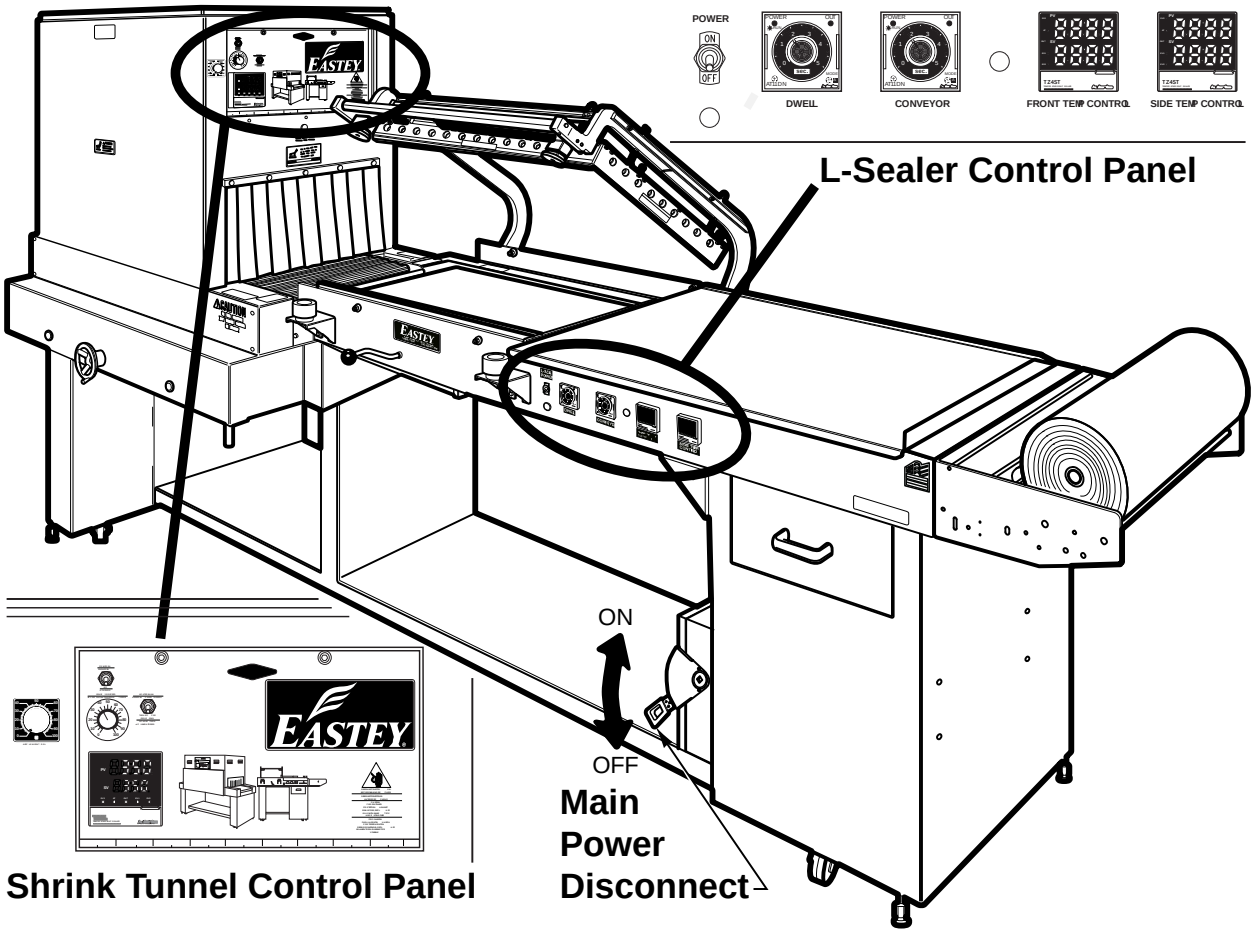
1. **All shipping ties are removed.**
2. **All personnel are clear of the equipment.**
3. **Electrician has stated that all electrical work is complete.**
4. **Adjust all controls according to the settings sheet.**

Refer to instructions in the Operation section for instructions to power up or shut down the machine.

Operation

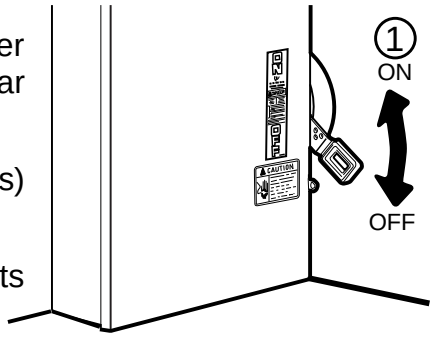
Controls for machine are grouped into two control panel areas based on the function of the machine with which they are associated.

- Controls for L-sealer operation are located along the front side of the L-sealer section of the frame, just below the product tray.
- Controls for shrink tunnel operation are located on the upper enclosure above the entrance to the shrink tunnel.



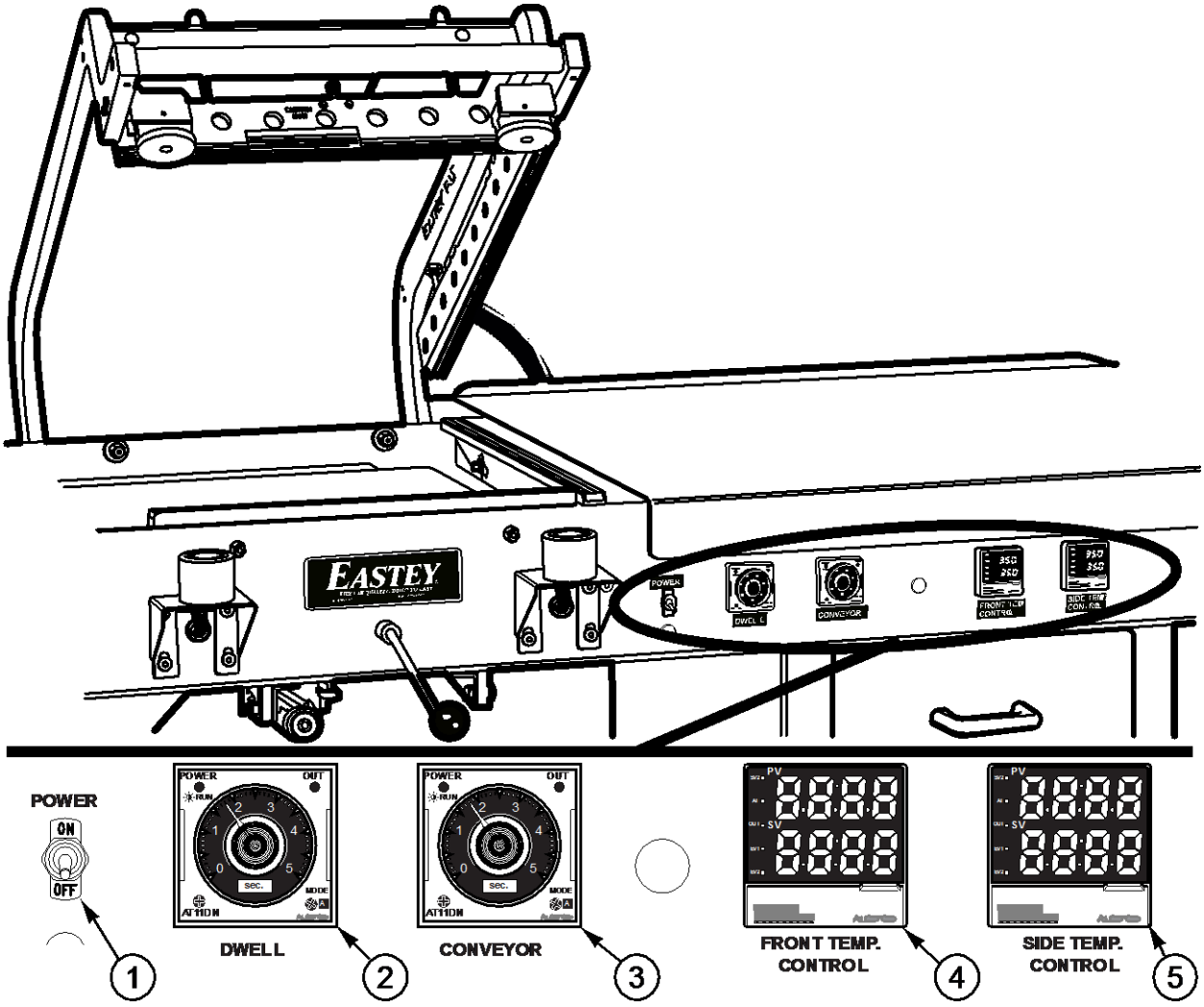
Main Power Disconnect

1. **Power** — The main power disconnect switch is the lever with the orange handle on the electrical switch box near the base of the machine.
   - Lifting the lever to the On position turns on (connects) the system power for the L-Sealer and Shrink Tunnel.
   - Pushing the lever down to the OFF position cuts (disconnects) all power to the system.



L-Sealer Control Panel

Controls for L-sealer operation are located along the front side of the L-sealer section of the frame, just below the product tray.



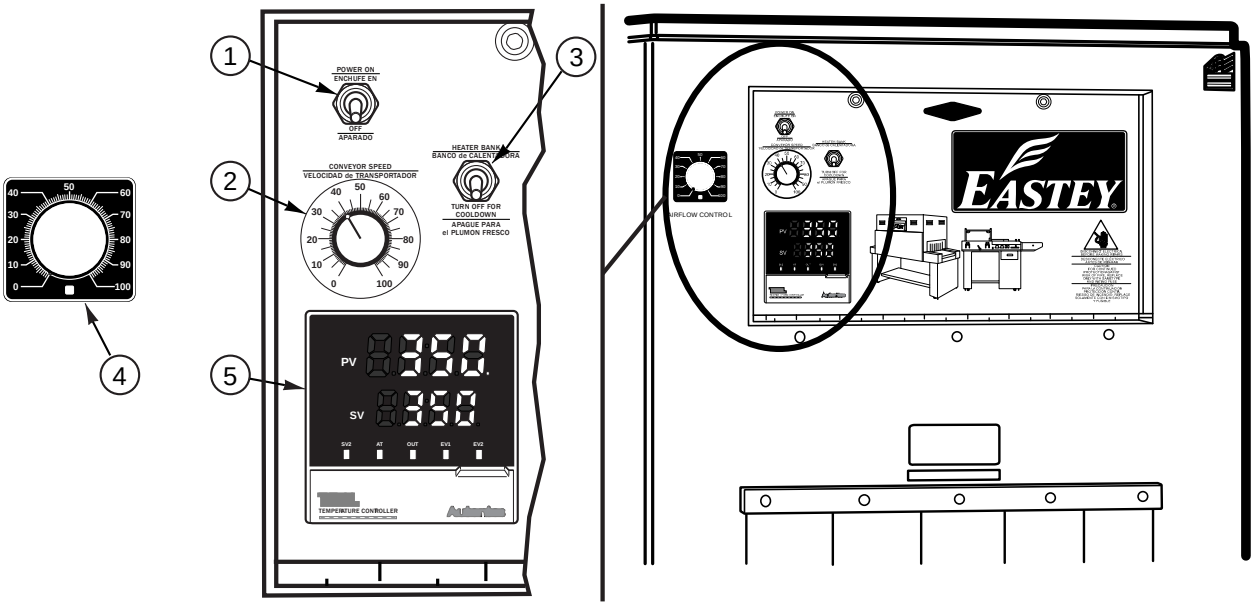
Controls for the L-sealer, from left to right, are as follows.

1. **Power** — Toggle switch to toggle L-Sealer power on or off.
2. **Dwell** — Timer setting for seal. (Duration of activation of seal arm electromagnets).
3. **Conveyor** — Timer setting for conveyor. (Length of time the conveyor will run for each item.)
4. **Front Temperature Control** — Setting for temperature of front seal.
5. **Side Temperature Control** — Setting for temperature of side seal.

CAUTION! When the power is turned on be aware of sealer hot surfaces and moving belts and rollers.

Shrink Tunnel Control Panel

Controls for shrink tunnel operation are located on the upper enclosure above the entrance to the shrink tunnel



1. **Power On-Off Switch** — The power on/off switch located at the top of the electrical panel turns the power off or on for the Shrink Tunnel.

   - Toggling the lever to the On position turns the heater, conveyor, and system power on.
   - Toggling the lever to the Off position turns the heater, conveyor, and system power off.

2. **Conveyor Speed** — Speed setting dial control for controlling speed of the shrink tunnel conveyor.

3. **Heater On-Off Switch** — Toggle switch for turning the heater bank on or off.

4. **Blower Speed Control** — Speed setting dial control for blower speed.

   NOTE: The blower motor speed setting dial control is located off the panel door to the left of the rest of the controls above the shrink tunnel entrance.

5. **Temperature Controller** — Temperature setting and current temperature inside the chamber is displayed.

   CAUTION! When the power is turned on be aware of heat inside of the tunnel chamber and hot surfaces and moving belts or rollers.

Film Handling Components

Product Tray

The product tray is the adjustable metal platform used to separate the film and to facilitate insertion of the product between the bottom and top layers of film.

The product tray is adjustable to achieve proper depth equal to the total width of the package, thereby allowing the product to be placed precisely at the center-fold of the film each time.

Film Support Rollers

The film support rollers are positioned at the front end to cradle the film roll as film is dispensed. Vertical rods, one at each end of the film roll, help keep the film aligned with the product tray.

Pin Perforator

The pin perforator is located between the lower idler rollers and is completely synchronized with the seal arm. It creates holes in the film (to allow air to escape during shrinking). The pin perforator is adjustable and must be properly located with relation to the depth of packages to be sealed. The position of the pin perforator should always be reviewed when changing the machine for a different size package or different size film. It is adjusted by the adjustment knob at the bottom of the film rack. The pin perforator is mounted inside the film rack of the machine to avoid dropping or damaging and so it is mounted out of the way.

Film Brake

The film brake is positioned at the front end of the cradle rollers and creates a drag that maintains tension on the film as the film is dispensed. The operator should from time to time re-check the setting of the film brake for proper tension. The film brake's purpose is to reduce overruns or slack in the film.

Mounting Film

Standard Cradle-Mount (Unpowered) Film Unwinder

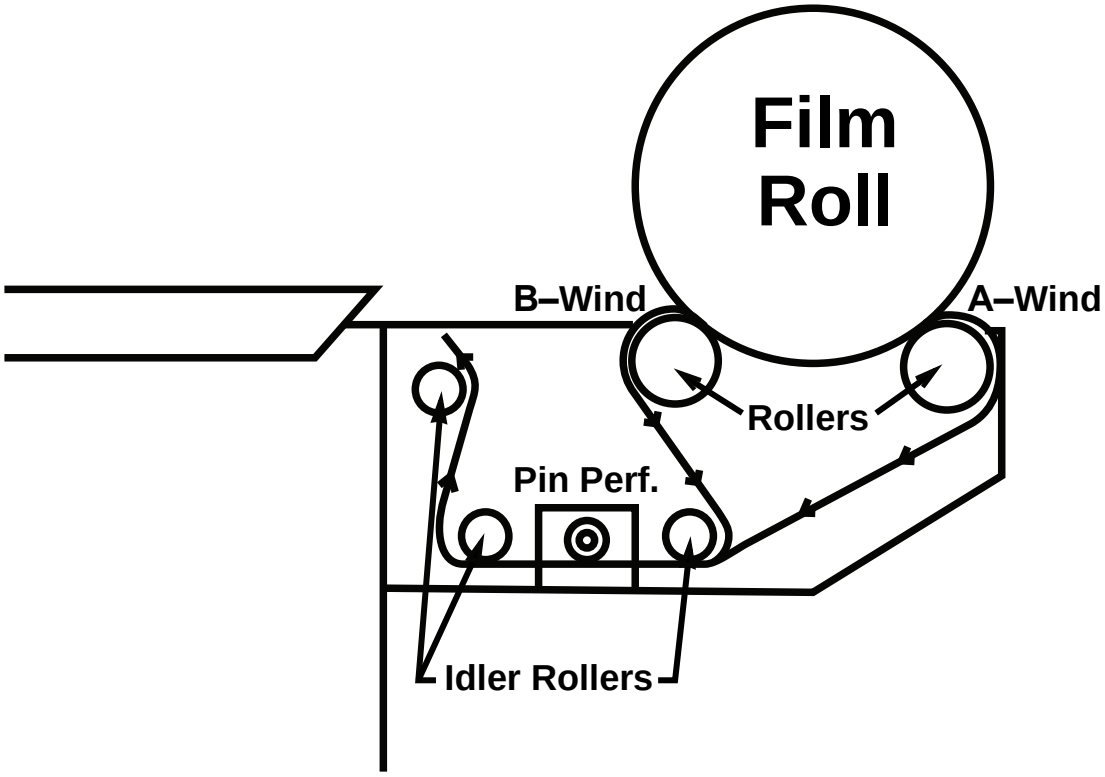
Select the proper width of center-fold film for the product being packaged, taking into account the width and height of the package. With the package properly positioned within the film in the sealing area, allow sufficient film to overlap the sealing bars so that a seal can easily be made without possibility of openings due to insufficient film coverage.

Place the film roll on the support rollers of the cradle-mount film unwinder. (See the illustration on the following page.) Place the center-fold away from the operator, to the

back of the machine. Position the film roll on the rollers and tighten the bolts on the film rack collars to hold the film roll in position.

Decide whether the film is an A or B wind, and then thread it through and around the idler rollers and the pin perforator. (See the following illustration.) When threading the film, make sure to pull excess film through the rollers, across the product tray and into the sealing area to ensure sufficient film to begin. When you have threaded the film, separate the top film from the bottom and insert the product tray between the film top and bottom. Make sure that the center-fold of the film is at the back of the product tray. This allows the operator to insert product on the product tray between the top and bottom layers of film to prepare to move the product and film into the sealing area. Do not place product in the first few bags formed by the sealer: they will not have any perforation holes in them (because the sealer and pin perforator work together). Perforation is required to allow air to vacate when the product passes through the shrink tunnel.

