







Operation/Task:	Lamination			Equipment:	HS Double Kote NT - Laminator
Owner:	Finishing Manager	Date Created:	11/2015	Department:	Finishing
		Revision History:	See last page		

ALERTS (see below): Critical Step  Quality Check  Tip  Team Safety 

**Purpose:** This SOP/work instruction describes the process of laminating sheets of product

Step #	Alerts	Step Description - "What to Do"	"How to Do it"	"Why to Do it"
1		See SOP FINISHING000 for all general finishing procedures	Purge work area of last job components.	Prevents co-mingling.
2		Turn on laminator (if not already on)	<ul style="list-style-type: none"> <li>Pull up on the red power knob.</li> <li>Press the start button and set the speed dial to a low setting (1-2), to ensure uniform heat sensing of the NT rollers.</li> </ul>	This will allow the pre-heat and nip rollers to begin heating so the machine will be ready for use.
3		Before loading the film, make sure sheets will flow through the laminator square with the rollers	<ul style="list-style-type: none"> <li>Press the start button to start the green belts moving. As the sheets are fed on to the belt table, the green belts and marble rack assembly will transport the sheets into the nip area.</li> <li>Run several sheets through the belt system and adjust the side guide as necessary to bring each sheet perfectly in line prior to reaching the film area.</li> </ul>	Typically, there will be a cutting function immediately following the lamination process and if sheets do not line up exactly from one sheet to the next, the pieces will not be cut correctly.

4	◆	Load the A/I (adhesive in) film	<ul style="list-style-type: none"> <li>• Verify laminate by matching the laminate tag inside the roll with the laminate specified on the job ticket.</li> <li>• Swing out the mandrel</li> <li>• Place the film roll on the portable lift to easily move the roll over to the mandrel</li> <li>• For the top film: Slide the roll of film on to the mandrel so that it will rotate with the sticky side down in the direction that is that the film will unwind. Utilize the black arrow mark on the end of the mandrel.</li> <li>• For the bottom film: Slide the roll of film on to the mandrel so that it will rotate with the sticky side up in the direction of the arrow that is that the film will unwind. Utilize the black arrow mark on the end of the mandrel.</li> <li>• Push the mandrel back into the mandrel support bracket.</li> <li>• Center the roll of film using the centering marks on the mandrel.</li> <li>• Once the film is centered, rotate the roll in the direction the film will unwind. At the same time, push in the mandrel-locking shaft until it goes into the notch cut in the mandrel. Continue rotating the roll until it locks on the mandrel.</li> </ul>	<p>Both rolls of film are needed to be placed in the proper position to cover the printed sheet completely.</p> <p>The orientation is important to allow the heat of the machine to melt the sticky 'glue' substance so that it sticks to the bottom and top of the printed sheet.</p>
5	😊	If you are using A/O (adhesive out) film, the film needs to be loaded backwards (reversed from normal).	<ul style="list-style-type: none"> <li>• Loosen and remove the locking screw on the mandrel pivot block.</li> <li>• Slide the mandrel out</li> <li>• Reverse the mandrels and re-insert the locking screw.</li> </ul>	The adhesive side for each roll is what touches the printed sheet so if it is the opposite of our normal film, it needs to be loaded differently.
6		Thread the film	<ul style="list-style-type: none"> <li>• Manually secure the end of 1 make ready sheet to the top film in a spot prior to meeting it up with the bottom film.</li> <li>• Manually secure the end of 1 make ready sheet to the bottom film in a spot prior to meeting it up with the top film.</li> <li>• Refer to diagram attached to the machine or in the user manuals for proper threading positions.</li> </ul>	This allows you to pull and push the film through the rollers more easily. The film must be properly threaded for it to work correctly.
7		Set the proper temp	<ul style="list-style-type: none"> <li>• Refer to the user manual for proper temp settings for the different types of film.</li> <li>• To adjust, press the up arrow to increase the temperature and the down arrow to decrease the temperature.</li> </ul>	<p>If the temp is not set correctly, the film will not properly laminate.</p> <p>3 mil = 215 250°  5 mil = 215 - 260°  10 mil = 215 260°</p>
8	😊	Before running too many sheets through when you are setting up, make sure the cutter is turned on and functioning	Refer to SOP FINISHING018	If it is not running the test material will not be cut and it will come out at the end as a continuous roll and not be stacked.
9		Close nip and pull rollers	<ul style="list-style-type: none"> <li>• Press the start button to allow the green belts to move the sheets towards the nip area.</li> <li>• Just before the sheets get into the nip area, press both close buttons at the same time. The nip and pull rollers will both raise, and the lamination process will begin. Note: if you press the close button on the left first, it will pull the web tight between the rollers.</li> </ul>	The rollers need to be closed for lamination to happen.

