



# Photopolymer Dry Film Laminators



PART NOS.:  
22-22813-1 18"  
22-22812-1 24"  
LAMINATORS

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# User's Guide

# Photopolymer Dry Film Laminator

The Photopolymer dry film laminators are simple and efficient units for laminating all types of polymer film resists to the clean surface of copper laminates and chemically milled components. The laminator uses accurate controlled temperature and feed to laminate the dry film resist to the metal surface as well as removing the Polyolefin separator sheet.

Two models are available either **22-22813-1** (18") or **22-22812-1** (24").

## Contents

1x laminator and stand with the following removable parts.

2x film take up rollers

2x film mounting bars

1x safety guard

1x feed tray

1x upper drip tray

1x lower drip tray

1x stand base tray

1x mains lead


1x film cutter

1x user instructions

1x allen key

**NB. In order to avoid damage during transit we will sometimes pack the removable parts in a separate box. If this is the case you will not have to go through the removing procedures as described later on.**

## Safety Precautions

 **WARNING** Do not use the machine if the power cord is damaged in anyway. Do not use a is not in accordance with the rated voltage.



NO DISJOINT

Do not try to disassemble, modify or repair the machine yourself. If you encounter a problem you must call a qualified engineer.



ENTANGLEMENT  
CAUTION

Keep long hair, loose clothing and items such as ties and jewellery away from the rollers of the machine at all times to avoid danger of entanglement. If entanglement occurs, press the REVERSE button or cut off the power immediately.



ELECTRIC SHOCK  
CAUTION

Keep water and liquids away from the machine at all times. Do not operate the machine with wet hands. Do not cut off the power to the machine whilst in operation (except if entanglement occurs).  
Use the safety guard at all times.



HIGH  
TEMPERATURE  
CAUTION

The Laminator works at a high temperature therefore ensure you do not touch the rollers or any part of the machine which states 'HOT' or 'CAUTION' whilst it is in operation. Do not cover the machine if it is still cooling down. Do not laminate any material other than that which is stated in this manual and do not use any lamination film other than that which recommended.

## Further advice

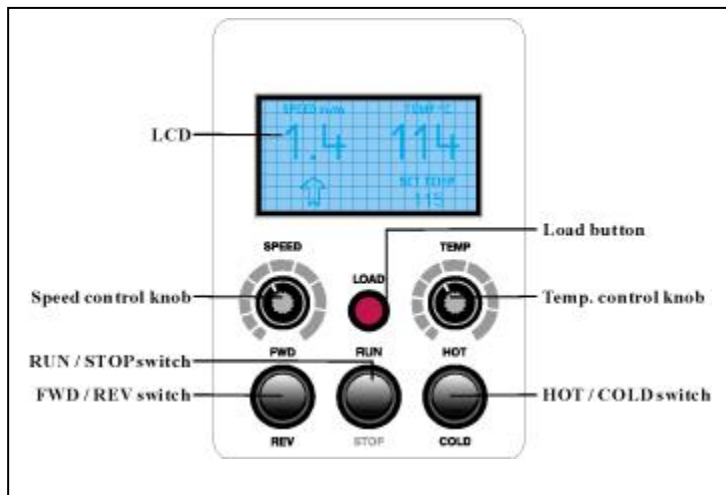
Operate the machine in a well ventilated, clean, dry place with a large enough working space at the front and rear of the machine.

Ensure the power cable is not dragging on the floor or causing a hazard to operators.

## Machine parts.



## Control panel and functions of the digital display

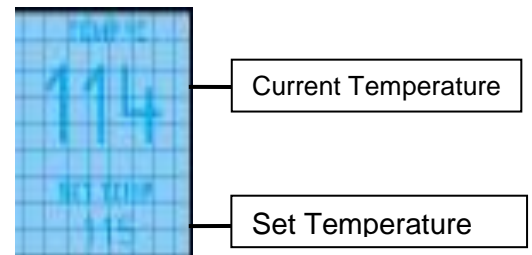


## Temperature control

The temperature setting you require for laminating can vary and can be affected by many different factors, these include thickness of media, thickness and construction of laminating film, speed of the machine and temperature and humidity of the room you are working in. Please refer to the guide at the bottom of this page if you need help.

