



# CUTWORX™

Complete Finishing Solutions

## MATRIX® | User Manual

Laminating & Foiling System



[spiralbinding.com](http://spiralbinding.com)  
800-631-3572



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# Introduction

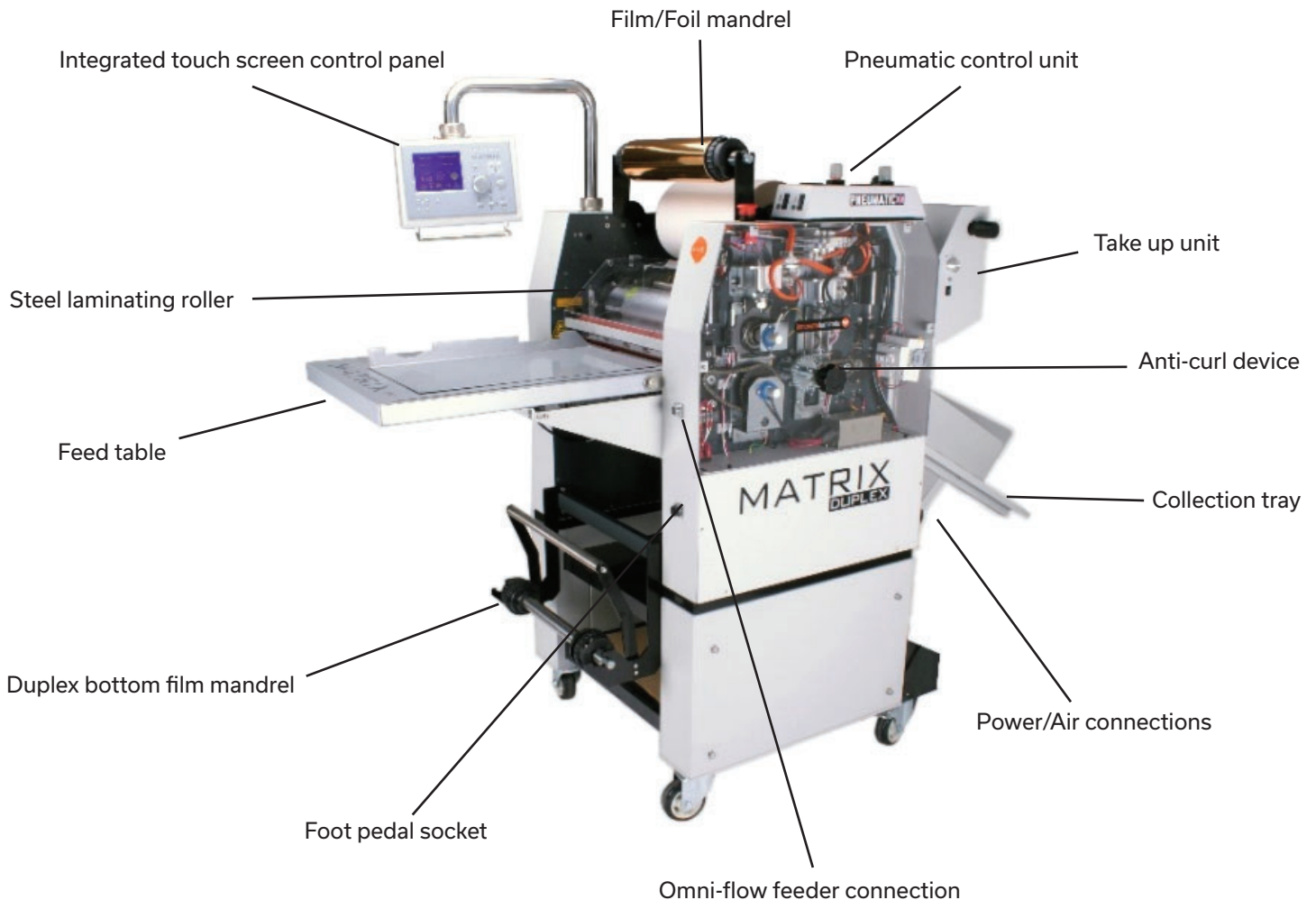
The Matrix Series Laminating & Foiling System is a high-performance machine with a solid construction built to last.

Please read these instructions carefully before starting to use the system to ensure you get the best results and are competent at operation.

Should you experience any issues with you system, please contact our support team.

Email - [support@cutworxusa.com](mailto:support@cutworxusa.com)

Phone - 469.758.2288



# Specifications

## Matrix Series Specifications

Models	<b>MX-370P</b>	<b>MX-530P</b>	<b>MX-370DP</b>	<b>MX-530DP</b>
<b>Max Mechanuca Speed (m/ft/min)</b>	10m/33ft	10m/33ft	10m/33ft	10m/33ft
<b>Max Lamination Film Width (mm/inches)</b>	340mm/14"	510mm/20"	340mm/13"	500mm/20"
<b>Minimum Paper Thickness (gsm/lbs)</b>	135gsm/90lbs	135gsm/90lbs	135gsm/90lbs	100gsm/68lbs
<b>Maximum Sheet Width (mm/inches)</b>	420mm/17"	550mm/22"	420mm/17"	550mm/22"
<b>Warm-up Time (min)</b>	10	10	10	10
<b>Temperature Range (°C/°F)</b>	0-140°C/32-284°F	0-140°C/32-284°F	0-140°C/32-284°F	0-140°C/32-284°F
<b>Power Supply (V)</b>	220/240	220/240	220/240	220/240
<b>Power Supply Required (Amps)</b>	20	20	30	30
<b>Power Consumption (W)</b>	2200	2400	4500	4500
<b>Overall Dimensions (inches)</b>	31x71x55"	35x81x55"	31x71x55"	35x81x55"
<b>Gross Machine Weight (kg/lbs)</b>	210Kg/463lbs	240Kg/529lbs	220Kg/485lbs	250Kg/550lbs