Cradle-Mount Film Unwinder



Begin inserting product into the film as soon as the film reaching the seal area has perforations in it. Place the product against the back of the film separator tray and then move product into the seal area. Be sure to leave the bag loose around the product when making the seal. This helps keep the seals from blowing out in the shrink tunnel. See Sequence of Operation, which follows, for more detailed instructions for operating the L-sealer.

Optional PFU (Powered Film Unwinder)

(With Double Film Rack for use with Film Inverting Head)

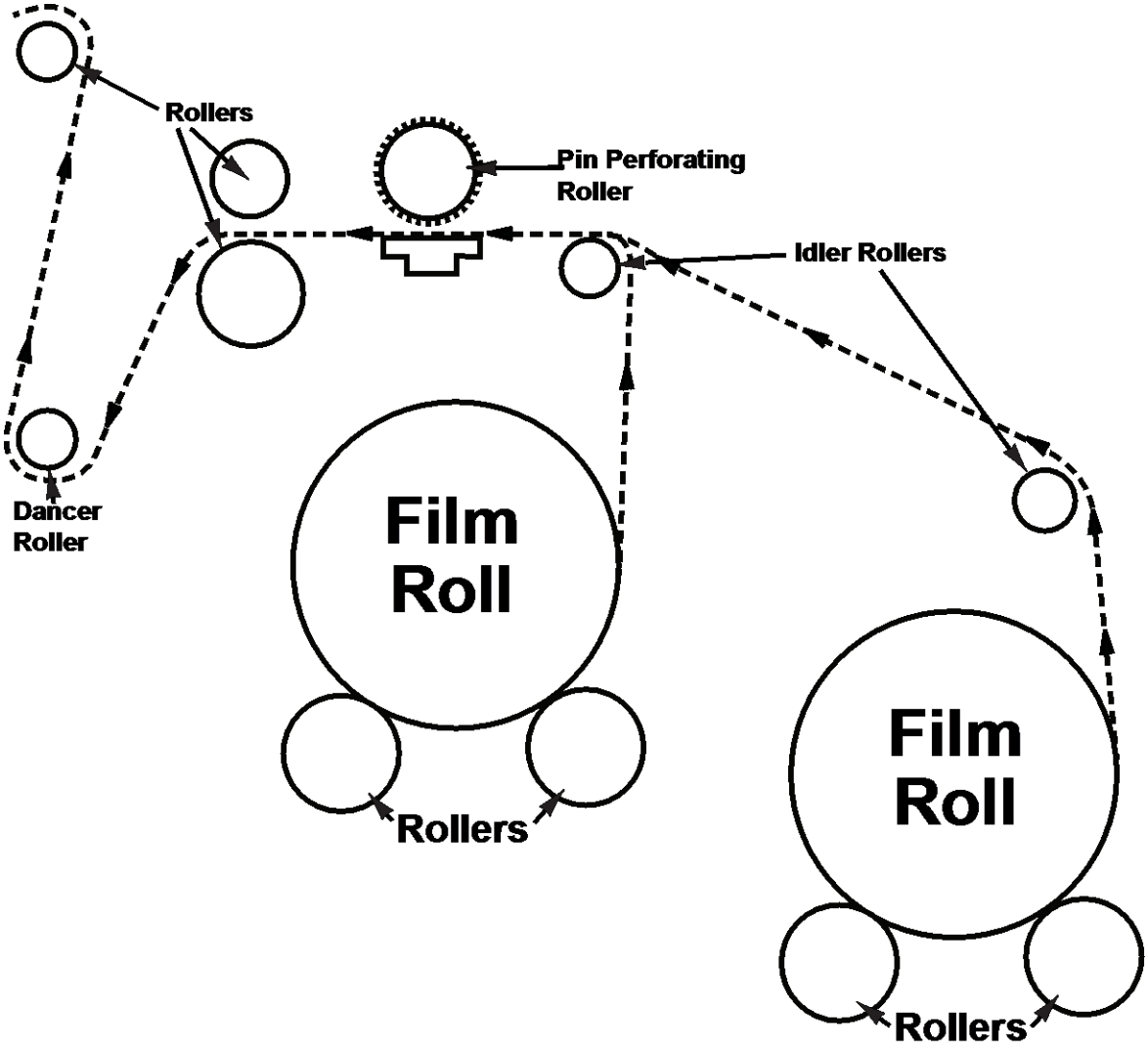
Use the following steps when using the optional Eastey power film unwinder and inverting plow. These steps must be taken to ensure proper tracking of the film.

1. Set the inverting head to desired opening one-half inch (1/2”) taller than the package. See the illustration on the following page. The final roller and film separator rod should automatically adjust the film direction toward the center of the inverting plow. For example, if the package is six inches (6”) high, the film should be directed three inches (3”) above the loading tray coming off the power film unwind.

2. Invert film around the inverting head. Standing in front, facing the machine, move the loading tray out of the way. Pull film toward you, feeding it off the unwinder with the folded edge on the right. (Put the bottom layer of film under lower inverting plate. Put top layer of film on top of upper inverting plate.) With your right hand, push film between inverting head plate and loading tray as it enters the seal area.

3. Adjust takeaway conveyor height so that the seal is in the center of the package top to bottom. The objective is to use equal amounts of film for the top and bottom. If the package is six inches (6”) high, the takeaway conveyor should be three inches (3”) below the lower seal pads.

Optional Powered Film Unwinder



Sequence of Operation

1. Connect electrical power to the machine and turn on electrical power to the combo unit by lifting the main power switch lever to the On position.

2. Turn the Power toggle switch for the L-Sealer to the On position to provide power to the L-Sealer section of the combo unit.

3. Turn on power to the shrink tunnel section of the combo unit by toggling the Power switch near the upper left of the shrink tunnel control panel to the On position.

    - Temperatures of the seals and temperature inside the tunnel will be displayed on the corresponding temperature controls.

4. Turn the Heater Bank toggle switch at the right of the shrink tunnel Power switch to the On position to turn on the heater bank.

5. Look at the control dials to verify speeds and temperatures are set within typical levels as applicable for the type and thickness of the film you will be using.

    - Set the conveyor speed controls on the L-sealer and shrink tunnel panels at about midrange for initial operation. This can be fine-tuned later. (Exact desired conveyor speed can be determined later, based on package size and sealer speed.)

    - Set temperature controllers for Front Temp Control, Side Temp Control and shrink tunnel Temperature Controller to temperatures recommended for your shrink-wrap material. Temperature settings may need to be adjusted higher or lower until you have achieved satisfactory sealing and shrinking. Once the correct temperature settings for a product has been determined, you should not need to adjust any temperature setting again as long as you are running the same product.

    - Adjust the blower speed control of the shrink tunnel for proper air flow speed in the shrink tunnel chamber.

6. Place the product on the product tray.

    - The product tray separates the film, allowing you to place the product between the upper and lower layers of film.

7. Move the product into the seal head area, pushing it to the left.

8. Move hands out of the seal head area and pull the seal head down. Let go of the handle as soon as the magnets activate.

    - The magnets hold the seal head down for the amount of time required to make the seal. The amount of time is adjustable by turning the Dwell timer knob, which is located to the left of Power switch under the product tray, to increase or decrease the amount of time.

    - While the magnets are holding the seal head down, it is not necessary to wait. Prepare the next item to be sealed, placing it on the product tray between upper and lower layers of film.

9. Once the seal is formed completely, the seal head automatically releases. The sealed product is removed by the takeaway conveyor and fed onto the shrink tunnel intake conveyor. The next Item can be moved into position for sealing, as the item just sealed moves into and then is heated in the shrink tunnel.

    - The takeaway conveyor runs for the specified amount of time required to move the sealed product onward out of the sealing area to be picked up by the shrink tunnel intake conveyor. The amount of time the conveyor runs is

adjustable by turning the Conveyor timer knob, which is located to the right of the Power switch under the product tray.

NOTE: If there is too much tension on the film while the bag is being sealed, the seals will be more likely to be weak or blow out in the seal area while moving through the shrink tunnel.

10. As packages are readied and sealed at the L-sealer, previous packages are shrink-sealed in the shrink tunnel and then exit the tunnel at the far end, where they may be placed in accumulation bins or passed to a plant conveyor line for further processing as required.

When production is finished or at the end of a production cycle, perform an orderly shut-down of the system. First turn off the shrink tunnel Heater Bank toggle switch, then turn off the L-sealer Power toggle switch. Wait for the shrink tunnel to cool to required cool-down temperature before turning off the shrink tunnel toggle Power switch, and (if required) shut off power at the main power lever only after the shrink tunnel has reached cool-down temperature.

CAUTION!: When shutting down the shrink tunnel, be sure to turn the Heater Bank switch to Off and wait for the tunnel to cool down, then turn off the Power toggle switch for the shrink tunnel. (Refer to the procedure for setting the cool-down temperature. Temperature will be displayed on the shrink tunnel temperature control.) Once cool-down temperature is reached and motors have shut down, then shut off the toggle power switch.

Adjustments

This section is presented in two parts: the first part outlines adjustments for the L-sealer; the second part outlines adjustments for the shrink tunnel section of the machine.

Solid state temperature controllers for the L-sealer and shrink tunnel look similar but have slight differences in the display and number and function of programming buttons (five buttons for the L-sealer temperature controller, versus six buttons for the shrink tunnel temperature controller, for example) for making settings. Be sure to look carefully to consult the instructions that are applicable to the controller you are working with.

L-Sealer Adjustments

Element Pulse Switch Adjustment

The sealing cycle should not begin until the seal head is within one-quarter-inch (¼") or less of the film to be sealed. If the magnets energize before the head is within one-quarter-inch of the film, loosen the locknut and turn the screw (located at the rear of the side seal bar) up slightly (counter-clockwise as viewed from above). Adjustment has been set correctly when the magnets are energizing just as the seal bar comes into contact with the lower magnet pads.

Electromagnet Position Adjustment

All magnets have been factory adjusted for equal sealing pressure throughout the length of both the front and the side seal bars. If an adjustment is required, however, use the following procedure.

1. Disconnect the L-sealer power plug from the electrical power source.
2. Loosen the lower magnet screws on all of the lower magnets so the magnets settle to the lowest position in the mounting slots.
3. Lower the L-sealer operating handle fully and lift the lower magnets to within the thickness of a dime from the holders.
4. Re-tighten the mounting screws securely to retain the proper adjustment.

Seal Pad Pressure Adjustment for Head Return Cylinder

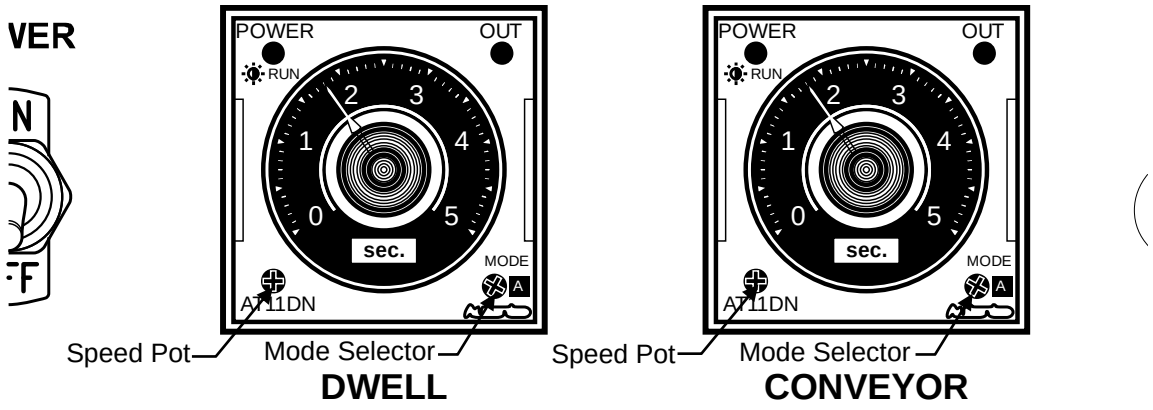
Uniform pressure between the sealing elements and the sealing pads must always be maintained in order to obtain an even seal and to prevent heating-element hotspots and premature burnout. The adjustment should be checked periodically and should always be checked when sealing gaps occur.

1. Shut down the system and cut off electrical power by switching the Main Power Disconnect to the Off position.
2. Supporting the seal head in the up position, loosen the four set screws for the head return cylinder. Gently lower the seal head to rest on the lower seal pads.
3. With the seal head resting on the lower pads, shim up the film clamps so that the inserts are resting on the lower pads. Make sure there are no air gaps, and then tighten the head casting bolts.
4. Adjust magnets. (See Electromagnet Position Adjustment above.)
5. Go to the rear of the L-sealer. Make sure the head cylinder is straight from front to back. Pull the air cylinder bracket the full length of the air cylinder. Tighten the $^{5}/_{16}$-inch set screws.
6. Cycle the seal head up and down. Adjust set screws on head return cylinders for proper head speed and cushion.

L-Sealer Timers and Temperature Controls

Check dwell and conveyor-run timing, and temperature of front and side seals after making adjustments or after performing maintenance, such as replacing seal pads, cutting rules or hot knife inserts. Adjust as required using the adjustment provided through the L-Sealer control panel.

L-Sealer Timer Controls



Each of the speed control timers for the L-sealer for the dwell and conveyor have an adjustable potentiometer in the lower-left corner and a mode selector in the lower-right corner. (See the illustration above.) Use a small screwdriver to turn pots in either direction as required.

- Turning the pot on the lower-left, you will see the numbers change inside the dial. Keep turning it until you adjust to 5 seconds. While turning this pot you will see the sec turn to min, hour, and 10hr. Factory setting is 5 seconds.
- Turning the selector at the lower-right, you will see the modes change. Keep turning until you return to mode A, which is the factory setting. Turning these two pots cleans the wipers inside the timer.

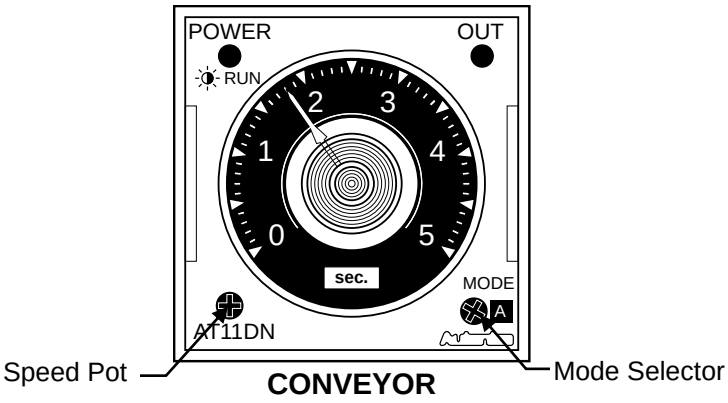
Tracking the L-Sealer Takeaway Conveyor Belt

From time to time or whenever the L-sealer takeaway conveyor belt has been replaced, it will be necessary to track or align the belt so that it stays in place on the rollers while moving and delivering the product. The procedure is simple, but can be time-consuming.

1. Identify the drive roller and the idler roller. The drive roller is the larger roller. The idler is smaller and has a crown (rounded surface that is higher at the middle and tapers outward to give the idler a slight “barrel” shape).

2. Place the belt on the rollers in the center and tighten each adjustment screw as evenly as possible.

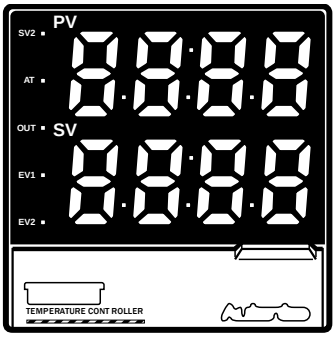
3. Adjust the speed potentiometer on the conveyor timer (adjustment screw for speed pot is at lower left; see illustration below) to increase the conveyor speed.

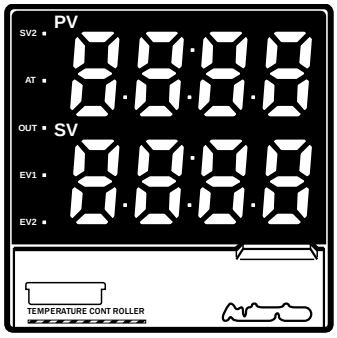


4. Start the conveyor and observe the belt.

5. If the belt stays centered on the rollers during operation, no further adjustment is required. If the belt begins to pull towards the front or back, adjust it by turning the left-hand adjustment screw only. Turn the adjustment screw no more than one quarter turn at a time — attempting to make larger adjustments will only prolong the adjustment effort. Return the conveyor to normal operating speed when finished.

L-Sealer Temperature Controls





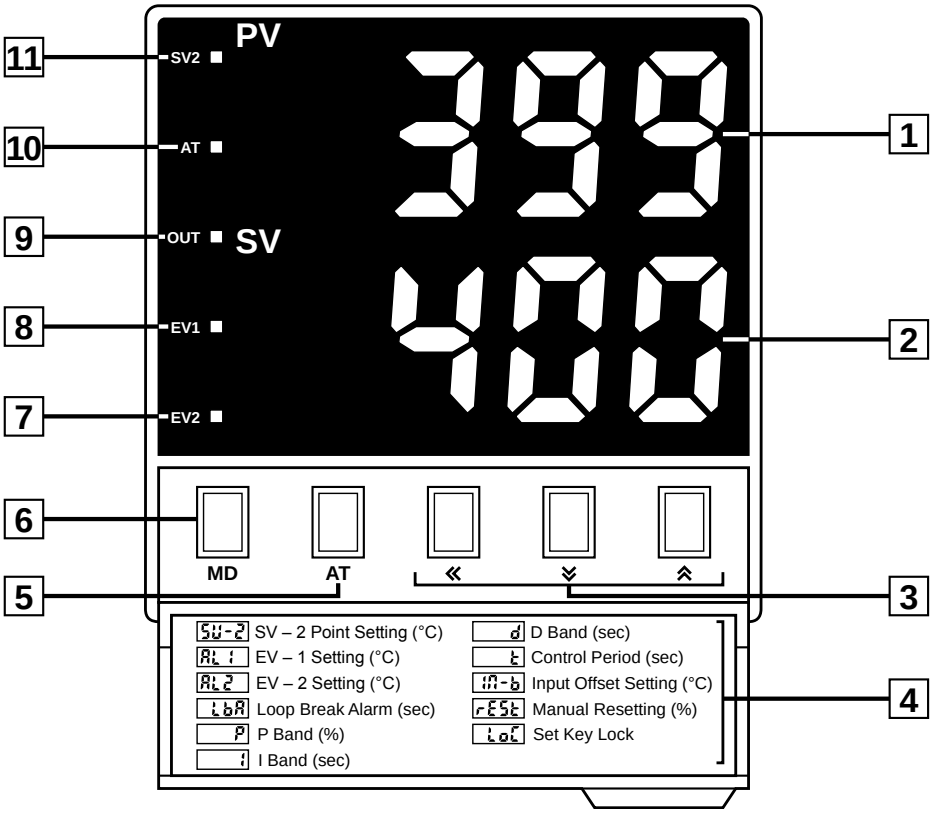
FRONT TEMP CONTROL **SIDE TEMP CONTROL**

Temperature controllers for the cutting rules or hot knife inserts are to the right of the speed controls in the L-sealer control panel area. The left temperature controller controls the temperature of the front seal, and the right temperature controller controls the temperature for the side seal.