The temperature control dial will increase or decrease the set temperature as it is turned and the set temperature will show on the LCD display. The current temperature of the rollers will also be displayed on the LCD display.

The temperature ranges from 0°C-140°C. If the temperature reaches 140°C, the overheating protection function will automatically activate to prevent the machine getting any hotter.



## Approximate temperature guide

This chart is a rough guide only and should NOT be taken as an exact indication of the settings for your laminating job. As previously stated, many different factors can affect the temperature and speed required. The supplier does not accept responsibility for incorrect settings being applied.

| Example film                        | Approx temperature | Approx speed  |
|-------------------------------------|--------------------|---|
| Ordyl 940 for non ferrous materials | 105°C - 110°C      | 0.6 - 1.0m per min  |
| Ordyl 240E for ferrous materials    | 120°C - 130°C      | 0.3 – 0.6m per min (decrease speed for thicker materials and increase temperature slightly) |
| Dry film soldermask                 | 105°C - 110°C      | 0.6 - 1.0m per min  |


## Speed control

The speed control function allows adjustment of the speed of the machine. This can be manually adjusted by turning the knob clockwise to increase the speed and anti-clockwise to decrease the speed. The speed can range from 0M per min to 1.4M per min

## Hot and cold settings

To change the function of the machine to either hot or cold press the HOT/COLD switch. When it is switched to hot the set temperature will show on the LCD display. When it is switched to cold, COLD will show on the LCD display.

## Forward and reverse switch

The FWD/REV switch changes the working direction of the motor. When it is switched to forward the motor will run forward and  show on the LCD display.

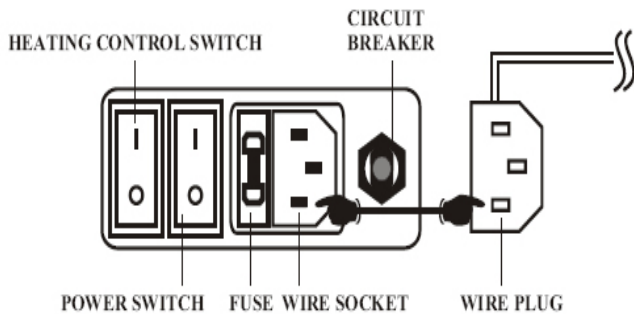
When it is switched to reverse the motor will run backwards and REVERSE will show on the LCD display. This function is used to remove items fed in incorrectly or by mistake - please note removed items will not be reusable.

## Run and stop switch

The RUN/STOP switch enables you to start and stop the motor. When it is switched to RUN the machine rollers will turn in the direction of the motor drive. If either the feed tray or guard are not in place, the machine will not drive, however, by pressing the load button the rollers will operate while the button is pressed to enable the film to be fed into the machine.

## Operating instructions

Check the power voltage for the machine to ensure this meets your own supply. Plug the power cord into the back of the machine and into your power supply. Contact your supplier if you do not have a power cord with the machine.



Turn on the power switch, the control panel Display will light, this indicates the power is connected

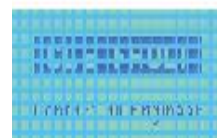
## Motor overload circuit breaker

If the machine should jam in a way that the motor could be affected, the circuit breaker will cut off the power to avoid damage. Once the overload has been cleared, press the circuit breaker button and the motor will start again. The circuit breaker button is located at the rear of the machine next to the power switch. The button is red in colour.

## Screen messages

Should the LCD display panel show the words OPN fault or CLS fault, there may be a problem with your machine. In this instance, turn off the power and call an engineer.

Familiarise yourself with the control panel before commencing operation of the machine.



## Work room lighting

Site the laminator in a well ventilated dust free area with suitable room lighting covered with yellow film which blocks out light wavelengths under 450 nm. This is available from us part number 06-14061. The film can also be used to cover any windows. N.B. Never leave the dry film photo resist rolls in daylight or white light for any length of time. Always ensure the laminator is covered with a suitable black light blocking material when not in use.