**Warning:** If you are using your own air supply, please note the following:





# Safety & Environmental Requirements

## Safety Instructions

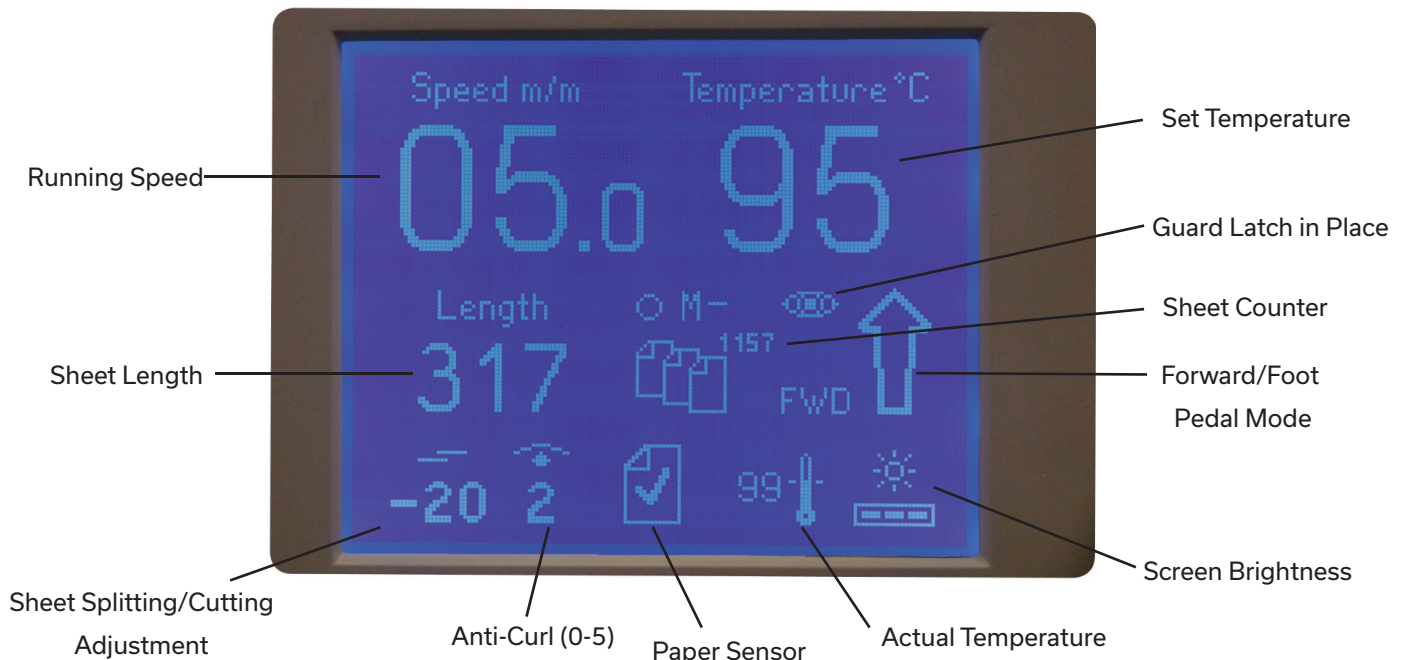
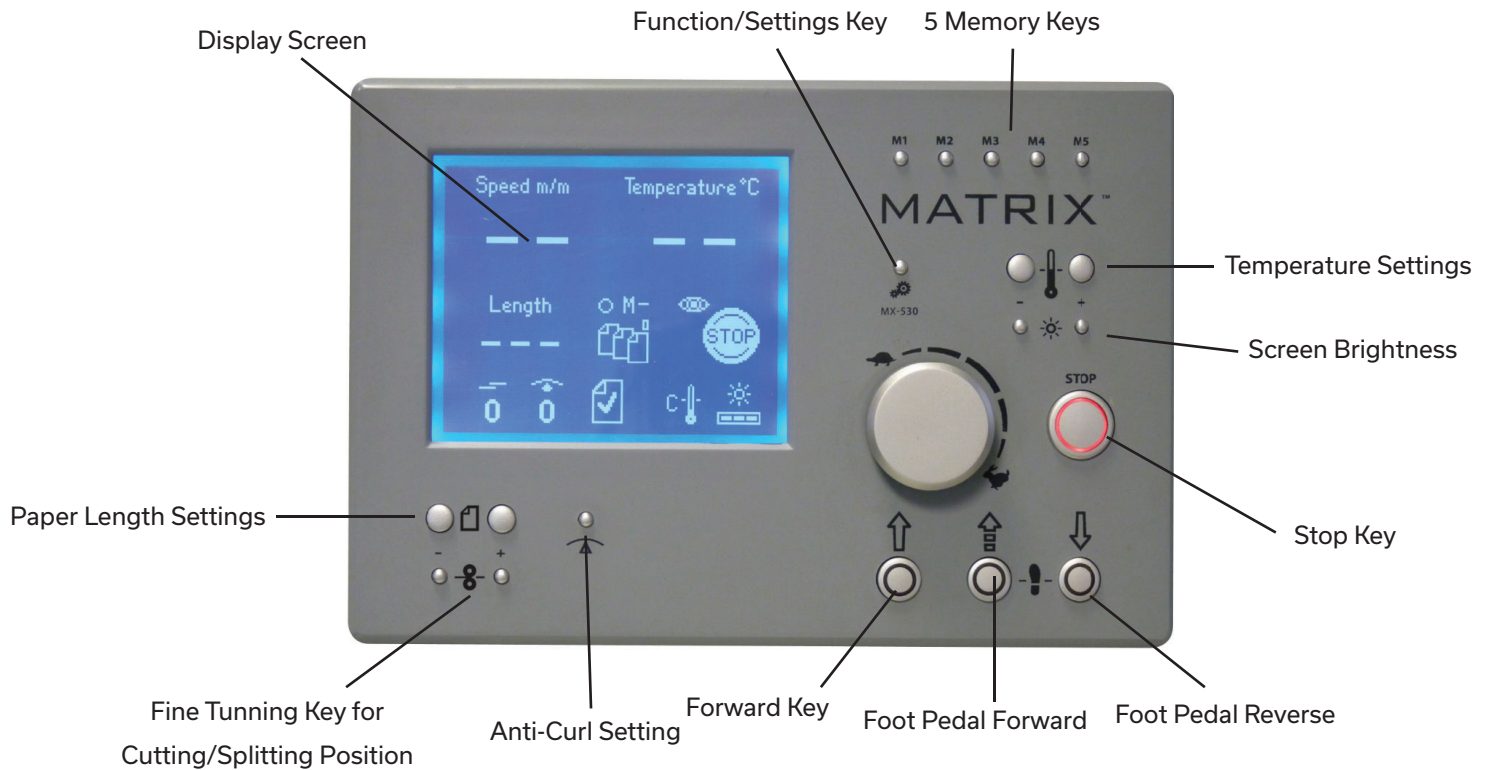
- Please ensure that the voltages and phase of the power supply you are using match with the rated working voltages before operating the system.
- The power supply should be close to the system for convenient use.
- The power supply should provide a reliable protective earthing connection.
- This system must be earthed reliably as to ensure the safety of the system during operation.
- Only the operators of this system should operate the electrical or mechanical components/controls.
- Please don't use damaged wires or sockets.
- Please keep children away from touching or operating this system.
- Please do not spray any liquids or cleaning products directly onto the system, this can cause a machine fault or electrical shock.
- During use please take care that no clothes, neckties, hair or jewellery etc are not overhanging near the system otherwise injuries can occur.
- Please don't put burrs, sharp blades or thick rigid materials on, into or near any component especially rubber parts to avoid damage.
- Please shut down the system after laminating/foiling to avoid misuse.
- At the end of each laminating /foiling job or the end of the working day always gape (lift up) the pneumatic rollers to avoid flat spots and distortions of the rubber.
- If the system needs to be moved, please turn off the power to the system and unplug from the socket.
- Please be aware of the location of the wheels while moving the system as to avoid damage to any cables nearby and personal injuries.
- Always ensure the system is positioned on a flat and level floor.
- Please be cautious of the foot pedal and cable position when operating or moving the system.
- **Only set the temperature to 80°C when first switched on as the temperature is designed to overshoot to maintain the heat on the first run.**

## Environmental Requirements

- Ambient room temperature 10oC – 60oC / 50oF – 140oF, humidity 30% - 80%, ideal humidity 55%.
- Do not place the system below air conditioning units, drafts, external doorways and windows as this can affect the accuracy of the temperature sensors.
- Due to the static adherence of the film, you should keep the environment clean from dust. A dust cover is provided with the system.
- Please do not keep the system in direct sunlight.