Both temperature controllers for control of front- and side-seal temperatures of the L-sealer function identically (and similarly but slightly differently from the shrink tunnel temperature controller)

Buttons required for programming and adjusting the temperature controller are protected from being pressed accidentally by a small horizontal cover below the display. These buttons are accessed by opening the door by flipping it downward. Information displayed by the temperature controller and the programming buttons, as well as typical programming functions are explained in the following pages.

L-Sealer Temperature Controller Adjustments



1. PV = Processing value (red in color).
2. SV = Setting value (green in color).
3. Back («, shift display key), down (»), and up (») keys.
4. Programming key access door — Open to access programming keys.
5. AT key: the mode key to execute Auto Tuning function.
6. MD key: the mode key to change items to be set, such as set value, etc.
7. EV2: Event 2 output signal lamp.
8. EV1: Event 1 output signal lamp.
9. OUT: Output signal lamp.
10. AT: Signal lamp flashes while unit is auto-tuning.
11. SV2: Signal lamp for SV2 set value.

To Change the Set Value (L-Sealer)

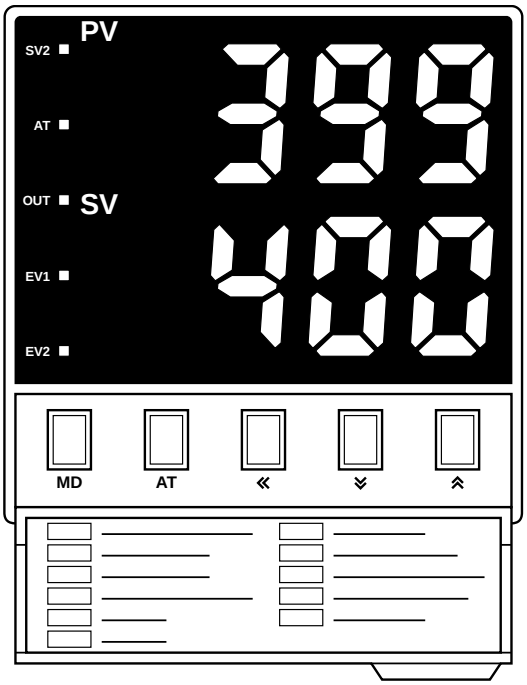
1. Press the left-arrow («) button and a digit will begin to flash. The flashing digit indicates the digit whose value can be changed by pressing the down- (») or up-arrow (») buttons.
2. If necessary, press the left- («) or right-arrow (») to shift to the place of the digit that needs to be changed. (The digit to the left or right will begin flashing.)
3. Press up (») or down (»), as required to change the flashing digit to the required value.
4. Repeat instructions 2 and 3 above as necessary until all digits have been set to the required value, and then press the MD button. No digits will be flashing, the new value entered is applied.

To Change the Set Value for Over Temperature (L-Sealer)

Over temperature is factory set to 500° F, but can be adjusted if required for your sealing application.

PV, the Process Value is the actual temperature reading at the sealing elements. PV and SV are mentioned in this procedure, but they are only displayed at the beginning of the procedure.

1. Press and hold the MD button until SV-2 is displayed.
2. Press the MD button (do not hold it down) repeatedly to scroll through the menu until LOC is displayed.
3. Press the left-arrow («) button. (ON will begin flashing.)
4. Press the down-arrow button (»). (ON will turn to OFF and OFF will be flashing.)
5. Press the MD button. (OFF will stop flashing.)
6. Press MD again. (This will bring you back to SV-2.)
7. Press MD again until AL-1 is displayed.
8. AL-1 is set to 500°.



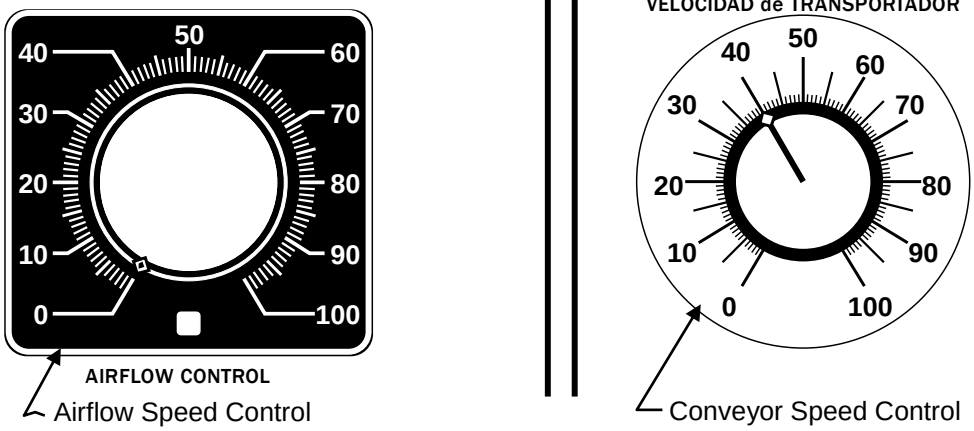
Over Temperature Alarm Setting (L-Sealer)

1. Press and hold the MD button for approximately three (3) seconds.
   - IN-T is displayed.
2. Press and hold the MD button and up-arrow (⌃⌃) buttons at the same time for three (3) seconds to activate the menu. Scroll to LOC and press the left-arrow («) button. On will begin flashing. Press the down-arrow button (⌄⌄). On will turn to Off and press the MD button until LOC appears, indicating that the Off setting is locked.
3. Press the MD button until EU-1 appears (Event 1). Below EU-1, AL-6 should appear. If not, use the up and down buttons to select AL-6.
4. Now return to LOC and change it to On.
5. Press and hold both the MD and up-arrow (⌃⌃) buttons at the same time for three (3) seconds to access the other menu.
6. Scroll through the menu using just the MD button and turn LOC Off.
7. Scroll through the menu until AL-1 appears. This is your high alarm. The normal factory setting is 500°.
8. Return to LOC and change it to On.

Shrink Tunnel Adjustments

All controls specific to shrink tunnel operation of the combo unit are located above the entrance to the shrink tunnel.

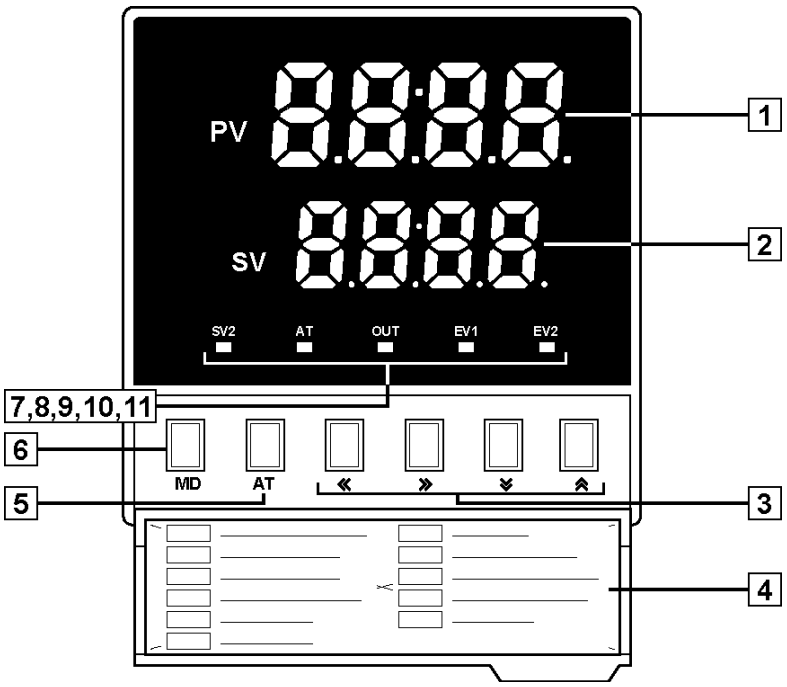
Shrink Tunnel Speed Controls



The shrink tunnel has two speed adjustment control dials. The dial control outside to the left of the panel, controls the speed of the airflow blower motors, and the dial control on the panel, just below the toggle switch for tunnel power, controls the tunnel conveyor speed. Operation is straightforward: turning the dial counter-clockwise to larger numbers increases motor speed, and turning the dial clockwise to smaller numbers decreases motor speed. Numbers on the dials, from 0 to 100, represent percentage of the available speed range, from 0 indicating minimal or no movement to 100 representing the fastest available speed setting.

Shrink Tunnel Temperature Controller Settings (ETC00011)

The shrink tunnel temperature controller is the programmable controller located on the shrink tunnel control panel below the toggle switches for shrink tunnel power and for heater bank on / off/cooldown, and below the conveyor speed control dial.



1. PV = Processing value (red in color).
2. SV = Setting value (green in color).
3. Back («), forward (»), down (⌄), and up (⌃) keys.
4. Programming key access door — Open to access programming keys.
5. AT key: the mode key to execute Auto Tuning function.
6. MD key: the mode key to change items to be set, such as set value, etc.
7. EV2: Event 2 output signal lamp.
8. EV1: Event 1 output signal lamp.
9. OUT: Main output light to indicate when heater bank is are on.
10. AT: Signal lamp flashes while unit is auto-tuning.
11. SV2: Not currently used.

To Change the Set Value

1. Press the left-arrow («) button and a digit will begin to flash. The flashing digit indicates the digit whose value can be changed by pressing the down- (˅) or up-arrow (˄) buttons.
2. If necessary, press the left- («) or right-arrow (») to shift to the place of the digit that needs to be changed. (The digit to the left or right will begin flashing.)
3. Press up (˄) or down (˅), as required to change the flashing digit to the required value.
4. Repeat instructions 2 and 3 above as necessary until all digits have been set to the required value, and then press the MD button. No digits will be flashing, the new value entered is applied.

To adjust the Delay Cool-Down

The SV, for Set Value (also sometimes called the set point), is factory set to 400°. If you change this value, you must make the following adjustment to ensure that your equipment will automatically shut down at 150°.

PV, the Process Value is the actual temperature in the machine. PV and SV are mentioned in this procedure, but they are only displayed at the beginning of the procedure.

1. Press and hold the MD button until SV-1 is displayed.
2. Press the MD button (do not hold it down) repeatedly to scroll through the menu until LOC is displayed.
3. Press the left-arrow key. (ON will begin flashing.)
4. Press the down-arrow key. (ON will turn to OFF and OFF will be flashing.)
5. Press the MD button. (OFF will stop flashing.)
6. Press MD again. (This will bring you back to SV-1.)
7. Press MD again until AL-1 is displayed.
8. AL-1 is set to 250°. Optimum shut-down should be 150°.

Factory settings are as follows:
SV (Set Value, your set point) is set to 400°.
AL-1 is set to 250°

400° - 250° = 150°

To set AL-1 so the machine will shut down at 150°, press the left-arrow key and the right-most digit will flash. Use the up- or down-arrow key to select the digit, and then press the left-arrow key again. Use the up- or down-arrow key to set the digit and repeat until the correct value is displayed. Press MD to lock in the setting.

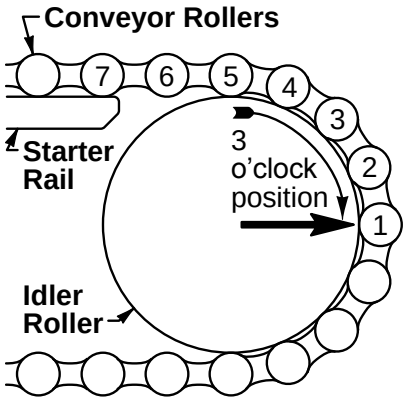
9. Press MD and scroll through the menu until LOC is displayed.
10. Press the left-arrow key. (OFF will begin flashing.)
11. Press the up-arrow key. (OFF changes to ON, and ON is flashing.)
12. Press MD. (On stops flashing.)
13. Press and hold the MD key until PV and SV temperatures are displayed.

Conveyor Belt Tension Adjustment

Check the belt tension of the package conveyor occasionally to ensure that it is not excessive, as this will cause unnecessary wear on the conveyor sprockets.

To Check or Adjust Conveyor Chain Tension

1. Bring a roller to the three o'clock position (the center of the end) of the idler end of the conveyor.
2. Shut off power to the tunnel, and then remove the idler end caps.
3. Begin with the roller in the three o'clock position and count the conveyor rollers. The seventh roller should be evenly touching the conveyor starter rails.



Maintenance

The Eastey EC Combination Series Semi-Automatic L-Sealer and Shrink Tunnel will provide many hours of maintenance-free operation. To aid in the high reliability of the L-sealer and shrink tunnel, inspect the machine regularly and perform maintenance as required. Disconnect electrical power before replacing worn items or making repairs. Be very careful when servicing or adjusting this equipment. If in doubt, stop and obtain qualified help before proceeding.

Preventative Maintenance

- ☐ Clean the sealing areas: hot knives or cutting rules and silicone rubber or felt pads.
- ☐ Ensure no parts are torn or missing on upper and lower seal areas. Replace as needed.
- ☐ Check wire takeaway belt and shrink tunnel belt for material stuck on or in belt. Clean if necessary.
- ☐ Inspect the rollers of the conveyors regularly to ensure that no scrap pieces of film are wrapped around the rollers to cause sticking packages. (Instructions for cleaning rollers are provided later in this section.)
- ☐ Lubricate roller chains every 60 hours with a high temperature oil. Use a brush to apply lubricant while running the conveyor slowly.
- ☐ Inspect film cradle rollers. Repair or replace as needed.
- ☐ Check conveyor height adjustment.
- ☐ Check power cord and wiring for wear and loose connections.
- ☐ Check for any loose fasteners.

Perform the following maintenance checks each month.

- ☐ Check and adjust conveyor tension if required. Replace the belt if worn out or damaged.
- ☐ Check wire belt(s) and remove any material stuck in or on the belt. Replace worn links or belt if required.
- ☐ On mesh belt conveyors, check the mesh for material stuck in or on the belt. Replace worn or damaged links. Check the condition of the wear rails. Replace as needed. Check and adjust the belt tension as needed.

- ☐ On dead roller tunnels, clean and lubricate the conveyor chains. Check the chains and adjust as needed. Check for overall wear on dead roller guide rails and starter rails. Repair as needed.
- ☐ Check the condition of the silicone covering on the rollers. Repair or replace as necessary.
- ☐ Check and clean the motor-to-conveyor drive chain. Adjust tension as needed.
- ☐ Check the intake screens of the shrink tunnel and clean them as necessary.
- ☐ Check for loose fasteners. Tighten as necessary.
- ☐ Check the condition of the power cord for wear. Especially if it is exposed to traffic.
- ☐ Check that the seal bars and tunnel are able to maintain the set temperatures. If not, refer to the Troubleshooting section of this User Guide for instruction.
- ☐ Check that you are able to vary conveyor speeds within required ranges. If not, refer to the Troubleshooting section of this User Guide for instructions.
- ☐ Check the condition of all warning and instruction labels. Replace as necessary.

L-Sealer Maintenance and Replacement

Film Roll Support Rollers

Make sure rollers stay clean and grease free. If you should have to clean the rollers, simply wipe them down with a clean lint free cloth. If a more thorough cleaning is necessary wipe the rollers down with a mild detergent and water and let dry. **Never use harsh or abrasive cleaners or chemical agents when cleaning the rollers.**

Silicone Rubber and Felt Seal Pad Replacement

Occasionally it will be necessary to replace the silicone rubber or felt sealing pads. Seal pads are designed with a channel to make them easy to install and replace. Seal pads should be replaced if the following symptoms are observed.

- Gaps in the seal
- Weak seals
- Improper film cutoff
- Excessive sealing pressure required

To replace a silicone rubber or felt pad, pull the old pad out of the channel and replace with the new silicone rubber or felt pad, pressing it into place in the channel.

NOTE: Some silicone rubber pads come covered in talcum powder. If so, clean the pads with a mild solvent.

Changing Hot Knife Inserts and Cutting Rules

1. Disconnect the L-sealer power plug from the electrical power source.

   CAUTION! Always be aware of the cutting edges while replacing the knife edges. Handle the knife blades carefully.

2. Remove the #10-32 screws holding the inner side film clamp and remove the #10-32 screws holding the outer front film clamp.

   NOTE: One #10-32 screw is behind the aluminum arm casting. This does not need to be removed. Push the product tray in all the way. Swing the film clamp down and to the right over the product tray, then pull it out and rest the film clamp on the product tray.

3. Remove the #8-32 flat head screw on both side-seal and front-seal bars.

4. Remove the insert and cutting rule, both at the same time.

5. Place the replacement cutting rules into the new inserts, both at the same time, ensuring that the beveled edge is in the corner.

6. Push the beveled edges together.

   NOTE: The inside beveled edges of the cutting rule need to come together. The outsides do not. Be sure the cutting rules are touching.