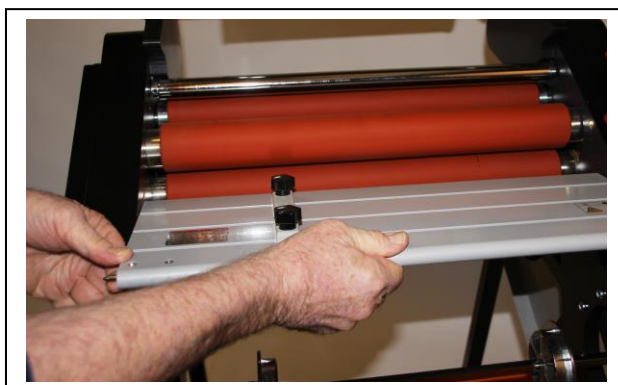
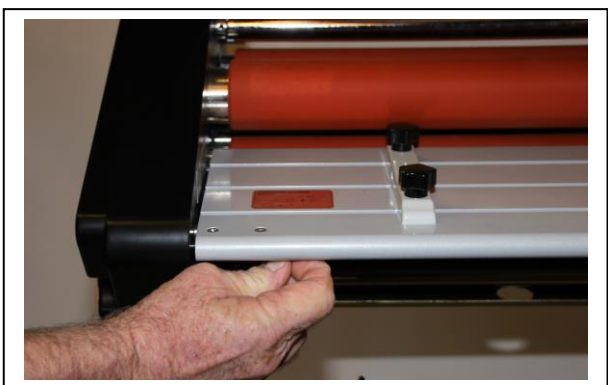
## The Laminator

The laminator uses two rolls of Photo-resist and only two rolls of the same width can be used up to 450 mm in width for the 18" laminator and 650 mm for the 24" laminator. The dry film photo emulsion is sandwiched between a polyester cover sheet and a peelable polyolefin sheet. The laminator removes the polyolefin cover sheet before the film contacts the heated rollers; these rollers then fuse with heat and pressure the photo emulsion on to both sides of the material. On exit the rear cold pressure rollers continue to roll and fix the photo emulsion onto the material.

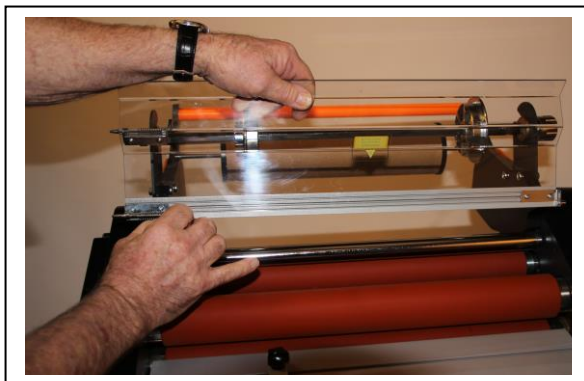
## Film loading and threading

**When you come to loading the film please use instructions below in conjunction with film threading diagram on page 9.**

1. Release the spring loaded bolt on the left front underside of the feed tray and then lift the tray off



2. Release bottom bolt on safety guard. Lift guard up, release top bolt and remove the safety guard.

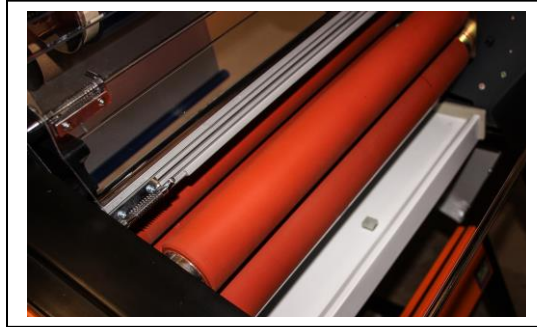


### 3. Optional

Please note that it is possible to wet laminate materials in our laminators perfectly safely. For this reason we have provided a top and bottom drip tray which can be fitted as optional. If the trays have not been fitted by us before shipping the laminator they can be fitted as Follows:

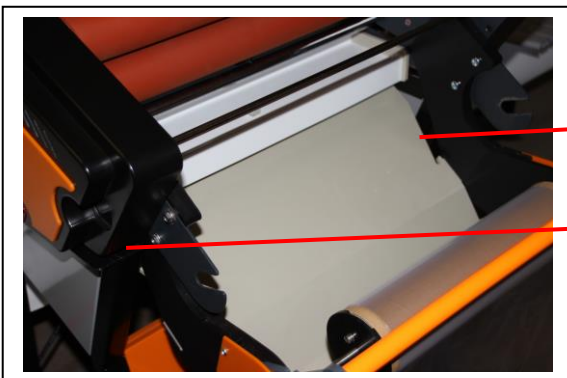
#### (a) Top drip tray

This is fitted by tilting the tray at an angle and sliding it into position.