Enough space should be kept around the system to ensure safe operation. The minimum holding areas are 2.5m x 3m/8ft x 10ft.

# Control Panel (Single Side Lamination)



# Control Panel (Foiling)



Press the function/settings key



Use the temperature buttons to select mode

Press stop button to enter mode



This symbol appears when in the foiling mode

# Control Panel (Duplex Mode)

## Single Sided Mode



As explained on previous page, press the function/settings key to enter this screen. Use the temperature buttons to select the mode and press top to enter.

## Double Sided Mode



## Encapsulating/Foiling Mode



Ensure for foiling the bottom temperature is set to zero (off).



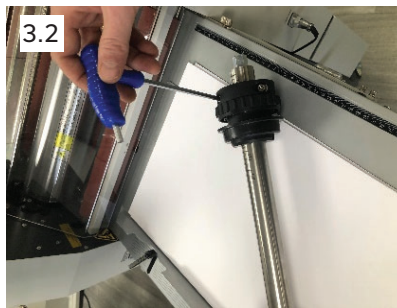
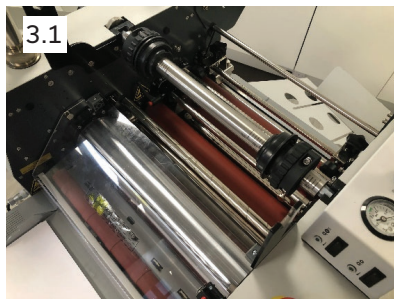
# Lamination Film Set-up



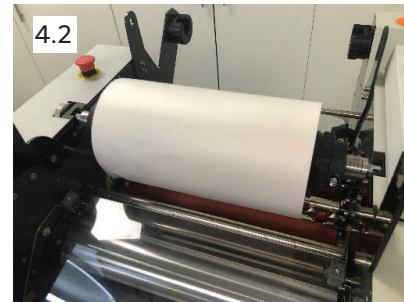
1. Turn the power on



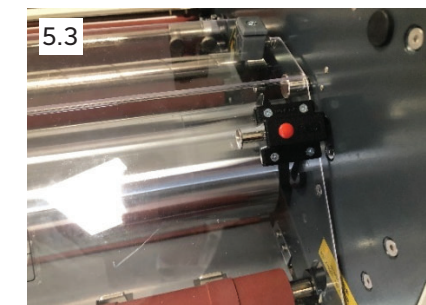
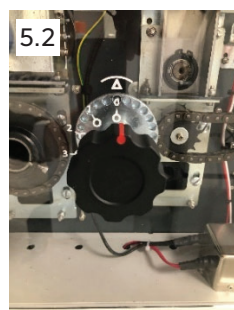
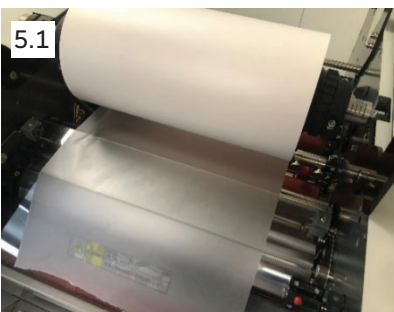
2. Set paper length (exclude the desired overlap).  
Set temperature to 80°C



3. Remove film mandrel of the system and loosen the core collar using the blue 5mm Allen key provided

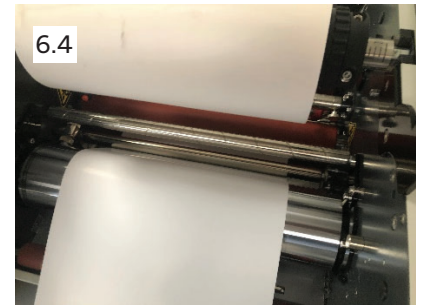
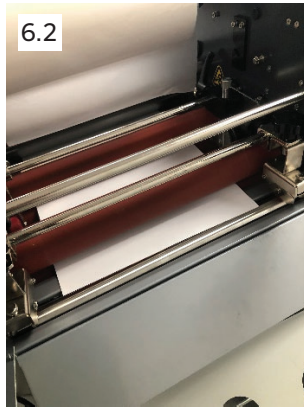


4. Slide film onto the mandrel and centralize (4.1). Replace the core adaptor and tighten. Place the mandrel back onto the system and tighten the mandrel lock (4.3).

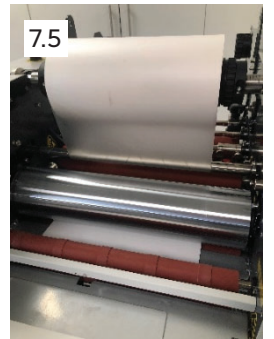
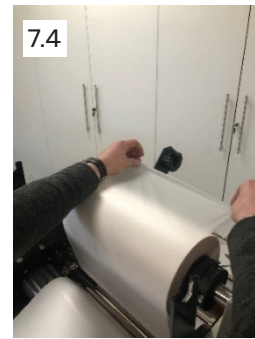
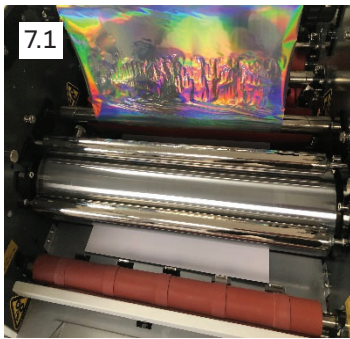


5. Ensure the film feeds from the bottom (5.1) of the roll and mechanical anti-curl is set to zero (5.2). Remove safety guard (5.3).

# Lamination Film Set-up



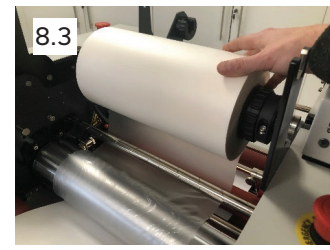
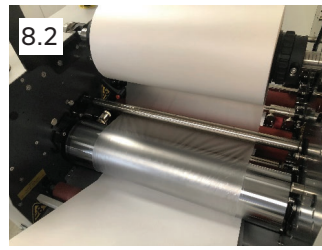
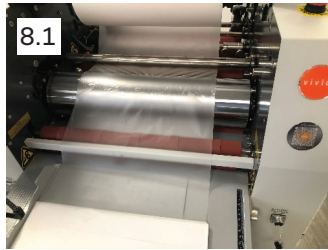
6. Place a plain thick (i.e. 300gsm) card into the back of the machine (6.1) taking care to go the middle of every roller (6.2) until reaching the feed gate (6.3), then place another plain card and cover the top laminating roller (6.4)