7. Install the #8-32 flat head screws, but do not tighten them at this point.

8. Heat the seal bar up to the set point.

9. Adjust insert and cutting rule if they separate at the corner.

10. Tighten the #8-32 flat head screws while the seal bars are hot.

11. Turn off heat and allow the sealer to cool down, and then reinstall film clamps.

Takeaway Conveyor Maintenance and Replacement

From time to time it will be necessary to disassemble the conveyor when it requires an adjustment for a different product size or if worn parts need to be replaced or for general maintenance. Instructions provided in this user guide are very general. If these generalized instructions do not address your specific conveyor issue, contact a certified representative of Eastey or contact Eastey Enterprises directly (Eastey.com/contact-us).

Replacing the Takeaway Conveyor Motor

NOTE: This procedure requires an Allen or hex wrench, and a 7/16-inch box-end wrench.

1. Disconnect the L-sealer power plug from the electrical power source.

2. Disconnect wires # 14 and # 16 from inside the panel and pull them out. Note the color of wires and where they are connected.

   NOTE: Wiring color connections to the conveyor motor.
   - **Red and yellow are together and capped.**
   - **Brown, purple, and orange are together and capped.**
   - **Black is connected to black for power.**
   - **White is connected to white for power.**
   - **Green is connected to green to ground or motor ground.**

3. Loosen the ¼-20 drive roller adjustment bolts and remove the timing belt. Remove the timing pulley from the motor (requires an Allen or hex wrench).

4. Remove the three ¼-20 bolts. These hold the motor in place. As the last bolt is removed, hold onto the motor so it does not fall. (Bolt removal requires $^{7}/_{16}$-inch box end wrench.)

5. Place the new conveyor motor in place of the conveyor motor removed, and install the ¼-20 bolts.

6. Re-install the timing pulley. Make sure it is not rubbing against the conveyor frame, and then tighten both set screws.

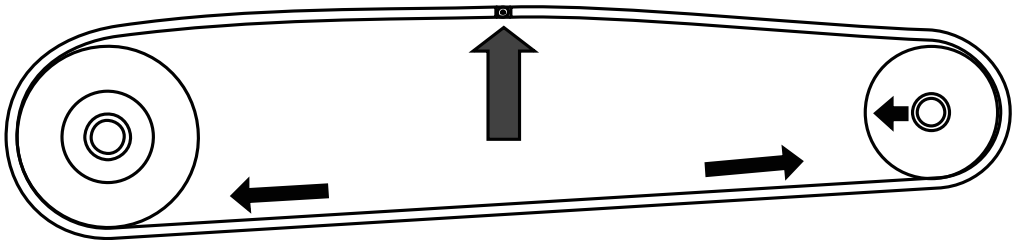
7. Reinstall the timing belt. Tighten the ¼-20 drive roller adjustment bolts. Reconnect the power wires #14 and # 16. Refer to the wiring color connections note on the preceding page to complete motor wiring connections.

8. Refer to the instructions for Wire Belt Repair Splicing.

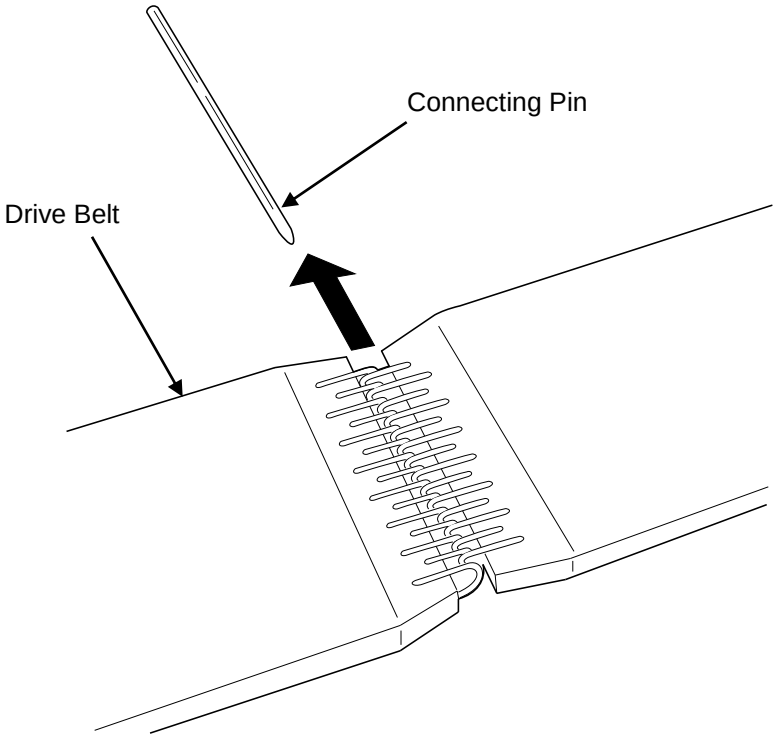
Caution! **Disconnect main power to the conveyor before attempting to repair or adjust belt.**

Replacing the Takeaway Conveyor Belt

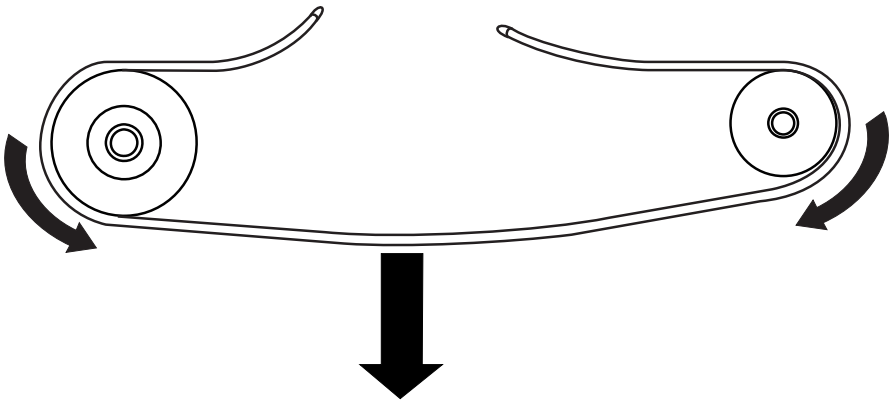
1. Disconnect the L-sealer power plug from the electrical power source.
2. Loosen the idler roller to release tension until the belt is loose.
3. Turn the conveyor belt to move the belt splice to the center of the conveyor.



4. With the belt loose, remove the connecting pin that holds the belt together.

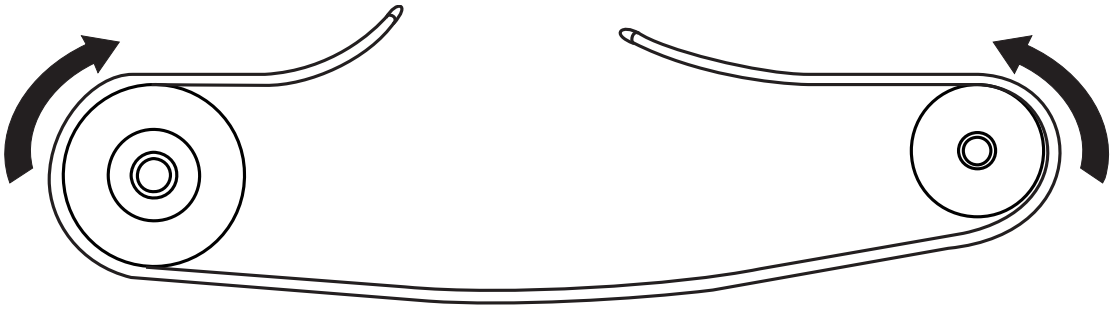


5. Take the belt off the conveyor rollers.

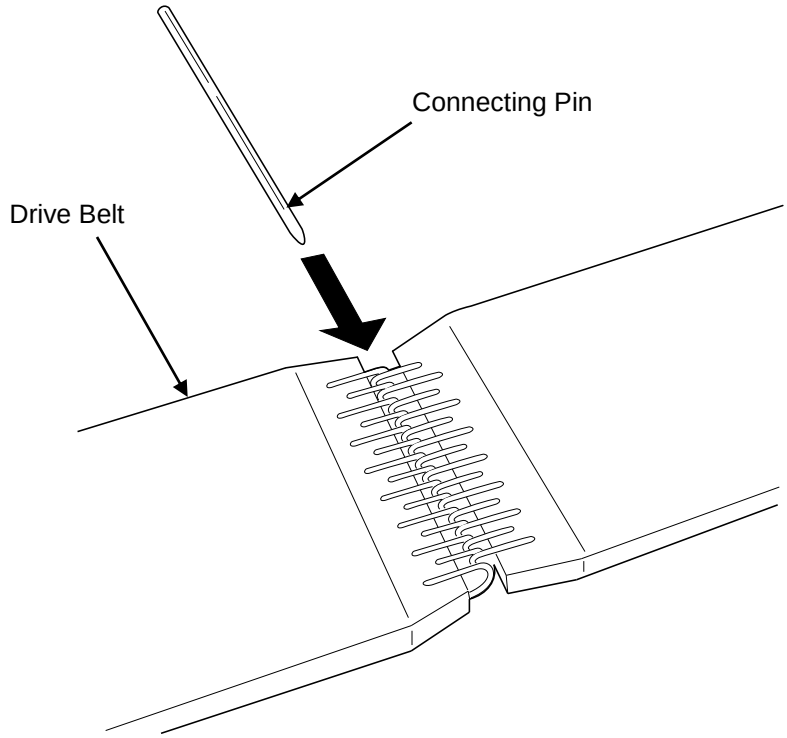


NOTE: At this point, you have completed the procedure for removing the belt. Instructions from here on explain how to install the new belt or reinstall the belt if still usable. If the conveyor support plate requires replacement, replace it before installing or reinstalling the belt.

6. Install the replacement belt around the drive and idler pulleys.



7. While the belt is still loose, start connecting the ends by lining up the edges of the belt. From the side of the belt, replace the connecting pin.



8. Re-tension the conveyor belt as required. Refer to the instructions for Tracking the L-Sealer Conveyor Belt in the Adjustments section.

Temperature Controller Replacement

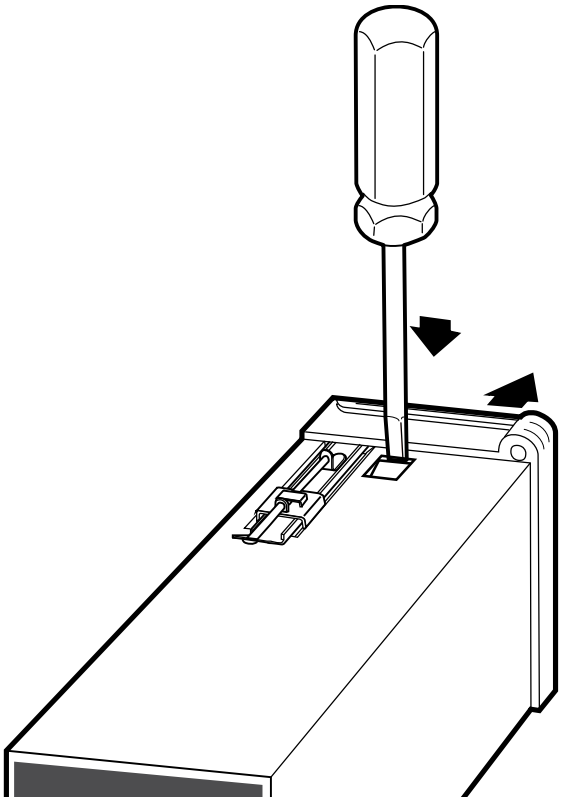
NOTE: Because of similar physical design this procedure is applicable for temperature controllers for the L-sealer or the temperature controller for the shrink tunnel.

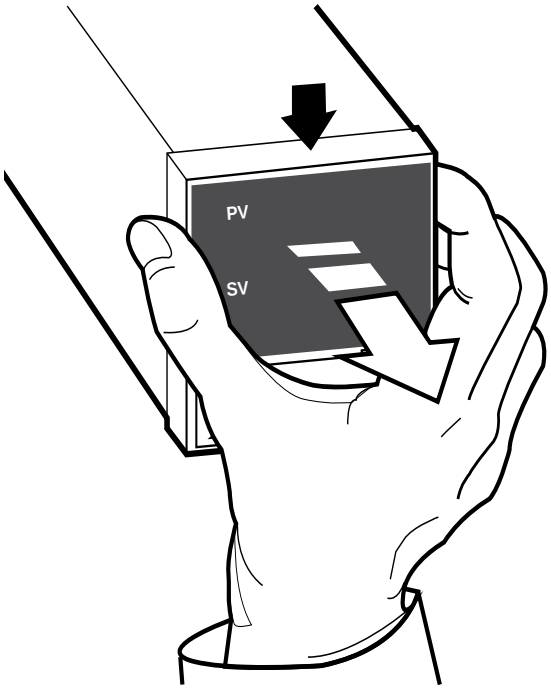
NOTE: Shut off power to the machine before opening the panel door or accessing internal electronics and temperature controller.

There are two options for removing the temperature controller.

1. The first and easiest option is to remove and replace only the controller, which reuses the receptacle sleeve and leaves all wiring intact.
2. The second option is to disconnect all wiring and replace the controller and sleeve together.

To reuse the housing and replace only the interior components of the controller, use a flat screwdriver to carefully press down on the tab, inside on top of the controller. (Take care to not break or deform the tab permanently. See the following illustration.) While the tab is depressed, pull on the front face of the controller to slide it out of the housing.





For the second option (to replace entire controller and receptacle), first take note of wire locations (make a sketch and label the wires with tape, if necessary), and then disconnect wires from the temperature controller and thermocouple. Slide the controller and receptacle out of the front of the panel. Replace with a new controller and reconnect wires to the temperature controller and thermocouple. (Refer to notes made during disassembly or the electrical schematic if necessary.)

Warning: If there is no control over heat, interchange the thermocouple wires.
Caution: Do not exceed 500 degrees.

Shrink Tunnel Maintenance and Replacement

Cleaning Rollers

To Clean Shrink Tunnel Conveyor Rollers

1. Run the conveyor until the affected rollers are inside the heat chamber to heat the film residue and soften the film so it will clean easier.
2. Advance and then stop the conveyor so the heated rollers are out of the chamber and accessible for cleaning.

Caution! Make sure the conveyor is stopped before putting your fingers or anything else in the conveyor area.

3. Remove film residue. If necessary, use a dull blunt-edged tool. Do not use any sharp instruments, as nicking silicone may result in damage that requires replacing the roller covering.

To Clean Exit Rollers

Make sure rollers stay clean and grease free. If you should have to clean the rollers, simply wipe them down with a clean lint free cloth. If a more thorough cleaning is necessary wipe the rollers down with a mild detergent and water and let dry. **Never use harsh or abrasive cleaners or chemical agents when cleaning the rollers.**

Replacing Shrink Tunnel Conveyor Components

Caution! Disconnect main power source before performing any procedure to replace any conveyor component(s).

Roller Silicone Covering Replacement

1. Disconnect power to the machine.
2. Remove idler end caps, disconnect drive chain, loosen the four (4) bolts that hold the drive motor and then, through the access hole, take the drive chain off the drive motor sprocket.

   NOTE: You must take the chain off the drive motor sprocket or the conveyor will not move freely. You must be able to move the conveyor to replace silicone covering on the rollers.

3. Remove old covering by carefully slitting the covering and then pulling it off.
4. Clean all rollers using steel wool or a wire wheel. Make sure all rollers are smooth and free of residue and burrs.
5. Fit the new silicone rubber tubing onto each roller and work on by hand at least ½ inch. At the opposite end of the tubing, fit on and secure an air supply hose of low pressure, maximum pressure 5 lbs. While tubing is slightly expanded by air pressure, push the tubing onto the roller and work it on to the roller. Be careful to hold the roller at all times so it does not fly from the air pressure.
6. Replace rollers on conveyor by inserting roller end holes onto the extended pins of the chain. Reconnect drive chain around drive motor sprocket. Adjust tension on drive chain by tightening the four (4) bolts. Place access hole cover back on and replace idler end caps.

7. Check conveyor chain tension by following the procedure outlined in the Adjustments section.

Idler, Roller Shaft, Bearings, or Sprockets Replacement
Refer to the preceding Roller Silicone Covering Replacement section to access and remove rollers as required. Note the location and orientation of sprockets (make a sketch and note measurements if necessary). Loosen the jam nuts on the tensioning bolts at the drive end of the conveyor. Remove the four (4) ¼-20 bolts for the bearings. Slide the shaft left or right and then the shaft and sprockets will come off. Identify and replace any damaged or worn parts and reassemble in reverse order of disassembly.

Drive Shaft, Bearings, or Sprockets Replacement
Refer to the Conveyor belt tension adjustment section above to open up the conveyor belt. Remove the drive end caps. Disconnect the conveyor belt. Note the location and orientation of sprockets (make a sketch and note measurements if necessary). Loosen four (4) set screws on the drive sprockets. Keep the keyway key for the driveshaft and replace as necessary. Slide the shaft left or right. The shaft sprockets must be adjusted for position. All sprockets are fastened to the shaft by set screws. Identify and replace any damaged or worn parts and reassemble in reverse order of disassembly.

Conveyor Motor Replacement
Shut off the machine and disconnect main power. Remove the drive end cap, disconnect two (2) electrical wires from the drive motor, and disconnect the motor from the drive chain by removing four (4) bolts that hold the drive motor. Remove the sprocket from the old motor and place it on the new drive motor and reassemble parts in the same as they were disassembled. For electrical connections, refer to the electrical schematics.

Wire Belt Repair Splicing

Caution! Disconnect main power to the conveyor before attempting to repair or adjust belt.

Before You Begin Splicing

- Release all belt tensioning mechanisms.