#### (b) Bottom drip tray

This is fitted into place by sliding it into the two bottom drip tray fixing slots



Right side  
fixing slot

Left side fixing  
slot



A bucket can be hung at the drain point of the bottom drip tray to catch any drops of water.

### 4. Pull back the top and bottom pull bars and remove the top and bottom film mounting bars by undoing the fixing knobs and pulling the bars out of their fixing slots.



5. Undo the knurled screws at the end of the mounting bars and remove the brass plates and the film roller support plates nearest to that end of the bars.



6. You will find two or three indents on the mounting bars at the end nearest the mounting bar fixing knob. The film support plate screw must be screwed down into one of these indents. It is recommended that rolls 305mm wide or smaller have the plate fixed in the indent position furthest away from the knob end. With wider films you should use the indent nearest the knob. Please ensure that the support plate is fitted in the same indent on both mounting bars. This will enable the top and bottom films to be lined up accurately when films are loaded.



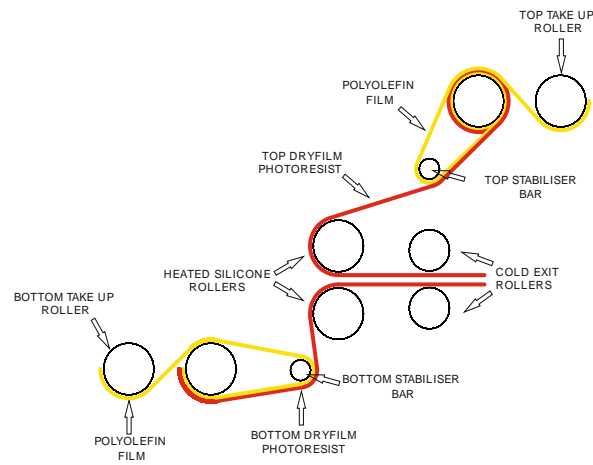
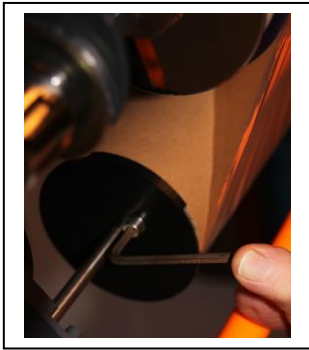
7. For both rollers push the dry film roll core up against the support plate with the loose end of the film hanging at the back of the roll and then replace the support plate you have removed and push it into the other core end as far as it will go and tighten the support plate screw up onto the bar making sure the screw is aligned with the screw of the first support plate.



8. Replace the brass plates and knurled screws and with the loose end of the dry film hanging at the back of the roll for the top and bottom roller, fix the mounting bars back into the top and bottom mounting bar fixing slots on the laminator with the pressure adjustment knobs on the right hand side of the laminator when looking from the front. Make sure that the brass plates are on the inside of the mounting bar holders and that the screw on the knurled knob end plate and the pin at the fixing bar knob end are pointing out of the slot so that the plates push completely to the back of the slots.

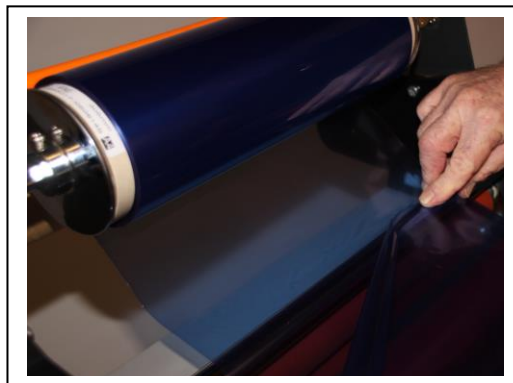


- Untighten the allen screws which hold the cardboard core holders onto the take up roller bar and position them on the bar so that the cardboard tube is in line with the dry film roll. Tighten the allen screws to fix the core holders into position. Check that the take up roller bar is in the correct slot on the push bar bracket. Short slot for 30 metre rolls of dry film. Long slot for 150 metre rolls of dry film.