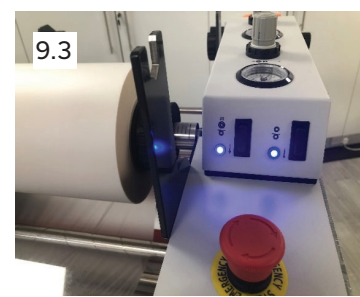
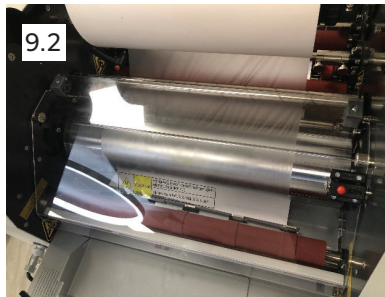
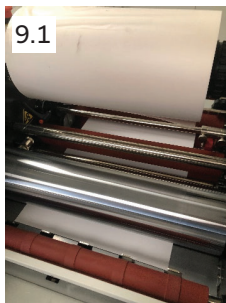
7. If you have metallic model, please ensure the two idle bars are used (7.1). Holding the corners of the film (7.2). thread under the patterned idle bar (7.3) and place back onto the film roll (7.4). Remove the card covering the roller (7.5). Now is the time to clean the roller if there is any glue or marks. For steel roller we recommend using Amberklene ME-20 heavy duty solvent and for rubber rollers use the Amberclens anti-static foamin cleaner. When using the cleaner please spray into a cloth/paper towel away from the machine, then apply to the roller.



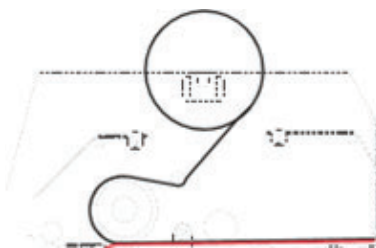
# Lamination Film Set-up



8. Drape the film over the steel roller and feed table (8.1). Push a plain thick card in-between the steel roller and feed roller (8.2), while pushing the card through, turn the film clockwise to release the tension (8.3). Push the card until the back edge is inline with the feed gate (see below figure 9.1)



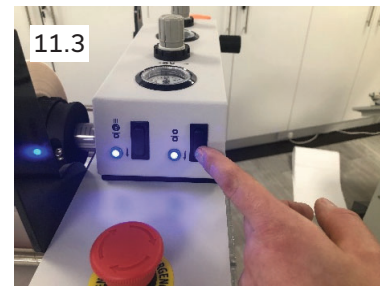
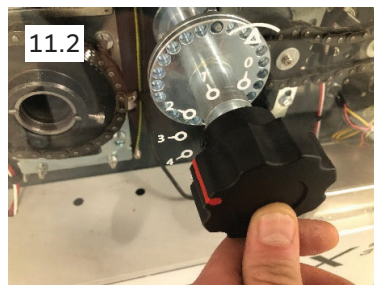
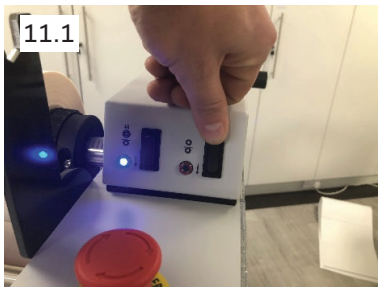
9. Put the safety guard back on. Ensure the latch is pushed in (9.2), otherwise the eye on the display will flash and the machine will not run. Lower both pneumatic laminating roller and pull roller (the LEDs's will illuminate blue when the roller is in the down position - figure 9.3).



10. Put a piece of plain card up to the feed gate. Press forward run and select your desired speed (10.1). Let the machine paper sensor fail (10.2). Set your temperature to match the speed you have selected (i.e. 105°C 2.5mpm [mechanical meters per minute] for Pneumatic/Deplux models and 120°C 2mpm for Metallic models).



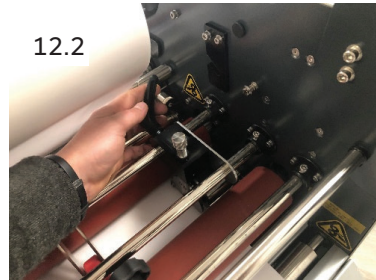
# Lamination Film Set-up



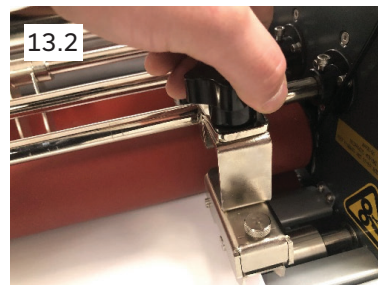
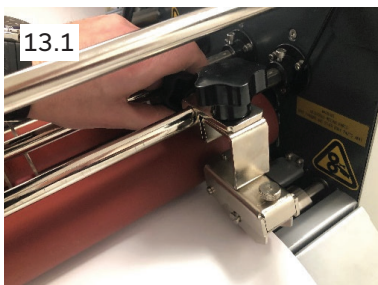
11. Set the desired anti-curl setting - suggested starting position 2 or 3, if the print curls up, increase the number and if the print curls down, decrease the number. Gape the pull roller (11.1), pull the anti-curl handle out (11.2) and select the number (11.3).



Set the display anti-curl to match the mechanical setting (11.4).

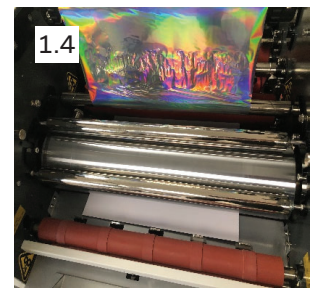
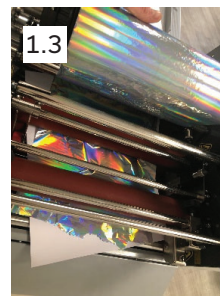


12. Set the guide wheel in the center of the sheet (12.1). Set the perforator - ensure the perforator wheel is in line with the film (up to 5mm) and within the media crop lines. Once aligned, tighten the perforator into position using the black handle (12.2), then turn the silver threaded thumb screw clockwise to lower the perforator wheel (12.3). Too much pressure will perforate through the paper.

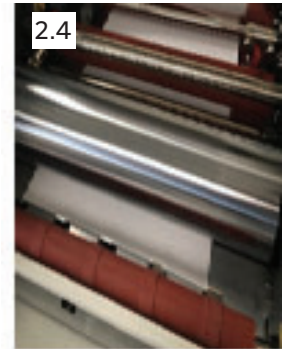
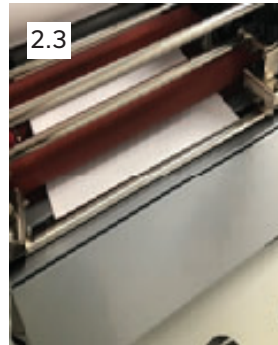
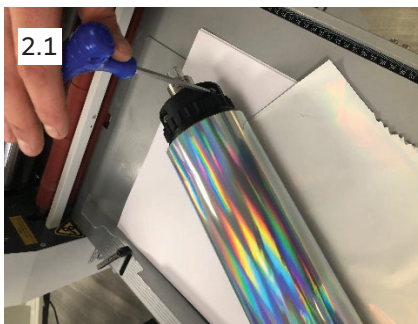


13. Set the angle wheel on the edge of the print inline with the perforator and tighten the black handle (13.1) - set a small amount of angle and tighten the top black handle (13.2). Different paper stock requires different pressure of the angle wheel, this can be adjusted using the silver knurled knob (13.3), clockwise will increase the pressure.