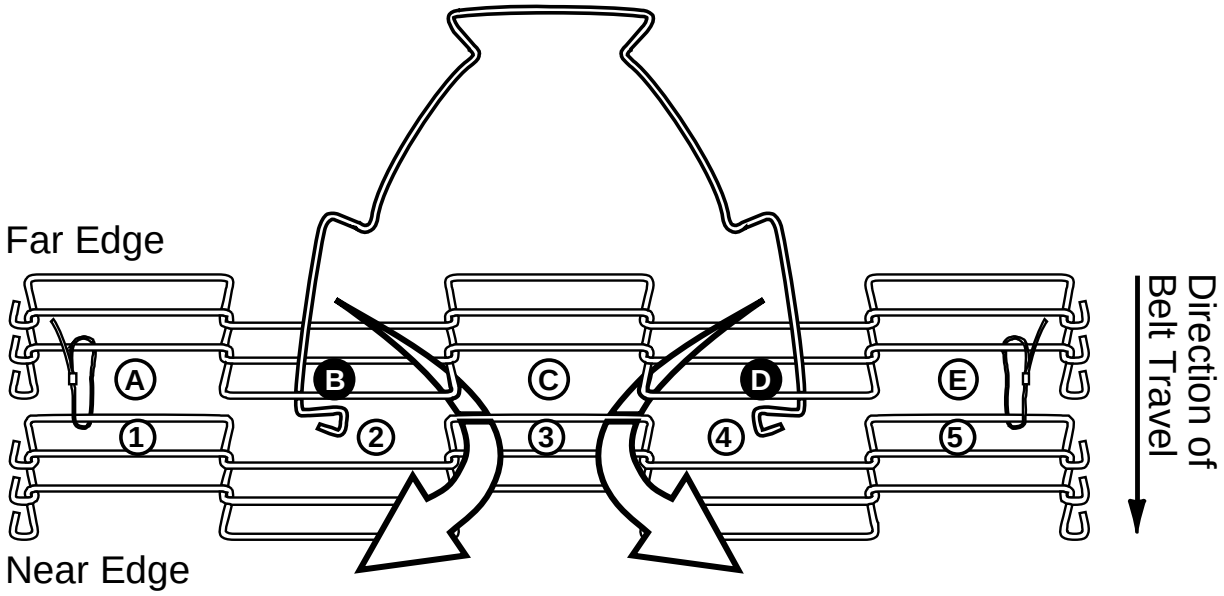
- If installing a new belt, thread the belt onto the conveyor.
- Check to be sure that the smooth side is “up.”
- Check to be sure that the edge loops curve back in the direction opposite the direction of belt travel.
- Remove a strand or two from the new belt to keep in reserve to splice the belt or in case it may be needed to repair the belt in the future.
- Tie both ends of the belt together with cord, twine, or wire ties.

- If repairing a belt
- Tie two undamaged strands at the end to be spliced together with cord, twine, or wire ties.
- Cut out the damaged wire(s) with a wire cutters — pick out and dispose of wire pieces *immediately.*

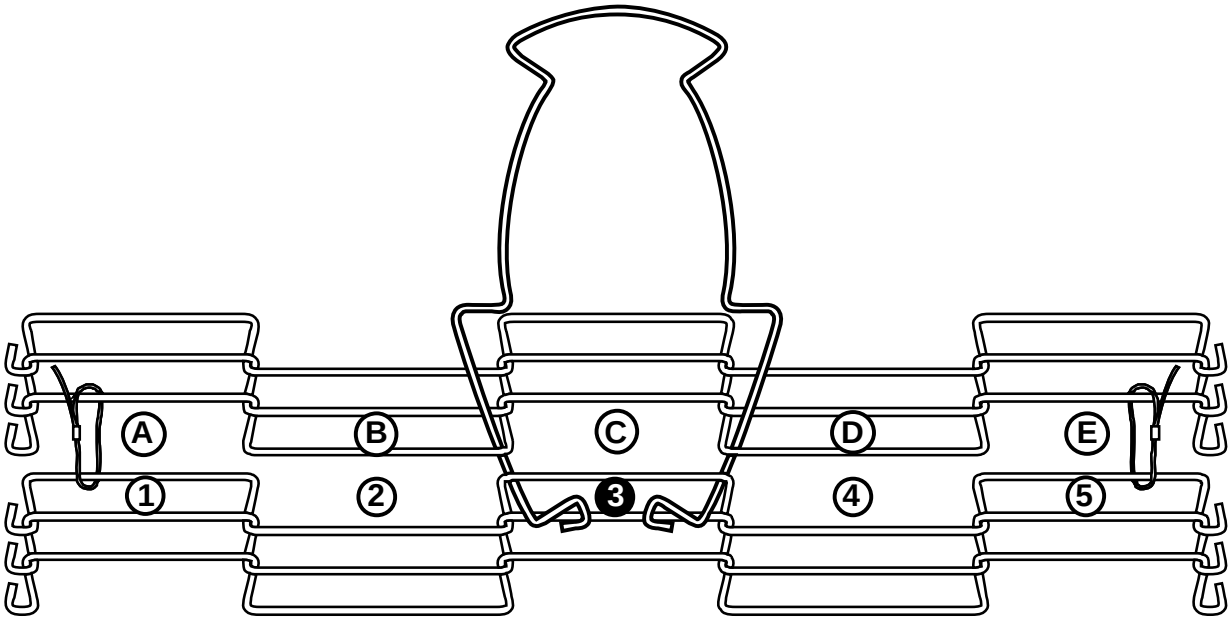
Important! If a belt has damage in more than one place or if the belt has been previously repaired, do not try to repair it. **Install a new belt**. Also, never save used belting to use for repairs because it has already been weakened by use. Purchase several extra feet of new belting to use exclusively for repairs.

Step 1 – Begin Splicing In the Center

1. Move the two ends of the belt to be spliced to the exit end of the conveyor.
2. Confirm that the edge loops curve back, away from the direction of belt travel as shown in the following illustration. If not, check to make sure that the belt is not positioned backwards on the conveyor.
3. Lay the strand down between the two belt ends and check to see that the edge loops are going in the same direction as the belt edge loops. (The strand must also be right-side-up for it to lay flat. You will know immediately if you have installed the splice strand wrong-side-up and you will need to start over.)
4. Bend the strand from each side enough to insert the ends into the two spaces next to the center space. (Spaces B and D in the following illustration.)



5. Insert the strand ends into the center space of the opposite edge. (Space 3 in the illustration below.)

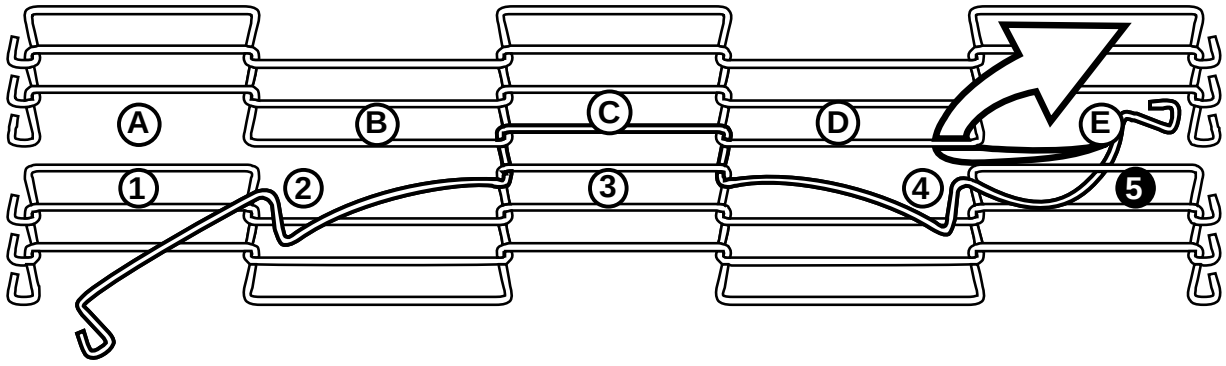


6. Pull the ends of the strand through until the center section “pops” or “locks” into place. (You should be pulling the strands toward you.)
7. Use pliers or the wire belt straightening tool to straighten the wire in the center space. (Once the center is connected, you may remove the ties holding the belt ends together.)

Step 2 – Weave the Strand to One Side

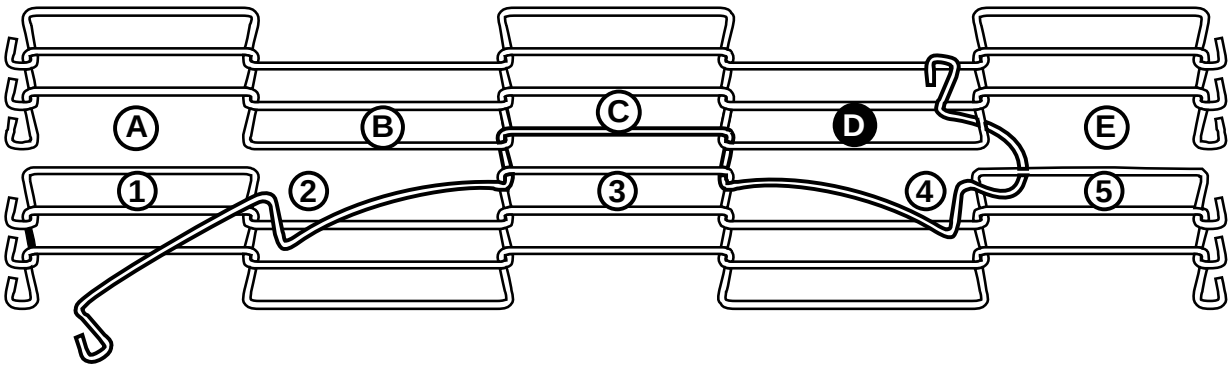
1. Bend one end of the wire up and insert it around the z-bend in the next space on the edge of the wire closest to you. (Space 5 in the following illustration.) Always try to avoid bending the wire in the z-bend.

Far Edge



Near Edge

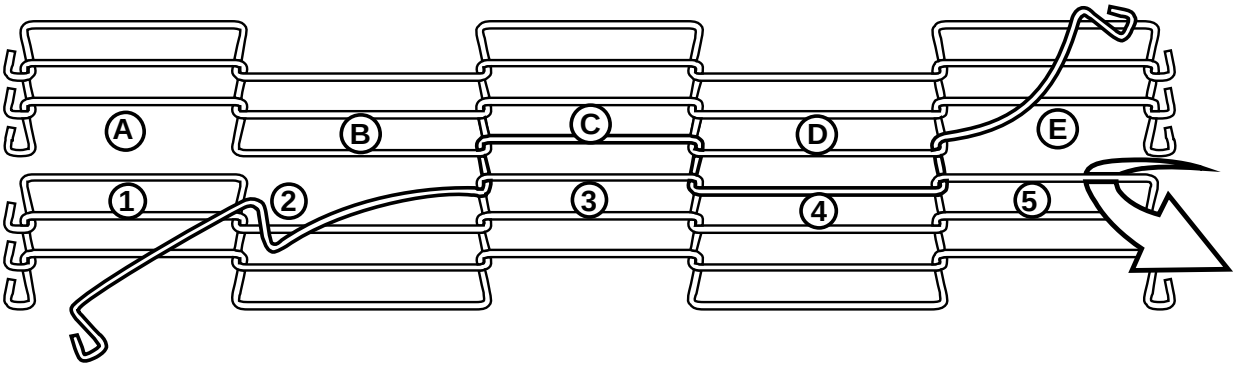
2. Bend the wire toward the center and insert it around the z-bend next to the center space. (Space D in the following illustration.)

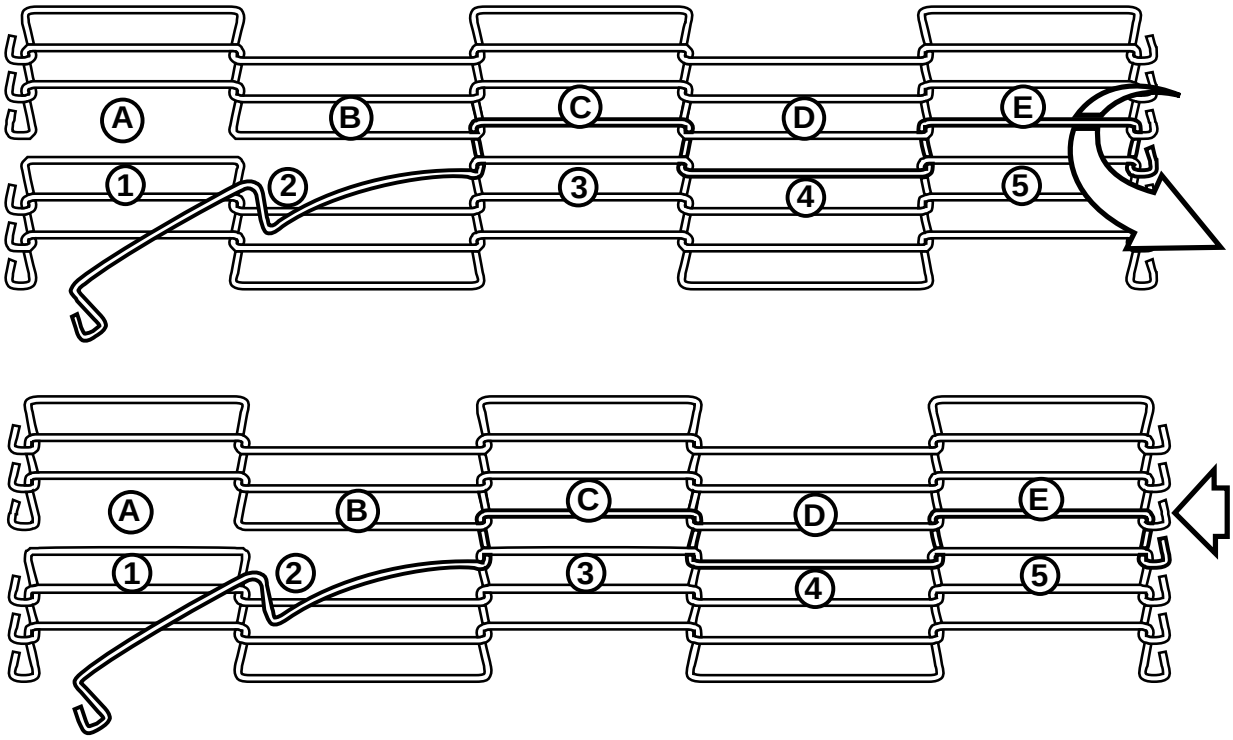


3. Pull the strand wire through the mesh and straighten it with pliers.
4. Repeat the above three moves until you reach the side edge of the belt.
5. Using the pliers, connect the strand's edge loop to the belt's edge loop on the far edge.
6. Connect the edge loop on the near edge of the belt to the strand's edge loop.
7. Straighten the strand with the pliers.

Step 3 – Weave the Strand to the Other Side

1. Repeat the steps in Step 2, going in the opposite direction, weaving to the other side edge of the belt as shown in the following illustrations.





2. If you are installing a new belt, you are finished splicing.

Step 4 – Check Drive Shaft Sprocket Alignment

- Check to ensure 3/16-inch clearance between all sprockets (and/or blanks) and the Z-bends next to them.
- Check alignment of sprocket teeth with a straight-edge. (Only necessary if the sprockets are not keyed to the drive shaft.)

Step 5 – Check Entire Belt Circuit

- Z-bends should not come into contact with any conveyor component (including end rolls, wear strips, transfer support rails, nose bars, etc.)
- Adjust as needed.

Step 6 – Adjust Tension

- The wire belt used is a low-tension belt. Use minimal tension — only enough so the sprockets properly engage the belt.
- Run the conveyor and check to make sure it runs smoothly.

  Note: Too much tension will cause premature belt failure.

Replacing Shrink Tunnel Chamber Components

Caution! **Disconnect main power source before performing any procedure to replace any tunnel component(s).**

NOTE: **Because of similar physical design, the procedure for removing or replacing the temperature controller for the shrink tunnel is very similar to the procedure for the L-sealer temperature controllers. Refer to instructions for the L-sealer temperature controllers earlier in this section.**

Fuse Replacement or Electrical Component Replacement

Major electrical components, except the conveyor motor (replacement procedure provided earlier in this section) and the heater bank and blower motor (replacement procedures provided separately below), are located behind the fold-down electrical control panel for easy maintenance. See the Panel Layout in Appendix A for description and approximate location of electrical components.

Heater Bank Replacement

Shut off the machine and disconnect main power. Remove the side panel cover. Pull insulation out. Marking the wire positions so they can be reconnected in the same positions, remove the wires on the heater bank with a 3/8-inch nut driver, and then set the wires off to the side. Noting the heater bank position so it can be replaced in the same position, remove the heater bank. Reassemble components in the same manner in which they were disassembled.

Important! **Ensure that the heater bank frames are pushed completely in. The end of the frame should be flush with the housing.**

Blower Motor Replacement

Shut off power to the machine. Remove the top lid on the hood of the tunnel. Disconnect the wires on the blower motor(s). (Note: there may be more than one blower motor.) Remove four (4) 5/16-18 bolts on the motor mount(s). Once the blower housing is out and on the bench, loosen the two (2) set screws holding the blower wheel in place. The blower wheel shaft set screws are installed with thread-locking compound and may require a torch to remove the blower wheel — if force is necessary, apply it between the motor and blower wheel hub. Remove the motor mount bolts and remove and replace the motor. Rotation on the blower motor needs to be counter-clockwise as viewed from the electrical inlet and hub side. Reassemble the new motor and blower wheel housing and reassemble components in the same manner in which they were disassembled.

Note: Do not rest blower housing on blower wheel! Blower wheel will not work if bent or out of balance.

Blower Wheel Replacement

Shut off power to the machine. Refer to **Blower motor replacement** instructions above.

Replacement of Upper Wear Rails

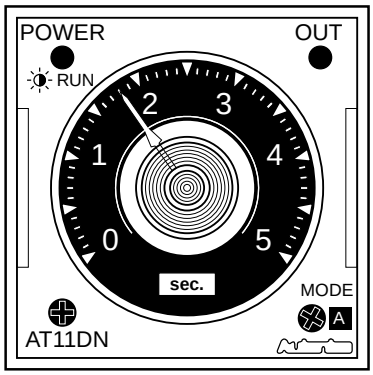
Shut off power to the machine, move the conveyor by hand if necessary to gain access. Remove the #10-32 screw on the idler end. Replace parts in the same manner in which they were disassembled.

