



HoloLam Plus® User's Guide

ITW Brand Identity Division's patented* HoloLam Plus® full-face holographic laminates are designed for split- and mono-core card manufacturing, following the same steps as standard PVC card manufacturing for surface preparation, offset printing, overlay application, and lamination. HoloLam Plus differs from standard sheet material; however, in that the metallized front and clear back sheets are a polyester film which is laminated to the core stock.

This User's Guide, which applies to all HoloLam Plus formats, including Classic, Premium, and Advantage, highlights the differences between HoloLam Plus and standard materials and offers guidelines for process modifications. We remain available to provide technical assistance at any time.

Surface Preparation

HoloLam Plus features a print-treated polyester with an approximate surface energy of 38 dynes. If a higher surface energy or improved ink adhesion is required, we recommend applying a silk screen primer adhesive (topcoat) to the sheet prior to offset printing. This will raise the surface energy for better offset ink adhesion and improve the overall peel strength of the finished card. HoloLam Plus sheets are also available with a pre-applied topcoat.

Printing

Once the HoloLam Plus surface is properly prepared, you may follow your standard procedures for applying conventional offset and screen inks.

Overlay

Because overlays can have a dramatic visual impact on the card's overall appearance, it is important to use high-quality material. Some possible undesirable effects include formation of flow lines, orange peel, and gel spots in the sheet. We recommend that you test overlays carefully for suitability. Though not essential, we recommend that you use a coated overlay to help with overall peel strength.

Lamination

The metallic versions of HoloLam Plus feature a layer of aluminum that generates brightness and reflectivity. This will conduct heat in the laminator differently than standard PVC. If issues arise, we strongly recommend experimenting with alternative lamination profiles.

General Starting Point for HoloLam Plus Lamination

Temperature:	260°-320°F (127°-160°C)
Heat Cycle:	20 minutes +/- 2 minutes, 200 psi +/- 10%
Cooling Cycle:	20 minutes +/- 2 minutes, 300 psi +/- 10%

Possible Issues, Causes, and Solutions

Cards Bowing (Curl, Torque, Potato Chipping)

Possible Cause:	Solution:
Unbalanced card construction	Use HoloLam Plus front and back (clear, metallic, or holographic) sheets to create a balanced card. It is not necessary to order matching lots of fronts and backs when using HoloLam Plus. However, if you are using a metallic front and a metallic back, it is necessary to request matching fronts and backs.
Excessive heat during the manufacturing process	Reduce heat and/or amount of UV curing during the printing process. Reduce lamination temperature by 10°F (5°C), and extend the lamination profile by 3-5 minutes. Do not open the lamination press until the sheets have reached 105°F (40°C).

Unacceptable Orange Peel Effect

Possible Cause:	Solution:
Overlay with imperfections	Explore alternative overlays (recommendations available).
Unsuitable lamination profile	Reduce lamination temperature by 10°F (5°C), and extend the lamination profile by 3-5 minutes. Allow 2 minutes to elapse into the cooling cycle before raising the pressure.

Low Peel Strength

Possible Cause:	Solution:
Unsuitable lamination profile	Increase lamination temperature by 10°F (5°C) and extend the lamination profile by 3-5 minutes.
Insufficient bond between the offset ink and HoloLam Plus	Use a topcoat that is compatible with the offset ink.
Unsuitable overlay	Switch to a coated overlay that is compatible with HoloLam Plus sheet, topcoat, and offset ink.

Sheet Handling/Feeding Issues

Possible Cause:	Solution:
High coefficient of friction	Apply a topcoat using your silk screen press. This will also improve final peel strength. Try sheets with ITW Brand Identity Division topcoat already applied.
Excessive static	Unwrap the stack, and allow 24 hours for the HoloLam Plus sheets to acclimate to the production environment. Ensure ionized air is blowing at the back and sides of the stack on every pass. Use anti-static tinsel.

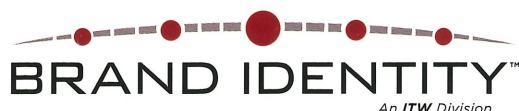
Laking (Air Entrapment)

Possible Cause:	Solution:
Imperfections in lamination plate	Replace lamination plates.
Unsuitable lamination profile	Adjust the cooling cycle pressure to double that of the heating cycle. Be sure to allow a full 2 minutes to elapse into the cooling cycle before applying the pressure.
Unsuitable overlay	Explore alternative overlays (recommendations available).

Disclaimer Notice: Information given herein is approximate and adjustment may be required to adapt materials for use in your specific application. The information presented is a result of careful and extensive research. However, since the actual conditions under which the materials may be used are beyond our control, no warranty of any kind, expressed or implied, concerning the use of the products is made.

*Patents: AU 2005245463; CA 2567380; CN 200580024555; JP 4990772; KR 101151917; MX 269440; US 7,544,266; ZA 2006/10271. Additional patents pending.

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www.itwbi.com info@itwbi.com