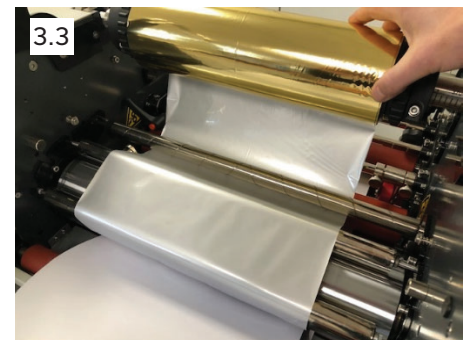
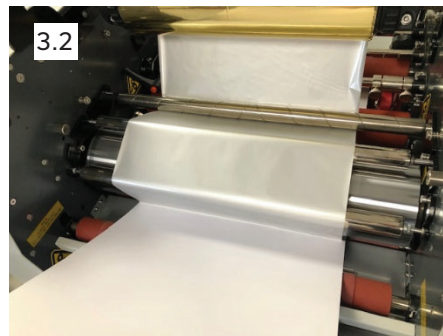
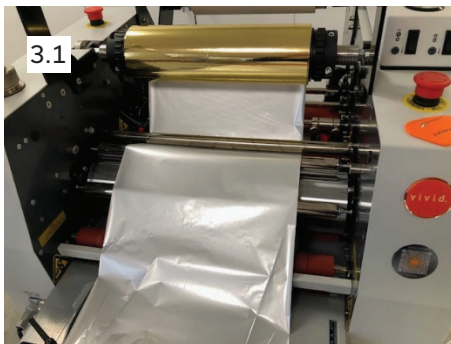
# Foiling



1. Enter the foiling mode (1.1), put the express idle bars on the machine (1.4) and turn the take up on to setting one (1.2).  
Put on the express foil kit idle bars on the front and rear of the system (1.3).



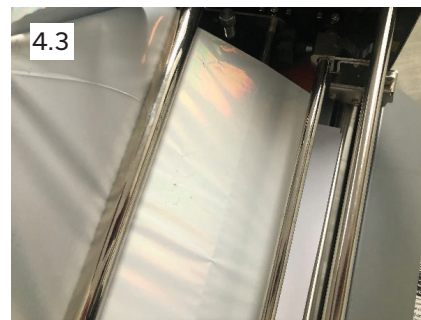
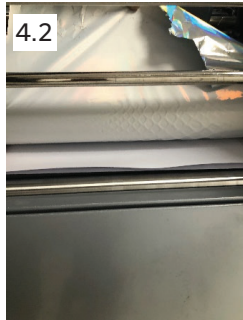
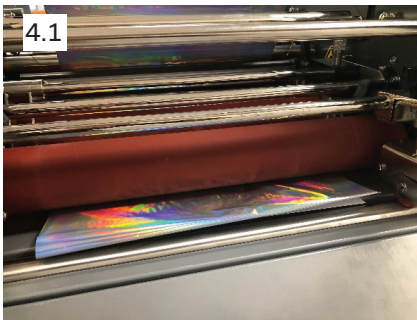
2. Put the foil onto the mandrel (2.1), ensure it feeds from the bottom of the roll, place a plain thick (i.e. 300gsm) card into the back of the machine (2.2) taking care to go the middle of every roller (2.3) until reaching the feed gate (2.4).



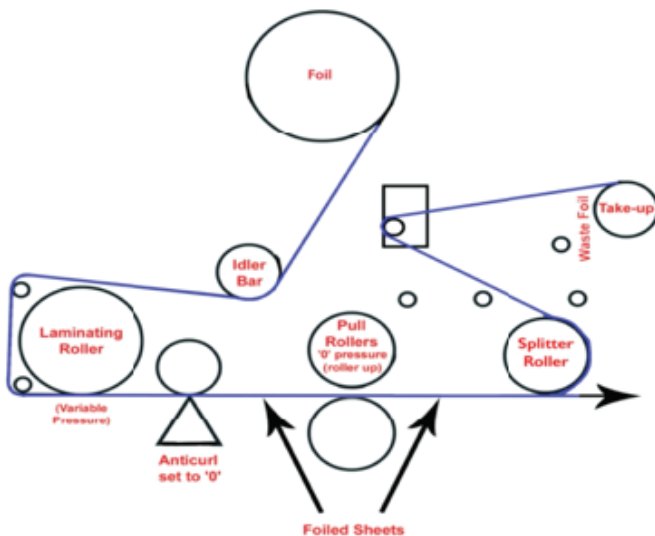
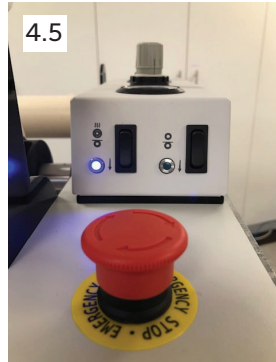
3. Thread the foil under the patterned idle bar and drape over the top laminating roller including the express foil kit idle bars (3.1). Push a plain thick card in-between the steel roller and feed roller (3.2), while pushing the card through turn the foil clockwise to release the tension (3.3). Push the card until the back edge is in line with the feed gate (4.1).



# Foiling



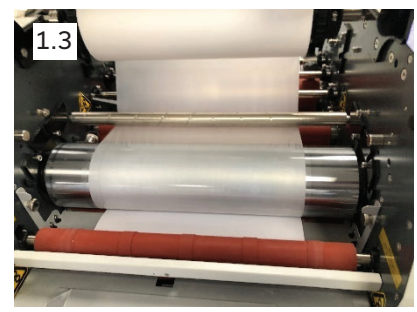
4. Thread the foil in-between the angle wheels and perforator support bars (4.2), under and around the rear express kit idle bar (4.3) and attach the take up unit as shown below (4.4). Select the temperature and pressure required, lower the laminating roller pressure and put the safety guard on. When foiling we do NOT need the pull roller, this must remain in the up position (4.5).



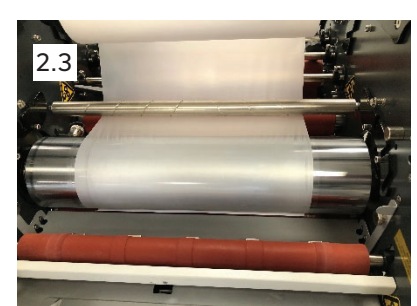
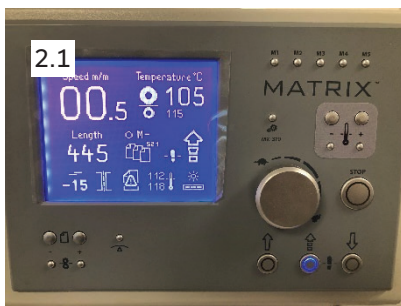
For foiling temperatures and pressures, please see the handy hints.