Film threading diagram

- Pull the dry film from the top roller so that it goes underneath the top stabiliser bar and hangs over the silicon rollers about 300-400mm



- Cut two short pieces of sticky tape and stick one piece each side of the film diagonally across a corner. Pull the pieces of tape away from each other and the polyolefin protective film will pull away from the surface of the dry film resist coating. Pull the polyolefin sheet away and pass it over the top of the dry film roll and under the take up roll. Push the take up roll push bar forwards so the take up cardboard roll is against the dry film roll. Adjust the position of the polyolefin film until it is exactly in line with the dry film and then tape the polyolefin sheet along the length of the cardboard take up roll. Pull another 150 to 200mm of the dry film out to enable the take up roll to rotate one revolution to ensure that the film is firmly in place on the roll.

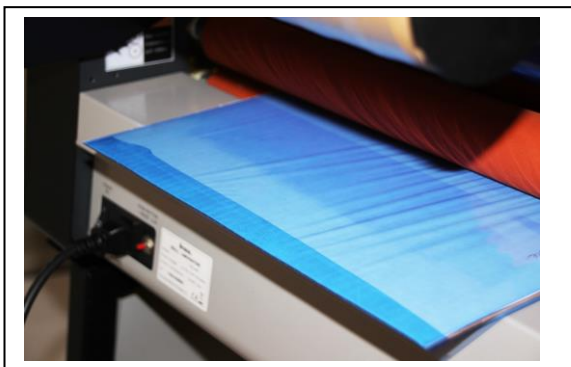
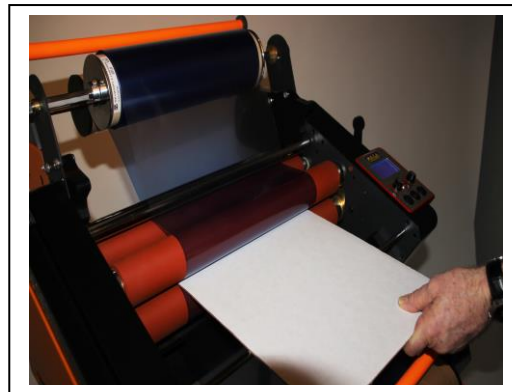
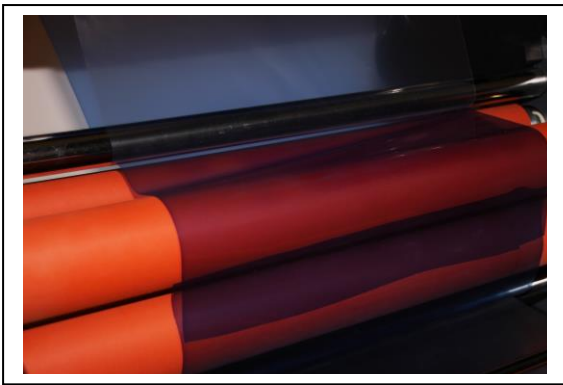


12. Push the bottom stabiliser bar forwards and it will drop down and move towards you (see machine parts drawing to enable you to locate the bar). Pass the bottom roll of dry film under the stabiliser bar and back over the top of the roll of dry film then continue as in 10 above to separate the polyolefin film from the dry film resist layer and to fix it to the bottom take up roller.  
**NB.** Do not push the stabiliser bar back into its original position.

13. Cut the excess lengths of the top and bottom dry film so that they just overlap the entry point of the heated silicon rollers using the film cutter provided, a sharp blade or scissors.

Using the roller height adjustment and pressure lever at the right hand side of the laminator open the rollers to the maximum gap and using a piece of card slightly wider than the film and about 200mm in length push the card and two pieces of overlapping film between the rollers. Then push the height adjustment lever down until it is exerting pressure on the card.

Turn on the power and set the Hot/Cold switch to cold and the Stop/Run button to run. Set the speed to 1.4 metres per minute and press and hold down the load button until the card and dry film have pass through the laminator. NB if you need to continue running just the film through the machine you may need to move the lever further down.



14. Replace the safety guard and feed tray and your laminator is ready to use.



Finished loaded laminator.