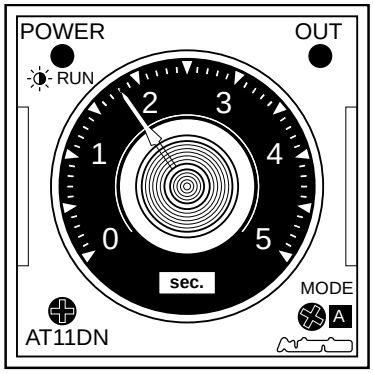
Chamber Cooling Fan Motor Replacement

Shut off power to the machine. Remove the top lid of the hood. Disconnect the wires. Remove four (4) ¼-20 screws which hold the cooling fan motor in place. Take the motor out of the machine, replace with the new motor, and reassemble with four (4) ¼-20 screws removed earlier. Reconnect wires to new cooling fan motor.

Troubleshooting

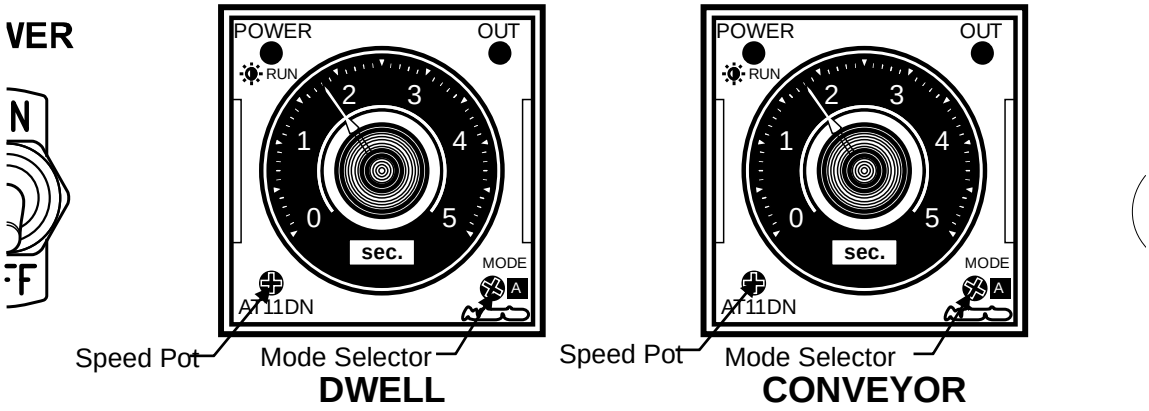
Troubleshooting L-Sealer Issues

Problem	Solution
No Element Heat	• Check to be sure sealer is plugged in and electrical power is present at the outlet. • Is the display for temperature on? If not, check main fuses. • Is the Out light on when the SV is lower than the PV setting? The temperature controller will read Open. • Is the green light on the solid state relay on when the Out light on the temperature controller is on?
Conveyor Does Not Run  **CONVEYOR**	• With the seal head up the light in the left hand corner of the temperature timer stays lit all the time. - If the light is on, bring the seal head down. The light should start flashing. • Is the timer in “A” mode? - Mode selector is to the lower right corner of the dial. • Inside the conveyor speed dial, is the setting between 0 and 5? - Timer speed pot adjustment is to the lower left corner of the dial. • At the bottom of the speed dial, is “sec” displayed? - Units of time selected is displayed at center near the bottom of the dial. • Is the limit switch on the back of the machine being fully actuated (pressed in)? - Press the limit switch in by hand, and then let it go. - Refer to Magnet Hold Down Not Operating on Magnet Sealers, on next page.

Problem	Solution
Magnet Hold Down Magnets Not Operating on Magnet Sealers (Sealing head will not stay down, but sealer operates normally otherwise.)  **DWELL**	• Is timer working properly? - The timer is identical to the timer used for the Conveyor. See items to check on the conveyor timer for Conveyor Does Not Run troubleshooting on previous page. • Turn off power and put the seal head down. With power off and the seal head down, there should be about a dime's-thickness of space between the upper and lower magnets. - Is there dime-sized space between upper and lower magnets? • Press the limit switch to activate it by hand. - Does the limit switch work properly when operated by hand?
Weak or Poor Seals	• Improper setting of temperature film cutoff controller. (Heat set too low.) • Improper operating technique. (See **Error! Reference source not found.** on page **Error! Bookmark not defined.**.) • Check the sealing heating element to see if it needs cleaning. • If the silicone-rubber seal pad is wavy, replace it. (See instructions on page 38.) • Seal pad pressure is incorrect. (See page 26.) • Hold-down pressure is uneven or incorrect on magnets.

Problem
Magnet Hold-Downs Stay Engaged When They Should Release
Solution

- When you turn the power off, do the magnets release?
  - If they do not, replace the magnets.



- Each of the speed control timers for the dwell and conveyor have an adjustable pot in the lower-left corner and a mode selector in the lower-right corner. (See the illustration above.) Use a small screwdriver to turn pots either direction.
  - Turning the pot on the lower-left, you will see the numbers change inside the dial. Keep turning it until you adjust to 5 seconds. While turning this pot you will see the sec turn to min, hour, and 10hr. Factory setting is 5 seconds.
  - Turning the selector at the lower-right, you see the modes change. Keep turning until you return to mode A, which is the factory setting. Turning these two pots cleans the wipers inside the timer.
- When bringing the seal down, a light on the top left should come on and the light on the top right should flash. If this is not happening, switch the conveyor timer and the dwell timer. If the magnets start working, replace the timer.

Problem	Solution
Excessive Film Drag	• Check for proper film threading. (See Film Winding diagram on page 21 or 23.) • Loosen film roll brake. (See Film Winding diagram on page 21 or 23.) • Tighten film roll brake.
Excessive Film Winding or “Spill”	• Tighten film roll brake.

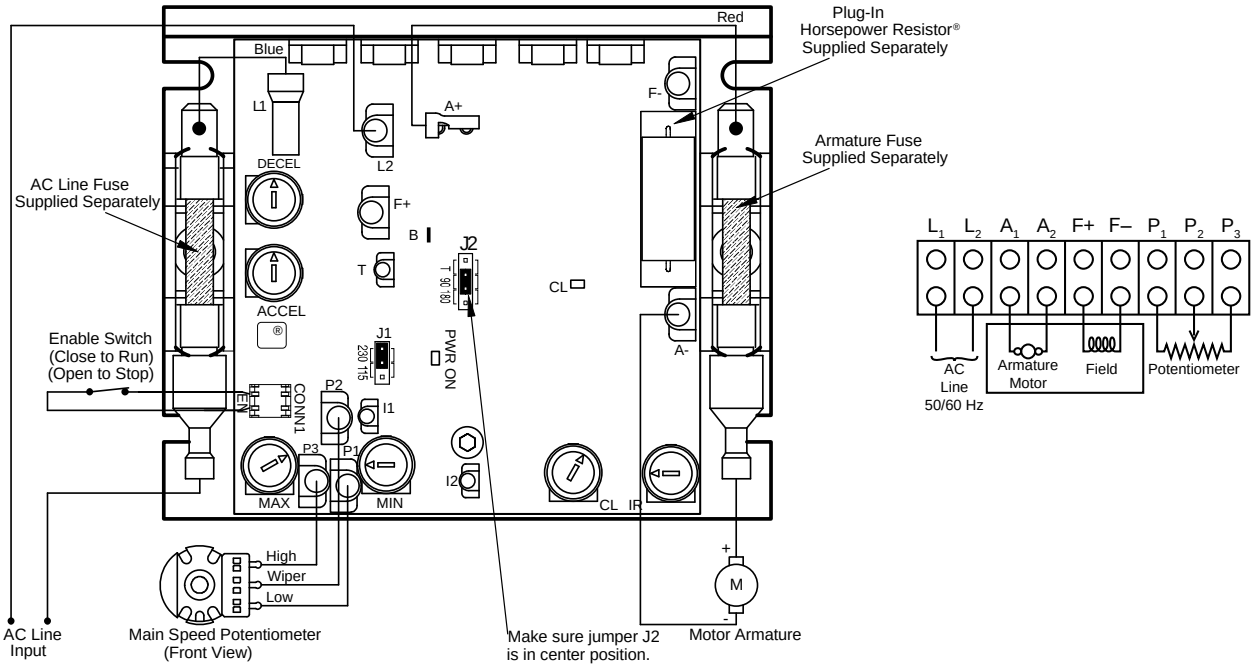
Problem	Solution
Charring of Film	• Improper setting of temperature film cutoff controller. (Too much heat.) Adjust temperature down.

Troubleshooting Shrink Tunnel Issues

The following illustration shows the D.C. board used in the shrink tunnel. Some of the solutions to problems identified in the troubleshooting table that follows refer to adjustments made by tuning potentiometers on this board.

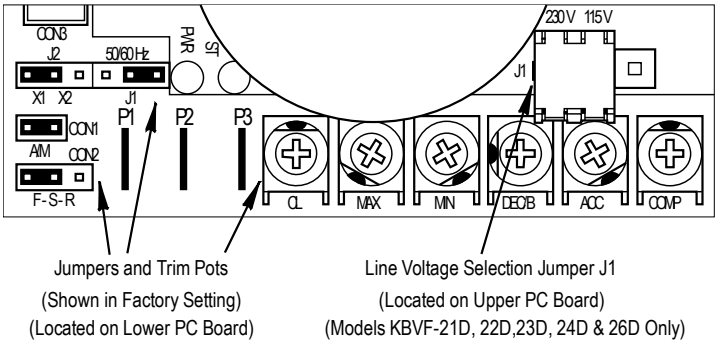
Basic KBMM™ Controller Board Connection Diagram **KBMM™ with Barrier Terminal Kit**

CONTROL LAYOUT & GENERAL CONNECTION DIAGRAM (Model KBMM-225D Shown)
(Note: Control is set for 208/230 VAC line input, 0-180 VDC output with armature feedback)



For more information refer to the *KBMM™ Installation and Operation Manual* (provided by the D.C. board manufacturer).

Problem	Solution
Conveyor not moving	• The conveyor motor is controlled by a D.C. control board. Input is 220 VAC in and variable 0 to 90 VDC out. • Is a green light on? If not, check the input fuse. • If fuse is good and a green light is not on, check for 220 VAC on L1 and L2. If there is voltage, check the output DC voltage. • Check output fuse. • The KBMM-225 has a current overload. Is there a red light on the board? If so, below are some conditions that could cause this light to turn on. • This could be caused by a jammed conveyor. • Locate the ceramic horsepower resistor and check its resistance. If the ohmmeter indicates open (infinite resistance), the resistor is damaged; replace it — but, there is a reason the resistor went out. There will be a point number (for example, .1 or .25) you will need this number when ordering a replacement resistor. • The motor is pulling more amps than the board is allowing. Try adjusting the CL potentiometer on the motor controller board. • Bad idler or drive bearing. • If the red light is on, disconnect the drive motor from the drive chain. Power up the machine and operate the motor without any load and see if the red light goes off. If the board works and the red light does not light, it does not mean that the motor is good; it could be weak under load. Check the brushes. Also pull the conveyor by hand, checking to make sure it pulls smoothly and checking for bad bearings. • If the light remains on, replace the motor. • If the red light is not on and a green light is, with the speed pot set at 100%, check for 90 VDC on terminals A+ and A–. If voltage is not correct, try adjusting the MAX potentiometer to obtain 90 VDC.

Problem	Solution
No air flow	1. Check AC Inverter adjustable speed pot settings below. • C.L.: Set at approximately 12 o'clock. • Max.: All the way counter-clockwise. • Min.: All the way clockwise. • ACC.: All the way clockwise. • Comp.: Set at approximately 12 o'clock. Detail View of Jumpers and Trim Pots  Jumpers and Trim Pots (Shown in Factory Setting) (Located on Lower PC Board) Line Voltage Selection Jumper J1 (Located on Upper PC Board) (Models KBVF-21D, 22D,23D, 24D & 26D Only) **Important Application Information:** Motor with External Fan Cooling – Most totally-enclosed fan-cooled (TEFC) and open-ventilated 3-phase AC induction motors will overheat if used beyond a limited speed range at full torque. Therefore, it is necessary to reduce motor load as speed is decreased. **Note:** Some fan-cooled motors can be used over a wider speed range. Consult the motor manufacturer for details. ⚠ **WARNING!** Some motors have low speed characteristics which cause overheating and winding failure under light-load or no-load conditions. If the motor is operated in this manner for an extended period of time, it is recommended that the unloaded motor current be checked from 1–15 Hz (60 – 450 RPM) to ensure motor current does not exceed the name-plate rating. Do not use motor if the motor current exceeds the nameplate rating. 2. Check intake screens inside upper chamber to see if they are clogged. 3. Blower motors are controlled by 220 volt single-phase input and three-phase output. (Check lead to lead. Not lead to ground.) 4. Is there a steady green and a slowly-flashing green light? If not, check input fuses. If fuses are good, replace AC inverter. 5. If there is a steady green light and not a slowly-flashing green light, refer to the table that follows for information about what the flashing LEDs indicate.

LED	Drive Status	Color and Flash Sequence	Flash Rate	Color and Sequence After Recovered Fault
	Normal Operation (Run)	Green	1 sec. On / Off	—
	Overload (120% – 160% Full Load	Red	On continuously	Green
	I^2t (Drive Timed Out)	Red	0.25 sec. On / Off	—
	Short Circuit	Red	1 sec On / Off	—
	Under-Voltage	Red / Yellow	0.25 sec. On / Off	Red / Yellow / Green
	Over-Voltage	Red / Yellow	1 sec. On / Off	Red / Yellow / Green
	Stop	Yellow	On continuously	—
	Phase Loss Detection[1,2]	Yellow	0.04 sec. On / 0.06 sec. Off	—
	Communication Error[2]	Green / Red	1 sec. On / Off	Green
PWR (Power)	Bus and Logic Power Supply	Green	On continuously	—

Notes:

1. Phase Loss Detection: Models KBVF-23P, 24P, 29, 45, 48.
2. Requires AC line restart.
3. With DVF Modbus Communication Module Installed.
4. All LED flash rates after recovered faults are 1 sec. On / Off.
5. Drive will require manual restart to return the Status LED color to its normal flashing green state.

Problem	Solution
No air flow (Continued)	6. If one motor is running and one is not, replace the faulty motor. 7. If all motors are not running, check for approx. 220 VAC output voltage. If there is no voltage and the green lights are on and slowly flashing, replace the AC inverter. (Remember this is three-phase: test from lead to lead. Do not test to ground.) U to V, U to W, V to W. If you lose voltage on one of these legs, replace the AC inverter. 8. One bad motor could cause the steady-flashing green light to change. Disconnect all motors and run one motor at a time to find the bad motor. 9. Motors should be running counter-clockwise. Check that all motors are running the correct direction. If not, change the two output terminals to obtain correct phase.

Problem	Solution
No heat	1. Is the display on the temperature controller on? If not, check for 220 Volts on terminals 9 and 10. If there is voltage, replace the temperature controller. 2. If the display is on and SV is set higher than PV, is there a red light on? If not, replace the thermocouple. 3. If there is a red light on, check for 220 VAC from any wire number 8 to terminal 13, and then terminal 14. If no voltage, replace the temperature controller. 4. If there is 220 VAC, check for 220 VAC on coil of heater contactor. If there is voltage and the contactor is not pulling in, replace contactor. 5. If there is no 220 VAC, check heater bank on / off switch. The best way to check this is to disconnect the wires and check resistances (Ohms).
Delay cool-down does not work	Adjust temperature controller TT1 using the menus, Menu #1 and Menu #2, that follow. Refer to adjustment procedure to adjust the Delay Cool-Down setting.