# Double Sided Laminating

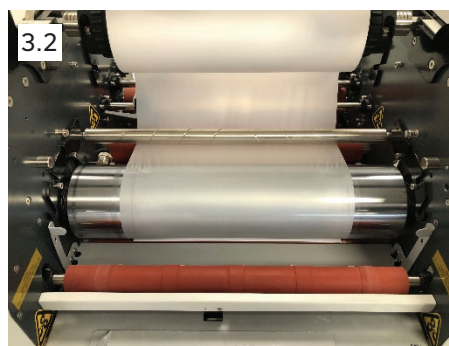
To do double side laminating load the top side first as shown in the single side laminating, excluding the use of any of anti-curl settings.



1. Ensure the display anti-curl setting is set to zero (1.1), enter the display double sided mode (1.2) and turn on the bottom roller temperature (set minimum of 10 degrees higher than the top roller). Remove safety guard (1.3).



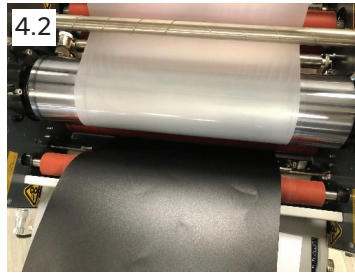
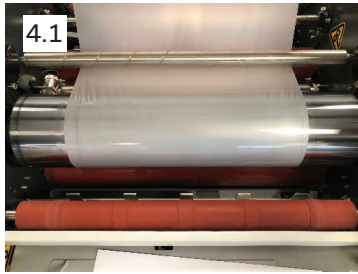
2. Press the forward foot pedal key and select 0.5mm speed (2.1). Press the foot pedal (2.2) until the sheet edge is in the nip of the laminating rollers (2.3), ensure you can still see the paper as to avoid getting glue on the bottom roller.



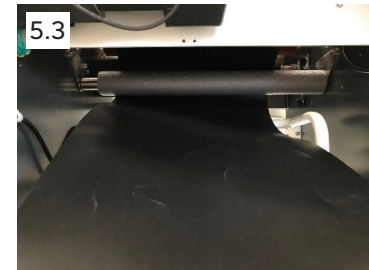
3. Remove both silver thumb screws (3.1), pull the handles inwards and towards the roller (3.2). The edge closest to you of the feed gate plate should come out first (3.3). Remember which way it comes out as it can only go back in the same way.



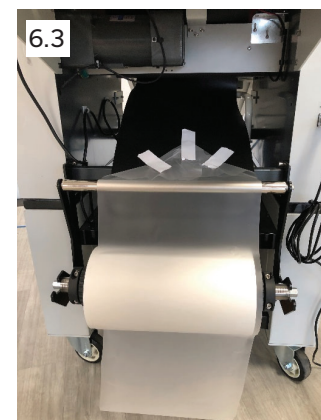
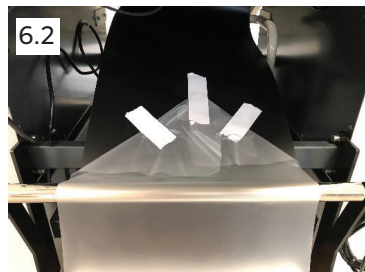
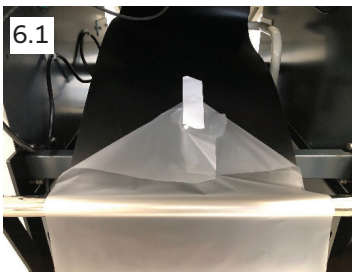
# Double Sided Laminating



4. Push the feed card down in between the bottom laminating roller and grey support plate (4.2 & 4.3). Ensure the Matrix Duplex writing is facing the feed table (see below 5.1 & 5.2).

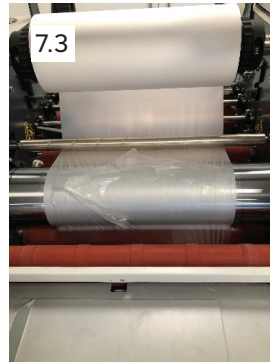
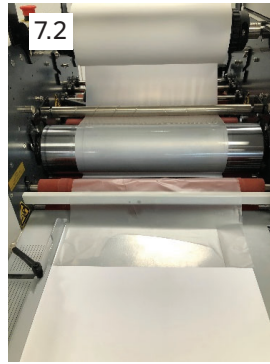


5. Push the feed sheet down until it reaches the bottom foam idle bar and thread around the back (5.3). Pull towards the front of the system and load bottom roll of film. Ensure this is centralized and matches the top roll of film. The bottom film is a mirror image of the top. The adhesive should always face you when pulling of the roll (5.4).

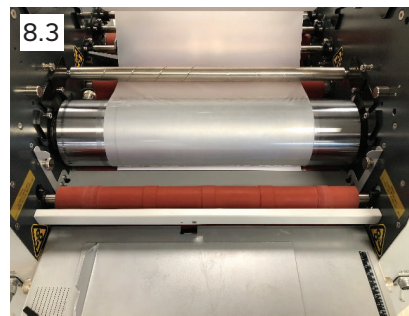
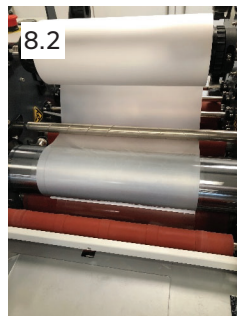
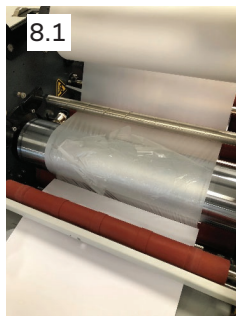


6. Fold the film cover on itself and secure it to the feed sheet (6.1). This needs to be as flat as possible (6.2). Slacken the film to the floor to allow enough to pull the feed sheet out of the system (6.3).

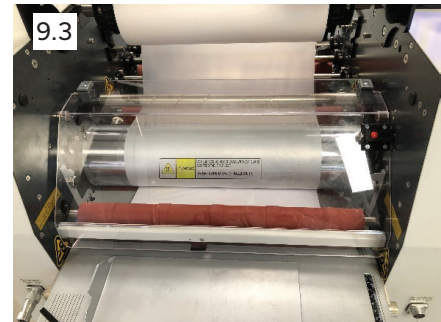
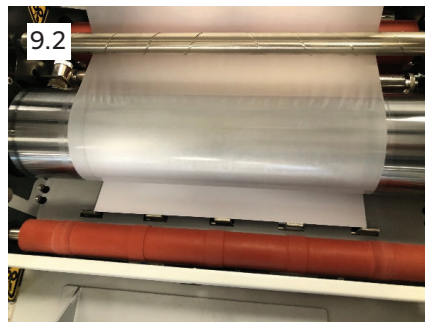
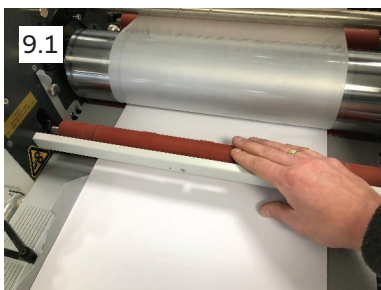
# Double Sided Laminating



7. Pull the feed sheet up onto the feed table (7.1) and remove. Cut the film to leave a clean edge (7.2) and stick it up to the top laminating film (7.3). Manually push the feed roller down and insert a thick 300gsm plain card (7.4).