10		Adjust the film tension or pressure as necessary	<ul style="list-style-type: none"> <li>To adjust the film tension: use the turnaround roller regulators located on the control cabinet. If the sheets are curling up, use more down turnaround roller pressure. If the sheets are curling down, use more up-turnaround roller pressure.</li> <li>To adjust the nip pressure: use the nip pressure regulators located to the right of the control cabinet. Turning the regulators clockwise will increase the pressure and counterclockwise will decrease the pressure.</li> <li>To adjust the pull roller pressure: use the pull roller regulators located to the top of the control cabinet. Turning the regulators clockwise, will increase the pressure and counterclockwise will decrease the pressure.</li> </ul>	Adjustments may need to be made to make sure the film lays smoothly and evenly on the sheets
11	😊	All pressure regulators have air pressure gauges	Make sure to keep both the operator and non-operator side pressure gauges the same	This allows for even flow for laminating
12		Set-up side slitting if necessary	<ul style="list-style-type: none"> <li>Loosen the knob on top of the slitter assembly and move it over to the desired spot to slit. There are also knobs on the sides of the slitter assemblies for making fine adjustments to the blade on the slitter.</li> <li>After the slitters are in position and tightened down, run the part of the web that is being slit through the slitter rollers and up around the slitter rewinds.</li> <li>Move the slitter rewinds in to position by loosening the socket head screw located on the opposite side of the knurled knob on the slitter rewind.</li> <li>Place a film core over the slitter rewind and attach the slit film to the core with a piece of tape.</li> <li>The knurled knobs located on the side of the slitter rewinds are used to control the amount of tension that is pulling on the slit film. Turn the knob clockwise to tighten (more tension) and counterclockwise to loosen (less tension). Use just enough tension to wind the film properly. Too much tension will break the film and not enough will wind the film improperly.</li> </ul>	If the laminate film size is bigger than the sheet size, the excess laminate must be trimmed off prior to reaching the Accu II High-Speed Cutter
13	+	The slitting blades are extremely sharp	When you are threading the film or not using the slitters, move them to the sides of the laminator or remove the blades.	This will help you to avoid any contact with the blades which is a potential safety hazard.
14	☑	Quality check output prior to starting production sheets through	<p>As make ready sheets are running through the laminating process, check the following:</p> <ul style="list-style-type: none"> <li>The laminating film covers the entire area of the printed piece</li> <li>The different sheets are being fed through perfectly straight and in alignment.</li> <li>There is no creasing or bubbling happening to the film.</li> <li>The film is adhering to the paper.</li> </ul>	This will allow for the least amount of waste of the actual production printed material
15	☑	Once all it set-up and QC'd properly, start with production material	Refer to SOP FINISHING016 for loading of material.	This will begin the production process

16	<input checked="" type="checkbox"/>	Complete the job	Do all necessary previous steps, checking for quality along the way, until all material has been laminated properly. Initial the load tag and write pallet number on the top sheet of the load.	So we make money. 😊
17		Clean rollers at end of shift		Happiness is a clean work area!

Notes:

Definitions:

Revision History	Description of Changes	Requested by	Date
Rev 1	Revised SOP to new format	Dave Manship	11/25/15
Rev 2	Added Revision History table	Dave Manship	8/1/16
Rev 3	Added verbiage to Step 6 and Step 12 Why Do We Do It, removed verbiage from Step 7 How To Do It. Added notes.	Dave Manship	4/13/17
Rev 4	Revised Step 15	Dave Manship	4/26/17
Rev 5	Updated to current SOP format, renamed SOP from LAM002 and added reference to FINISHING000 to be consistent with other finishing SOPs; branding updates: font, company name; grammar updates; Manager review – no changes	Kevin Washington Tom Wall	5/21
Rev 6	Updated step # 4 for laminate identification.	Paul Leiviska	2/23
Rev 7	Update temperature controls	Paul Leiviska	4/24
Rev 8	Added verbiage to Step 1 How To Do It and Why to Do It	Jeff Storeby	6/24/25

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