Temperature Controller Default Settings

Menu 1

Temperature Controller 1

In-t	-	JIC.H
Eu-1	-	AL-4
Eu-2	-	AL-5
AL-T	-	AL-B
AT.T	-	TUN1
PIDT	-	PID.F
O-FT	-	HEAT
Unit	-	°F
H-SC	-	450°
L-SC	-	32
Ramp	-	OFF
LOC	-	ON

Temperature Controller 2

In-t	-	JIC.H	(same as 1)
Eu-1	-	AL-0	
Eu-2	-	AL-5	
AL-T	-	AL-B	(same as 1)
AT.T	-	TUN1	(same as 1)
PIDT	-	PID.F	(same as 1)
O-FT	-	HEAT	(same as 1)
Unit	-	°F	(same as 1)
H-SC	-	450°	(same as 1)
L-SC	-	32	(same as 1)
Ramp	-	OFF	(same as 1)
LOC	-	ON	(same as 1)

Menu 2

Temperature Controller 1

Su-2	-	32
AL1	-	250
AL2	-	450
AHYS	-	10
P	-	9.5
I	-	48
D	-	12
T	-	50
IN-B	-	-4
REST	-	2.0
LOC	-	ON

Temperature Controller 2

Su-2	-	32	(same as 1)
AL1	-	N/A	
AL-2	-	450	(same as 1)
AHYS	-	2	
P	-	9.5	(same as 1)
I	-	48	(same as 1)
D	-	12	(same as 1)
T	-	50	(same as 1)
IN-B	-	-4	(same as 1)
REST	-	2.0	(same as 1)
LOC	-	ON	(same as 1)

Parts List

Electrical — L-Sealer

DESIGNATOR	PART NO.	DESCRIPTION	Q'TY.
	EAST0421-1	25 Amp, 220 V, 2 pole contactor, GE	
	EAST0421	25 Amp, 220 V, 2 pole contactor, S&S	
F1 & F2	ET000301 ETL00240	10 Amp Fuse (16T) 15 Amp Fuse (28T)	1
	ETC00309	Power On/Off	1
CR3	EAST0031	Main Contactor	1
TMR-1	EAST1030	Timer, Dwell	1
TMR-2	EAST1030	Timer, Conveyor	1
LS-2	EAST0029	Magnet Limit Switch	1
LS-3	EAST0029	Conveyor Limit Switch	1
M1	EAST0063	Conveyor Motor	1
T-3	EAST0036	Magnet Transformer	1
	EAST0038	AC To DC Bridge Rectifier	1
Mag 1 & 2	ECOS0057	Electric Magnetic Hold Down	2
	EAST0663	Increased Pressure Magnet Transformer	
	EAST0031-1	40 Amp, 2 pole, 220 V GE contactor	
TT1	EAST0494	Temperature Controller (Watlow)	1

DESIGNATOR	PART NO.	DESCRIPTION	Q'TY.
TT2	EAST0494	Temperature Controller (Watlow)	1
Heater, Side, 20"	EAST0496	Cartridge, Heater 20", 220 V	1
Heater, Front, 16"	EAST0497	Cartridge, Heater, 16"	1
Heater, Front, 28"	EAST0555	Cartridge, Heater, 28"	1
SSR-1 Front	EAST0495	Solid State Relay	
SSR-2 Side	EAST0495	Solid State Relay	
EP000535	EAST0493	Thermocouple Front & Side	
M1	EAST0063	Conveyor Motor 20" × 16"	
M1	EAST0063	Conveyor Motor 20" × 28"	
	EAST0038	Bridge Rectifier	
	EAST0078	Capacitor, Mallory	
	EAST0421-1	Contactor – 2-Pole, 25 Amp, 220 Volt, GE	
	EAST0421	Contactor – 2-Pole, 25 Amp, 220 Volt, S & S	
	ET000134	Disconnect Box – 60 Amp, 2-Pole (Combo Unit)	
	ECOS515	Fuse, 0.5 Amp, Ceramic, Slo-Blo (for Conveyor)	
	EAST0210	Fuse 1 Amp, 250 Volt	
	ET000301	Fuse, 10 Amp, 250 Volt	
	EAST0674	Firerod Cartridge Heater, 16", 110 V	
	EAST0675	Firerod Cartridge Heater, 28", 110 V	
	EAST0676	Firerod Cartridge Heater, 20", 110 V	
	ETL00200	Fuse, 15 Amp, 250 Volt	
	ET000186	Fuse, 5 Amp, 250 Volt (for Powered Film Unwinder)	
	ETC00125	Fuse Block, 30 Amp, 2 Pole, 250 Volt	
	EAST0077	Fuse Holder	

Mechanical — L-Sealer

PART NO.	DESCRIPTION
I0000007	Actuator, Inverted
EAST0512	Actuator, Non-Inverted
EAST0508	Arm Casting, Infeed – 20”
EAST0507	Arm Casting, Outfeed – 20”
EAST0061	Barrel Nut, Conveyor
EAST0052	Bearing, Conveyor Guide / Idler Roller
EAST0378	Bearing, Film Rack Roller - Large
EAST0380	Bearing, Film Rack Roller - Small
EAST0254	Bearing, Steel, Drive Roller (1616Z-KYK)
XH360	Bolt, ¼ × 1-¼ Shoulder
EAST0462	Bolt, Film Rack Guide
EAST0379	Bolt, Film Rack Roller - Large
EAST0381	Bolt, Film Rack Roller - Small

PART NO.	DESCRIPTION
EAST0044	Caster, 3” × 1-¾”
EAST1018	Collar, 1” Rear Shaft
EAST1020	Collar, ¼” Power Film Unwind
EAST0043	Conduit
EAST0597	Conduit - Bracket
EAST0101	Conduit Connector, ½”, 90-degree
EAST0102	Conduit Connector, ½” straight with nut
EAST0214	Conveyor Adjusting Bracket
EAST0057B	Conveyor Belt, EM2016 & EC2016, Black
EAST0057W	Conveyor Belt, EM2016 & EC2016, White
EAST0058B	Conveyor Belt, EM2028 & EC2028, Black
EAST0058W	Conveyor Belt, EM2028 & EC2028, White
SUB00079	Conveyor Crank Handle Assembly
SUB00165	Conveyor Guide Roller, 20” – Side Seal (complete)
EAST0465	Counterweight, 30 × 40
EAST0526	Counterweight
EAST0640	Crank Handle, Conveyor (threaded)
EAST0513	Crossover Bar – 16” (EM2016 & EC2016)
EAST0550	Crossover Bar – 28” (EM2028 & EC2028)
EAST0816	Cutting Rule, 16-inch – Front (Supra Silverstone)
EAST0817	Cutting Rule, 28-inch – Front (Supra Silverstone)
EAST0815	Cutting Rule, 20-inch – Side (Supra Silverstone)
EAST0134-8	Drawer – Small Sealers: EM2016, EC2016, EM2028 & EC2028
EAST0928	Duo Seal Arrow Insert, 16-inch Front Bar – Supra Silverstone

PART NO.	DESCRIPTION
EAST0926	Duo Seal Arrow Insert, 28-inch Front Bar – Supra Silverstone
EAST0918	Duo Seal Arrow Insert, 20-inch Side Bar – Supra Silverstone
EAST0925	Duo Seal Arrow Insert, 30-inch Side Bar – Supra Silverstone
EAST0919	Duo Seal Mushroom Insert, 16-inch Front Bar – Supra Silverstone
EAST0920	Duo Seal Mushroom Insert, 28-inch Front Bar – Supra Silverstone
EAST0918	Duo Seal Mushroom Insert 20-inch Side Bar – Supra Silverstone
EAST0517	Duo Seal Poly Insert 16-inch Front Bar – Supra Silverstone
EAST0549	Duo Seal Poly Insert 28-inch Front Bar – Supra Silverstone
EAST0516	Duo Seal Poly Insert 20-inch Side Bar – Supra Silverstone
EAST0509	Felt Pad
SUB00123	Film Rack Guide Assembly
EAST0674	Firerod Cartridge Heater, 16-inch – 110 Volt
EAST0497	Firerod Cartridge Heater, 16-inch – 220 Volt
EAST0675	Firerod Cartridge Heater, 28-inch – 110 Volt
EAST0555	Firerod Cartridge Heater, 28-inch – 220 Volt
EAST0676	Firerod Cartridge Heater, 20-inch – 110 Volt
EAST0496	Firerod Cartridge Heater, 20-inch – 220 Volt
EAST0165	Handle Grip Material
EAST0148	Handle, Metal, For Sealer with 16-inch Front Bar
EAST0246	Handle, Metal, For Sealer with 28-inch Front Bar
EAST0456	Head Return Arm
EAST0461	Head Return Cylinder, Complete

PART NO.	DESCRIPTION
SUB00047	Head Return Cylinder – Retro Fit Kit (EM2016, EC2016, EM2028 & EC2028)
EAST0084	Hole Punch Ball
EAST0085	Hole Punch Casting
EAST0083	Hole Punch Die
EAST0268	Hole Punch Knob
EAST0086	Hole Punch Solenoid, Electric
EAST0087	Hole Punch Strain Relief Connector
EAST0511	Hot Knife Saddle With Slot
EAST0514	Hot Knife Spacer Block
EINVT116	Inverting Rod, 16” Upper or Lower
EINVT120	Inverting Rod, 20” Upper or Lower
EINVT124	Inverting Rod, 24” Upper or Lower
EAST0441	Knob, Film Rack Guide
ETC00210	Knob, Pin Perforator
ETC00002	Knob, S-Handle, Conveyor
EAST0900	Magnet Holder – Upper Center Block
EAST0901	Magnet Holder – Upper Pad Block
EAST0741	Magnet Holder, Lower
EAST0338	Magnet Holder, Upper
SUB00065	Magnet, Upper
EAST0029	Micro Limit Switch – Safety Override – Pulse – Conveyor
ETC00310	Micro Switch On/Off Face Plate
EAST0107	Micro Switch, Power Film Unwind
ETL00205	Motor, 118 HP – 160 RPM (Power Film Unwind)
EAST0063	Motor, Conveyor – 139 RPM
EAST0484	Motor, Conveyor Takeaway – Heavy Duty
65000085AP	Paint, Black Epoxy Part A - Pint
65000085BP	Paint, Black Epoxy Part B - Pint

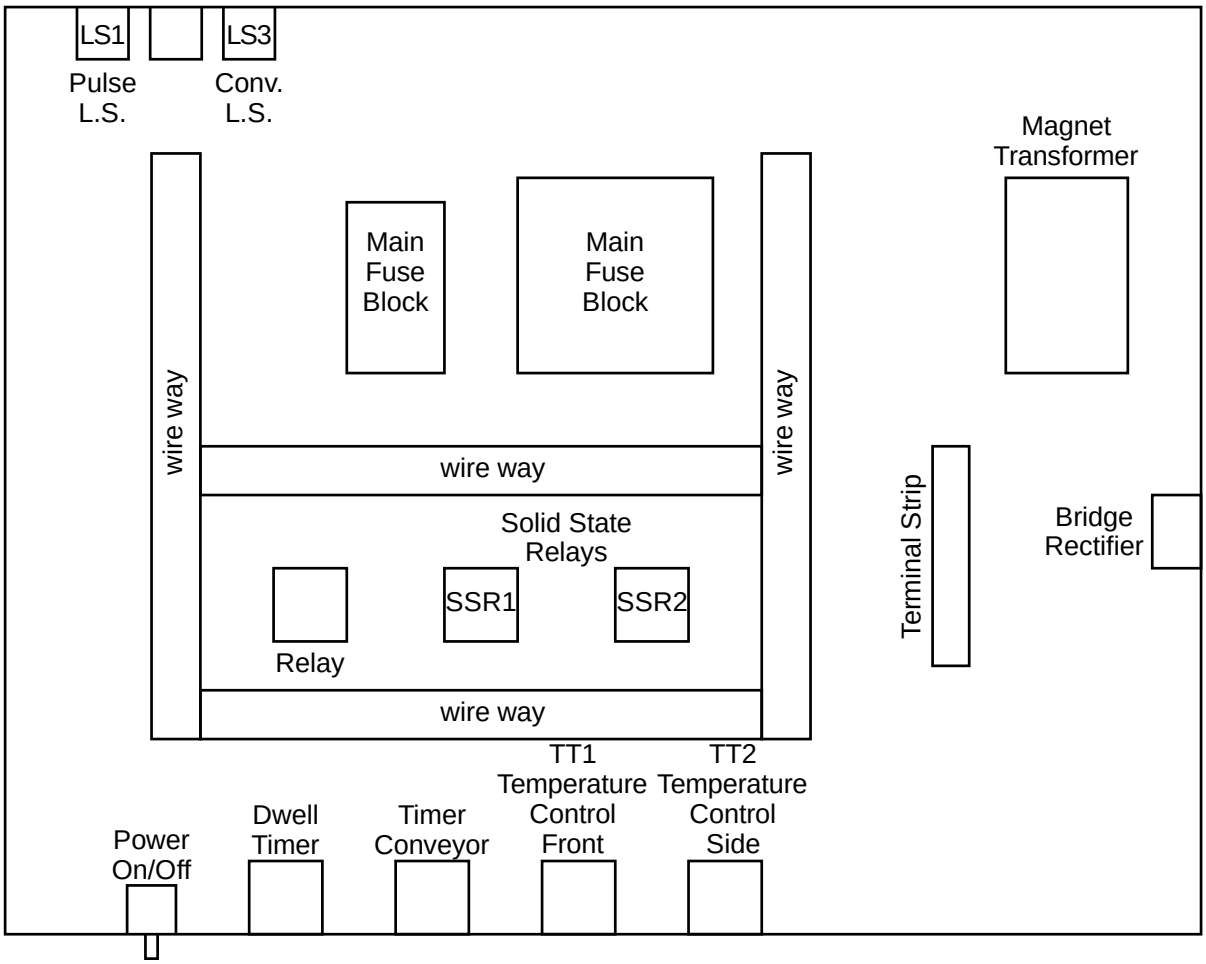
PART NO.	DESCRIPTION
EAST0022	Pillow Block, 1-inch
EAST0367	Pin Perforator Guard
EAST0368	Pin Perforator Lower Pad
EAST0366	Pin Perforator Wheels – For 5/8” Shaft
EAST0156	Product Separator Tray and Tubes on Frame - ¾ Snap ring, Heavy Duty
EAST0142L	Product Separator Tray, 20” × 16” - Left
EAST0142R	Product Separator Tray, 20” × 16” - Right
EAST0261L	Product Separator Tray, 20” × 28” - Left
EAST0261R	Product Separator Tray, 20” × 28” - Right
SEAST0142L	Product Separator Tray, Stainless Steel, EM2016 & EC2016 - Left
SEAST0142R	Product Separator Tray, Stainless Steel, EM2016 & EC2016 - Right
	Product Separator Tray, Stainless Steel, EM2028 & EC2028 - Left
EAST0317R	Product Separator Tray, Stainless Steel, EM2028 & EC2028 - Right
ESC00542	Relay Base for 220 Volt SignaLine Timer
EAST0495	Relay, Solid State
EAST0079	Resistor, Hole Punch
EAST0053	Roller With Sprocket, 20-inch Conveyor Drive
SUB00126	Roller, 26” Film Rack – Large (Complete)
SUB00085	Roller, 26” Film Rack – Small (Complete)
EAST0198	Roller, Idler (Complete – For 20” Side Seal Sealers)
EAST0385	Roller, PFU Drive
ESC00037	Saddle Center
EAST0520	Safety Shield, Front – Inner EM2016 & EC2016, 16”
EAST0552	Safety Shield, Front – Inner EM2028 & EC2028, 18”

PART NO.	DESCRIPTION
EAST0521	Safety Shield, Front – Outer EM2016 & EC2016, 17”
EAST0553	Safety Shield, Front – Outer EM2028 & EC2028, 28”
EAST0522	Safety Shield, Side – Inner EM2016, EC2016, EM2028 & EC2028
EAST0523	Safety Shield, Side – Outer EMC2016, EC2016, EM2028 & EC2028
EAST0008	Seal Bar, 16-inch Front-Lower
EAST0245	Seal Bar, 28-inch Front Lower
EAST0007	Seal Bar, 20-inch Side Lower
EAST0310	Separator Rod, Power Film Unwind
EAST0047	Shaft, 21-inch Rear Head Return For L-Sealer EM2016 & EC2016
EAST0048	Shaft, 33-inch Rear Head Return For L-Sealer EM2028 & EC2028
EAST0369	Shaft, Pin Perforator
EAST0515	Spacer Block, Corner
EAST0315	Speed Control – Without Dial Kit – DC Control
EAST0315A	Speed Control Dial Kit
EAST0209	Sponge, Rubber, ¼” × ¾”, 20 Ft. Roll
EAST1007	Spring, Safety Shield Return
EAST0199	Sprocket, Conveyor Motor
EAST0051	Sprocket, Drive Roller, 5/8-inch Bore
EAST0305	Sprocket, Power Film Unwind
ETC00309	Switch, On/Off Power
EAST0202	PTFE Tape, ½-inch – 10 Mil × 10 yards

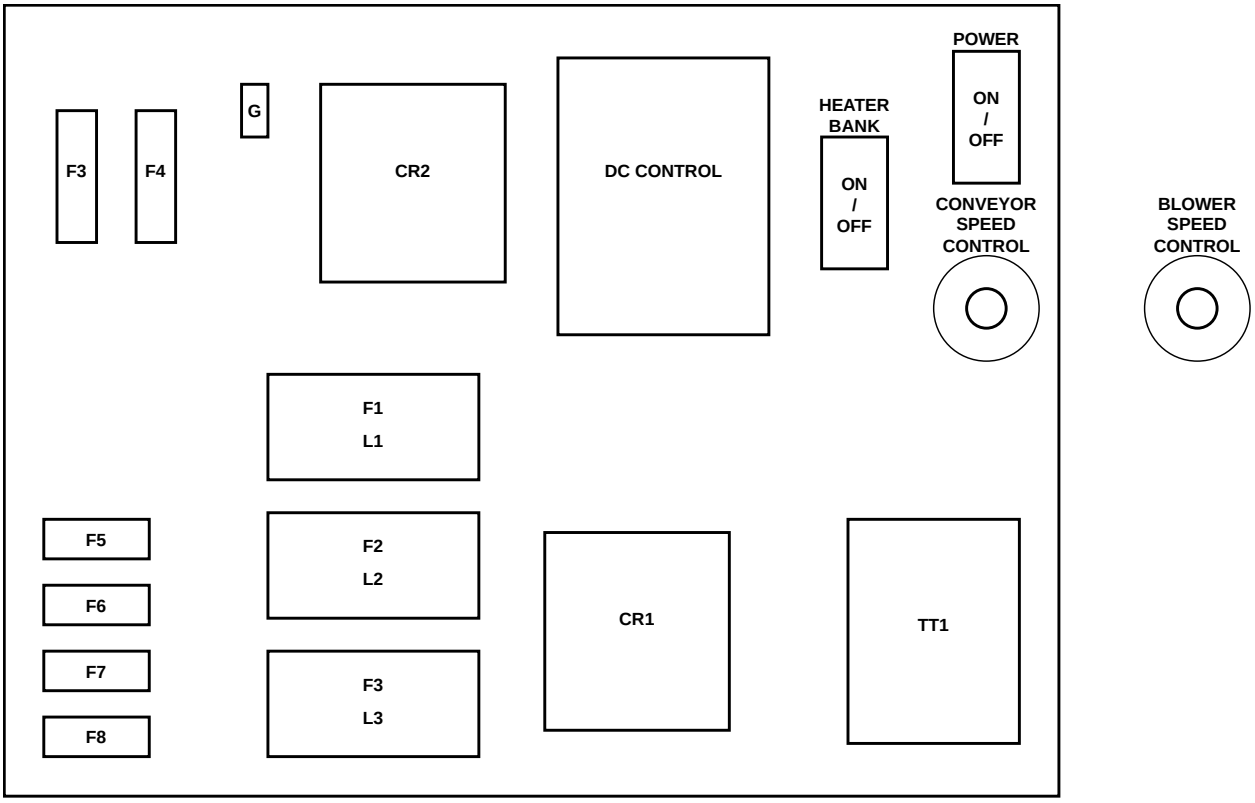
PART NO.	DESCRIPTION
EAST1006	PTFE Tape, ½-inch – 10 Mil × 36 yards
EAST0201	PTFE Tape, ¾-inch – 10 Mil × 10 yards
EAST1005	PTFE Tape, ¾-inch – 10 Mil × 36 yards
EAST0494	Temperature Controller
EP000535	Thermocouple
ESC00537	Timer, SignaLine – 220 Volts (Current Style, 1998 to present)
EAST0030	Timer, Small – 220 Volts (Old Style, used 1992 – 1998)
EAST1030	Timer, Tenor – 220 Volts
EAST0054	Timing Belt, Drive, L-Sealer, EC2016 & EM2016
EAST0055	Timing Belt, Drive, L-Sealer, EC2028 & EM2028
EAST1000	Timing Belt, Power Film Unwind (Old Style)
EAST0050	Transformer, Stepdown – 220 Volts to 110 Volts For Hole Punch
EAST0036	Transformer, Stepdown – 220 Volts to 30 Volts
SUB00488	Transition Chute – Transfer Between Sealer and Tunnel
SUB00300	Transition Roller – Between Sealer and Tunnel – Combo
SUB00301	Transition Roller Kit, Infeed, ET1610-36, ET1610-48, EC2016 & EC2028
EAST0143	Tube, Product Tray
EAST0525	Wire Guard, 16-inch – Front
EAST0554	Wire Guard, 28-inch – Front
EAST0524	Wire Guard, 20-inch – Side