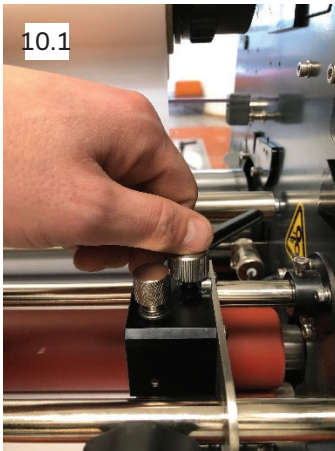
8. While pushing the card, press the foot pedal (8.1), moving the sheet into the rollers until it reaches the nip (8.2) and put the feed gate plate and thumb screws back into position (8.3).



9. Manually push the feed roller down and insert another card (9.1). While pushing the card, press the foot pedal, moving the sheet into the rollers until it reaches the feed gate (9.2). Put on the safety guard and push in the latch (9.3).

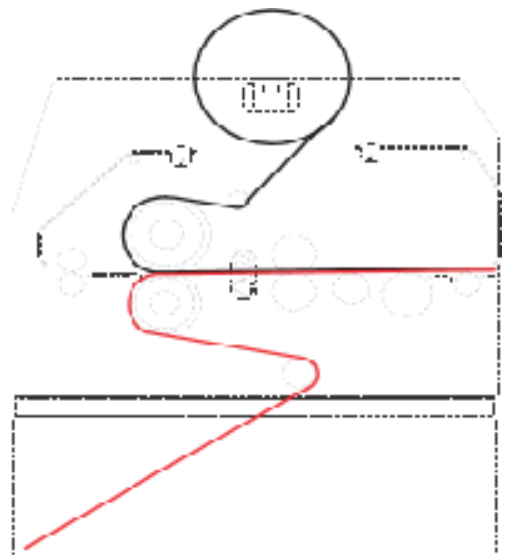
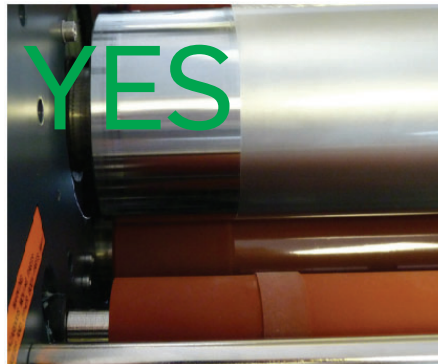
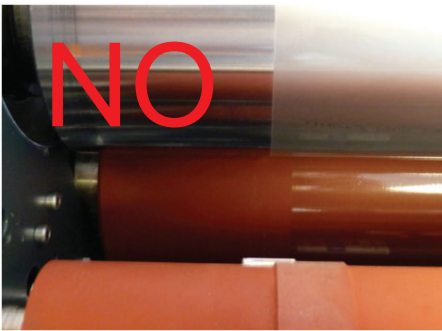


# Double Sided Laminating



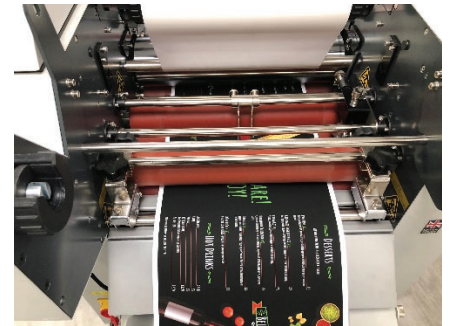
10. Turn the bottom perforator anti-clockwise until loose (10.1). Depending on the media material being used, you might require both angle wheels (10.2) and more pressure on the pneumatic splitting (10.3). If the second angle wheel is needed, ensure the angle wheel on the left is angled more the one directly next to the perforator. Pneumatic splitting pressure for single sided is usually between 0.2 - 0.4psi and double sided between 0.4 - 0.6psi.

11. Ensure the top and bottom films are correctly aligned.

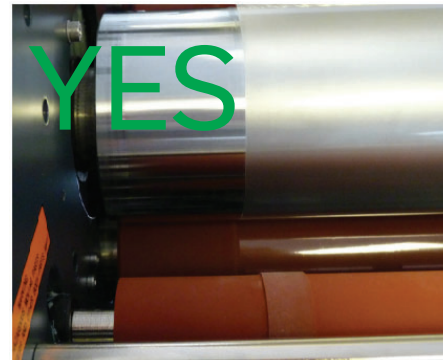
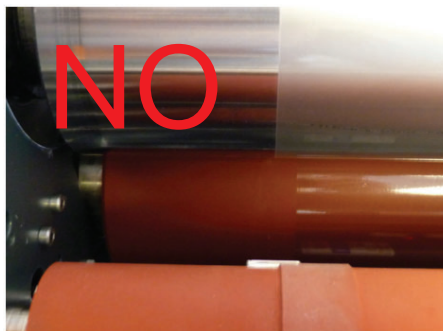




# Double Sided Non Bursting

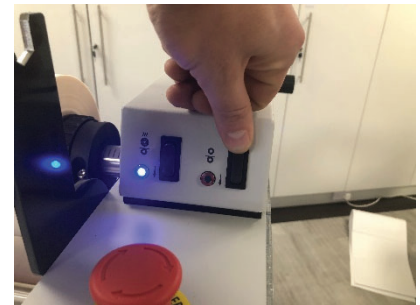


Enter the display foiling mode and turn the bottom roller temperature (set a minimum of 10 degrees higher than the top roller). Load the films as normal. You do not need the perforator or angle wheels. Increase the pull roller pressure to between 0.4 - 0.6psi. Ensure the top and bottom films are correctly aligned.



# Troubleshooting

## Anti-curl



If your sheet is curling upwards, you need to increase the anti-curl and decrease the curling down. To change the anti-curl setting, release the pressure on the pull roller, change settings and put the roller back down. Ensure the anti-curl mechanical setting matches the display setting.