Appendix A: Electrical Schematics

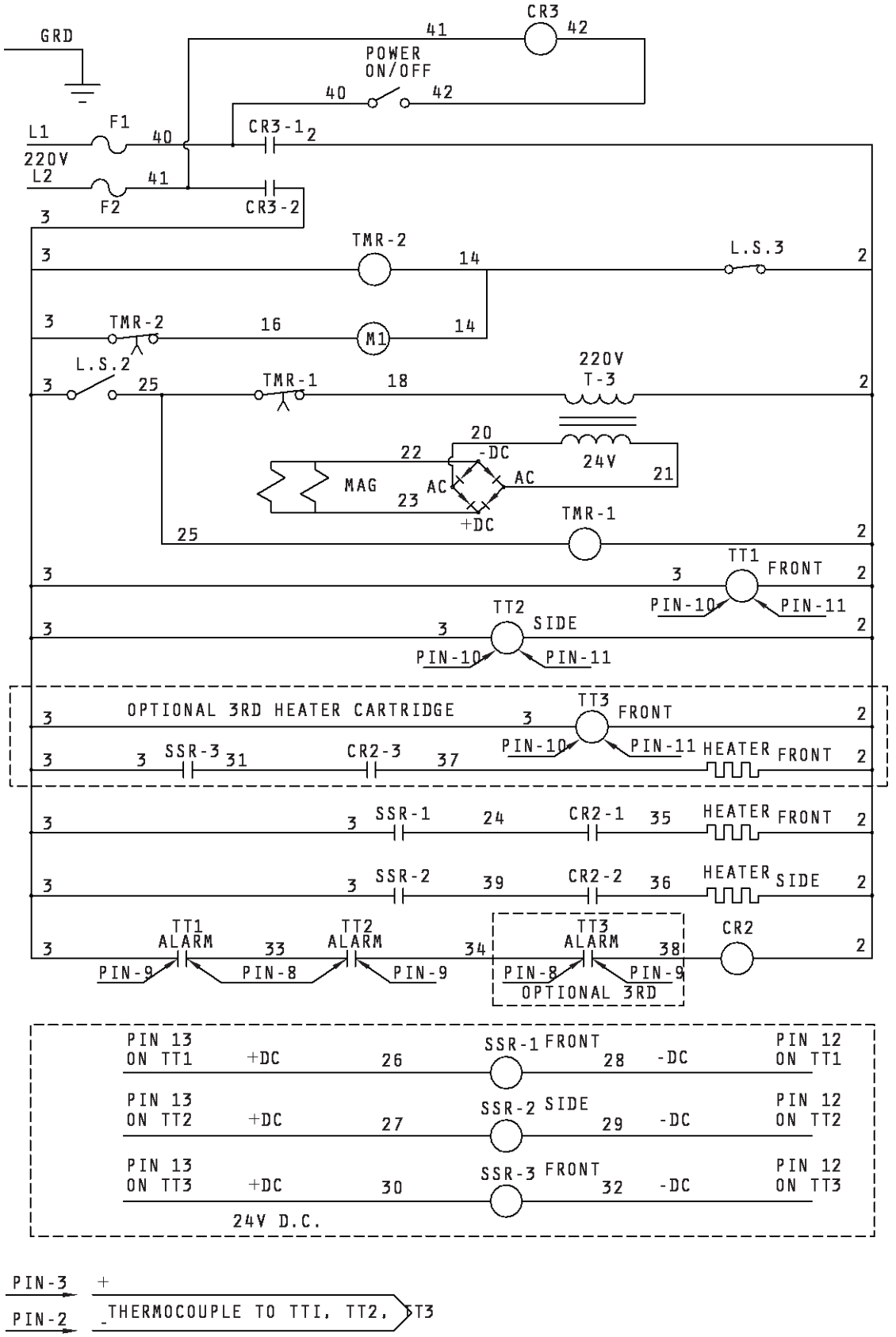
Panel Layout — L-Sealer



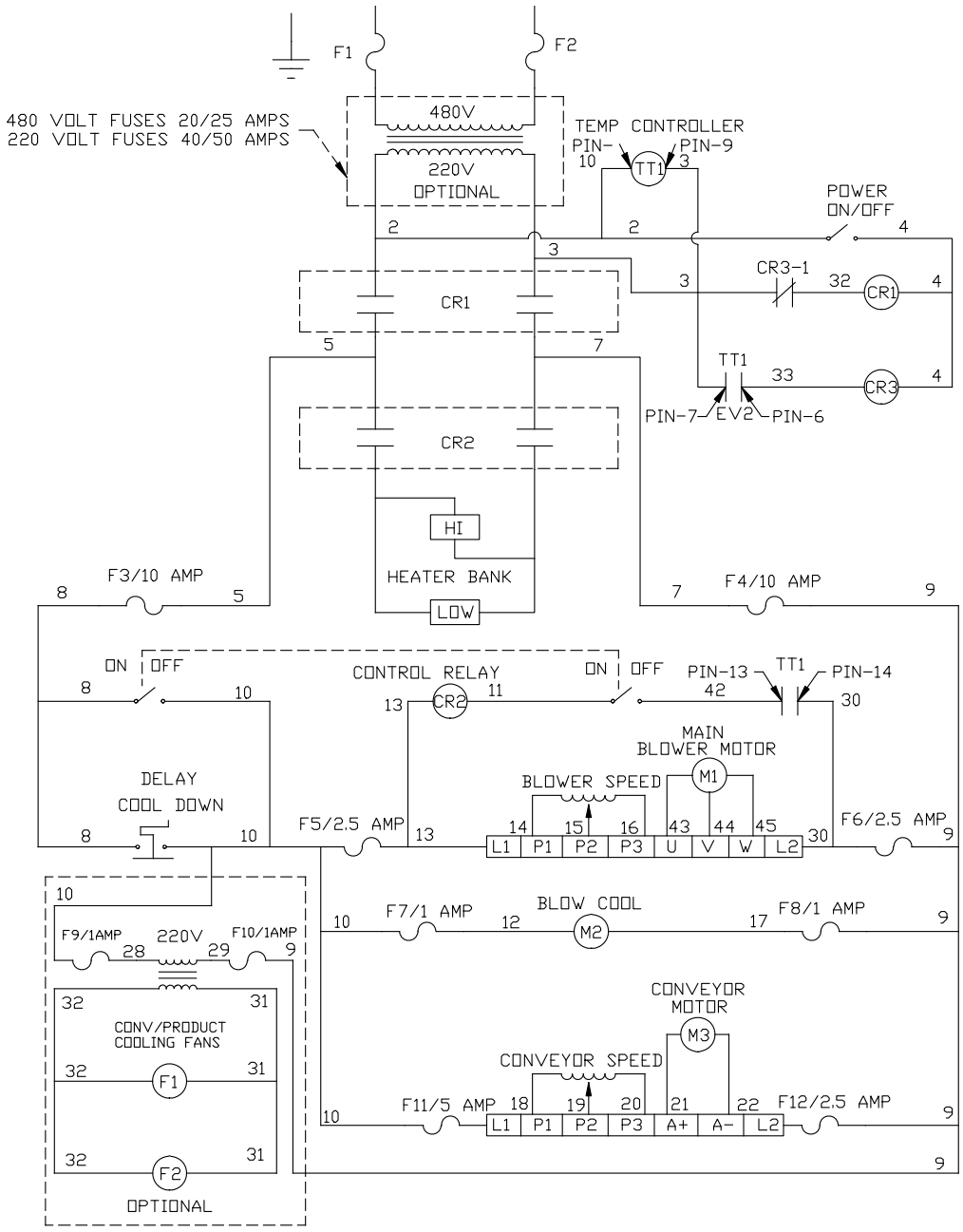
Panel Layout — Shrink Tunnel



Electrical Schematic — L-Sealer



Electrical Schematic — Shrink Tunnel Variable Speed, 220V 40/50A / 480V 20/25A Single-Phase



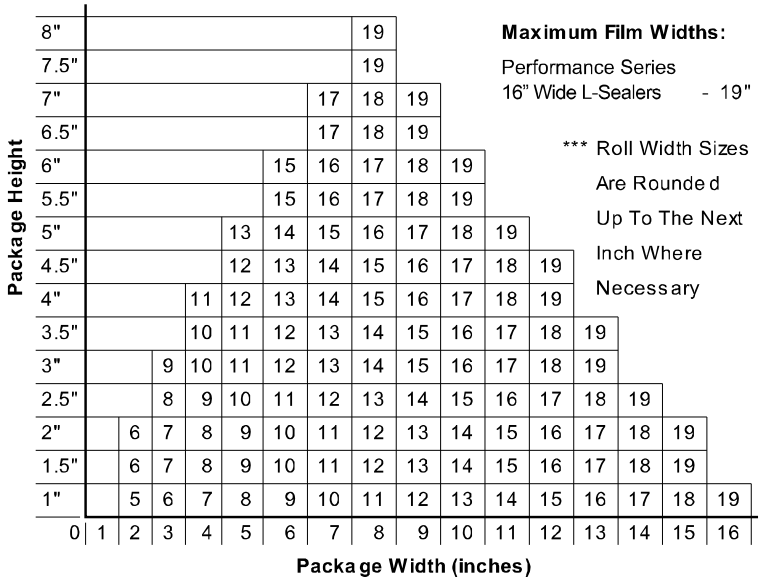
Appendix B: Temperature Setting Specifications for Shrink-Wrap Plastics

Mushroom Insert

PVC (Poly-Vinyl Chloride)	Temperature settings:	325° F front bar; 325° F side bar
	Pad type:	Felt
	Dwell Time:	Approximately 1 second
Polyolefin	Temperature settings:	335° F front bar; 335° F side bar
	Pad type:	Sponge rubber
	Dwell Time:	Approximately 1 second
Polyethylene	Temperature settings:	360° F front bar; 360° F side bar
	Pad type:	Sponge rubber
	Dwell Time:	Approximately 1.5 second

Appendix C: L-Sealer Size Estimating

L-Sealer Center-Folded Film Size Estimating Table

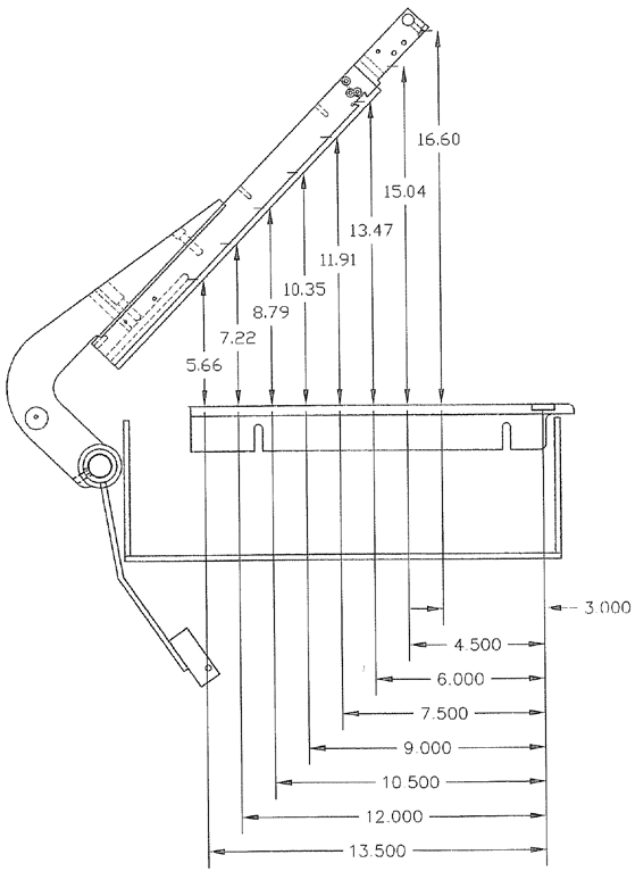


To calculate estimated per-package cost for manual and semi-automatic L-sealers, use the following formulas.

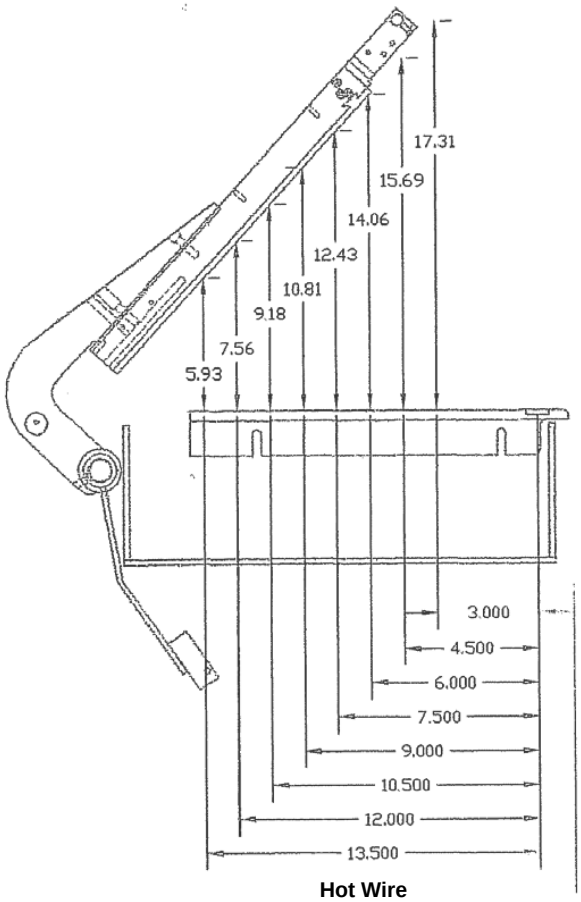
1) Center-Folded film – width of roll of film =
2) Cutoff Film length – film going across front seal bar =
3) Film usage – to calculate the amount of film used per package =
4) Per package cost

16-inch Side Seal Package Size Estimation

The following Eastey Enterprises side seal bar size dimensions are provided to make sure your product will fit under the side seal bar. You will need to know your product height and width to use these figures effectively.



Hot Knife



Hot Wire

Warranty Statement

EM Performance Series Semi-Automatic L-Sealers

Warranty Statement
Eastey Enterprises warrants that all of the products it ships will be in good working order and free from defects in material and workmanship for a period of two (2) years from the date of shipment by Eastey and will conform to the published specifications for that product. Spare parts that are manufactured in house by Eastey will be warranted for two (2) years. Bought out parts will be warranted for one (1) year.

Warranty Period – Specific Items

Drive motor(s):	1 year
Gear reducer:	1 year
Termination Post	30 days
Conveyor Belt	30 days
Hole Punches	30 days (ball and die)
Knurled Nut	30 days

The following parts are considered to be consumable items and not under warranty: fuses, ¼" × ¾" sponge rubber, copper heat sinks, 036 Nichrome wire, ¾" PTFE tape, and ½" PTFE tape.

All other parts: 1 year (Except for moving parts which are subject to normal wear, tear and replacement which are warranted to be free from defects in material and workmanship.)

Sealing Quality
Sealing quality achieved in a given application is dependent on the installation, the material handling, and the maintenance provided. Eastey makes no warranty that the sealing quality achieved in an application will be the same as that achieved on a test piece in our demo facility.

Shipping Policy
Customer pays all incoming shipping. If the item is defective and under warranty, Eastey pays return shipping charges for least costly method. If expedited shipping is desired, customer must furnish his shipping account and shipping fees will be charged to that account.

Warranty Verification
If you conclude that a product may be defective and may be covered by warranty, obtain a Return Material Authorization number by calling our technical support number (toll free at 1-800-835-9344, or 763-428-4846 or Fax: 763-795-8867) or e-mail: info@eastey.com. Based on the recommendation from Eastey technical support, replacement components may be shipped out via UPS Ground or similar method. If expedited shipping is desired, customer must furnish their shipping account and shipping fees will be charged to that account. Customer is required to return the

defective component to Eastey. If, after 30 days, Eastey hasn't received the defective component, the customer will be invoiced for the replacement component. If the returned component is found to not be elegible for warranty, Easty will contact the customer and the customer will be invoiced for the replacement component.

Warranty Eligibility
The warranty provided by Eastey Enterprises, Inc. is only to the original buyer.

Limited Warranty
THE ABOVE WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.

Disclaimer of Damages
REGARDLESS OF WHETHER ANY REMEDY SET FORTH HEREIN FAILS OF ITS ESSENTIAL PURPOSE, IN NO EVENT WILL EASTEY ENTERPRISES, INC. BE LIABLE FOR ANY SPECIAL, CONSEQUENTIAL, INDIRECT OR SIMILAR DAMAGES, INCLUDING LOST PROFIT OR LOST OPPORTUNITIES OF ANY TYPE ARISING OUT OF THE USE OR INABILITY TO USE THESE PRODUCTS EVEN IF EASTEY ENTERPRISES, INC. HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Customer Support

Eastey Technical Service

For help setting up or operating the EM Performance Series L-Sealer, please contact Eastey Technical Service at one of the numbers listed below.

Toll-Free Phone	800-835-9344
Phone	763-428-4846
Fax	763-795-8867
E-mail	info@eastey.com
Web	www.eastey.com

Thank you again for your purchase of Eastey products. We are pleased to be a part of your packaging needs.


EASTEY®