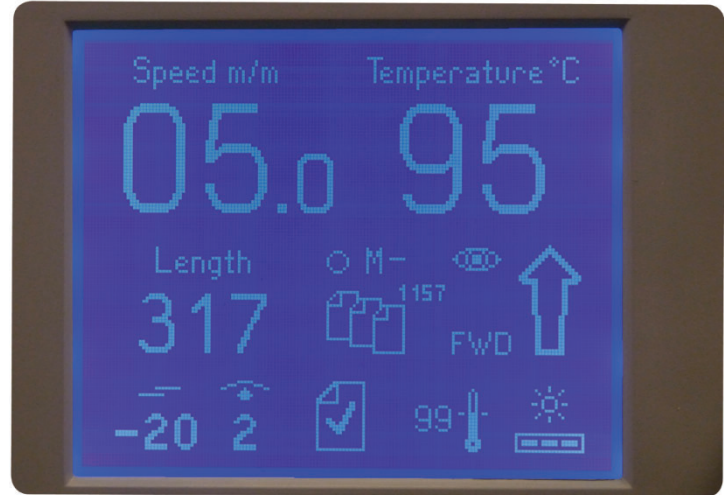
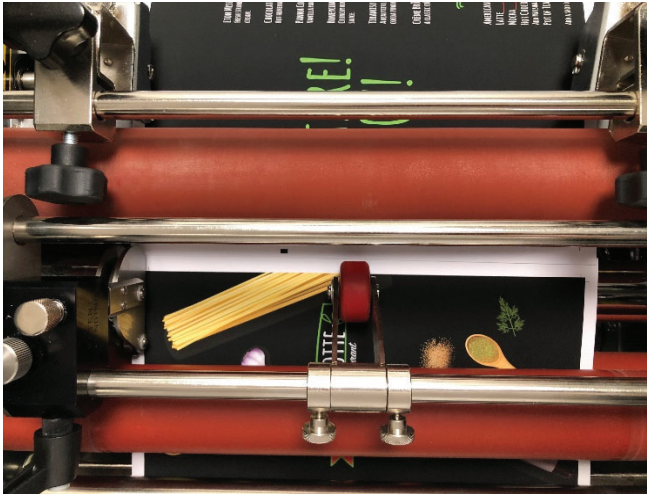
## Sheet Separation



Ensure the perforator wheel is set over the laminating film within 5mm from the edge and anti-curl mechanical setting matches the display setting. Depending on the media and material being used you might require both angle wheels, ensure the angle wheel on the left is angled and the other one is directly next to the perforator. If you have pneumatic splitting pressure this might need to be increased, for single side, 0.2 - 0.4 and double sided 0.4 - 0.6psi.

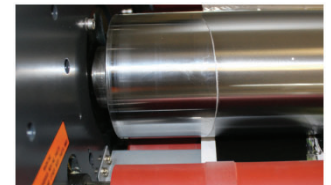


# Troubleshooting



Timing is very important for the splitting process. The splitter/seperator roller must come down after the sheet has finished perforating and come back up before the next sheet. For speeds of 0.5-2.0mmpm the display separator/cutting adjustment should be set to 0.

## Speed & Temperature Control



Most BOPP/OPP films operate between 95°C and 125°C. Ensure the Matrix is at the set temperature before you start to laminate. If your print is silvering/cloudy, the film has not properly bonded to the media you are:

1. either running the system too fast
2. not hot enough
3. the pneumatic pressure is not set correctly

IF your print blistered or the film has shrunk significantly as it passes over the laminating roller, your running the system too hot or not fast enough.

We recommend 105°C at speeds 2.5mmpm, pressure for the laminating roller to the full and pull roller set between 0.2-0.4.

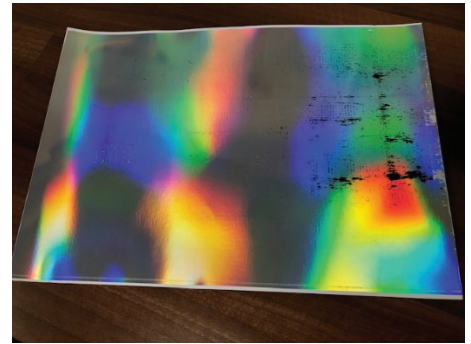
If the paper creases as it exits the laminating roller then reduce the pressure on the laminating roller until the crease disappears.

Depending on the film, your prints may require a curing time after printing/laminating, ensure the sheets have no heat from the printing/laminating before you start the next process.



# Troubleshooting

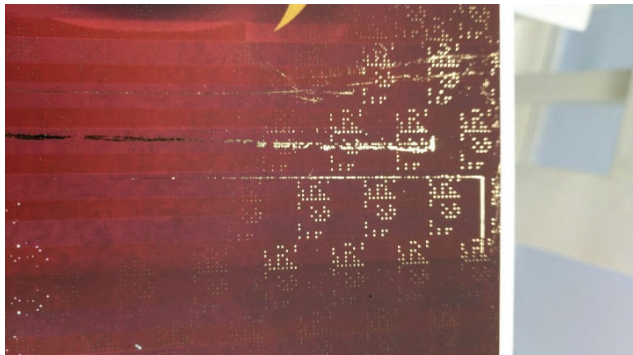
## Foiling



If there is any exposed toner in the foiled area you need to either decrease the speed and increase the temperature and/or pressure. If there is foil in places where there shouldn't be increase the speed and decrease the temperature and/or pressure.

Foiling onto paper = high pressure and high temperature

Foiling onto laminate = lower pressure and lower temperature



If you get a pattern to appear after foiling in the background, you have printed in CMYK. Ensure when printing for foiling you only print in Greyscale.

# Handy Hints for Foiling

Application	Temperature	Heated Roller Pressure	Pull Roller Pressure	Speed
Single Side Gloss Lam	115 - 120	0.6	0.25	3 - 5
Single Side Soft Touch Lam	120 - 125	0.6+	0.25	2 - 3
Double Sided Gloss	115 - 120 Top 130 - 140 Bottom	0.6+	0.25	2 - 3
Double Sided Soft Touch	120 - 125 Top 130 - 140 Bottom	0.6+	0.25	2 - 3
Foil onto Soft Touch	105 - 115	0.3	0.25	1.5 - 4
Foil onto Coated Stock	110 - 120	0.3 - 0.4	0.25	1.5 - 3
Foil onto Uncoated Stock	120 - 135	0.4 - 0.6+	0.25	1 - 3

- Using a coated paper will foil far easier than uncoated
- If foiling onto laminate stocks, please ensure you have used a corona treated printable film
- Laminate can change the thickness of the paper, take note of your printer specifications

# Warranty

CUTWORX USA provides warranty replacement of parts and labor for a period of one year after completion of installation of a Matrix Laminating & Foiling System.

## Response Times & Problem Resolutions

Calls placed into Post Sales Service Center are returned by a service technician within a twenty-four hour time period. Majority of software and hardware calls are diagnosed via remote support. Evening support is available upon request and availability.

## Service Programs

CUTWORX USA offers a variety of service programs to match your requirements. Affordable support contracts are available as well as preventative maintenance. Remote support sessions are offered for new operator and follow up training. Personalized one on one sessions can be arranged in person or remotely with the Technology Center Specialist.

## Other Services

### Escalation Policy

The CUTWORX USA support team is a well-trained and highly qualified group of individuals. There is a support escalation policy in place in our CRM system. These escalation practices are implemented on a case-by-case basis in order to best serve the customer's needs.

### Productivity Training and Consultancy

CUTWORX USA basic training courses teach your operators how to use all the functions of our system and can take place in our technology center. Material documentation, videos, and other resources are available to help assist. CUTWORX USA service team is focused on maximizing productivity for your machine.