

Sign Sheeting Application Guide

Document: TDB-104, rev 0

Technical Data Bulletin

Document Introduction

This Technical Data Bulletin outlines recommended procedures for the application reflective sign sheeting to aluminum and galvanized steel sign blanks. Procedures for both manual and automated squeeze roll applicators are covered. The use of hand squeegees or hand rollers are not recommended.

NOTE: If these procedures are not properly followed, any warranties provided by Aura Optical Systems may be voided.

Pre-Application Instructions and Notes

1. Allow both the reflective sheeting and the sign substrate to be conditioned at temperatures above 18°C (65°F) for at least 24 hours prior to application.
2. Prepare and clean the sign substrate according to the guidelines provided in Technical Data Bulletin TDB-101 Sign Substrate Preparation.
3. Inspect the squeeze roll applicator to ensure nip rollers are clean and free of any cuts, nicks or gouges. Ensure the nip rollers are smooth and free of any flat spots.
4. Heat sources (such as a cal-rod heater bar) should be turned off. Do not use any external heat during application.
5. Always center the sign blanks in the center of applicator to ensure smooth and even wear on the nip rollers.

Laminating Gap Adjustment

Follow these steps to adjust the laminating gap for both manual and automatic applicators.

1. Raise the top roller to a height greater than the thickness of the sign substrate.
2. Center a sign blank between the rollers.
3. Using the adjusting knobs, slowly and evenly lower the top nip roller until it evenly contacts the surface of the sign blank from edge-to-edge. Upon inspection, no light should be visible between the upper nip roller and the sign blank.
4. Remove the “play” from the adjusting knobs. Then, continue to lower the upper nip roller one-half turn.
5. For squeeze roller applicators with a pneumatic air cylinder, adjust the air pressure to between 65 – 80 psi.
6. When not being utilized, the nip rollers of the squeeze roll applicator should remain open to avoid the formation of flat spots on nip roller surfaces.

Manual Applicator Procedure

Different application procedures existing for large and small sign panels. Only utilize the small sign application procedure for signs smaller than 18”x18” (46 x 46cm) in size.

Procedure for Large Signs

1. Pre-cut the reflective sheeting to a size slightly larger than the sign blank.
2. Center the sign substrate between the open nip rollers of the squeeze roll applicator.
3. With the release liner still on the reflective sheeting, place the cut sheeting directly over the sign blank and align the edges.
4. Lower the upper roller following the guidelines regarding laminating gap adjustment. This will “lock” in place the position of the reflective sheeting.



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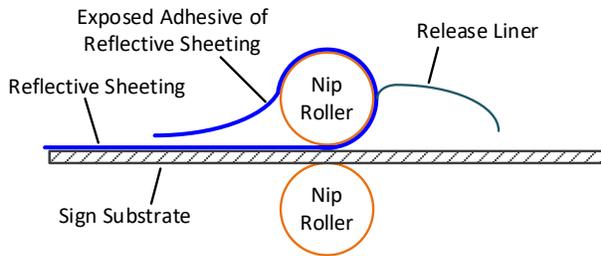
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5. Drape half of the reflective sheeting over the nip roller. Remove the release liner back to the nip roller to expose the pressure sensitive adhesive on half of the sheeting. See Figure 1.

Figure 1:



6. Leaving approximately 2 inches of excess release liner, carefully cut the release liner at a right angle across the sign blank. Fold the excess release liner under the remaining reflective sheeting. This will ease the removal of the liner during a subsequent step.
7. Roll the linerless portion of the reflective sheeting through the laminator at a smooth and constant speed. Stop at the very edge of the sign and be careful not to allow the sign substrate to “pop out” from the nip rollers. Do not place any excess tension on the reflective sheeting during lamination.
8. Roll the laminated portion of the sign substrate back towards the center of the sign.
9. Drape the second half of the reflective sheeting over the nip roller. Remove the remaining portion of the release liner.
10. Roll the remainder of the reflective sheeting through the laminating rollers to complete the application.
11. Roll the entire laminated sign through the applicator a second time to ensure all edges have received appropriate lamination pressure.
12. Trim the edges with a sharp blade.

Procedure for Small Signs

1. Pre-cut the reflective sheeting to a size slightly larger than the sign blank.
2. With the pre-cut sheeting face down, carefully peel back approximately 2 inches of the release liner. Crease the liner to hold it out of the way during subsequent steps.

3. Turn the sheeting over being careful not to touch the exposed adhesive. Using the creased release liner as a “bumper” to assist in positioning the reflective sheeting, carefully align the sheeting with the sign substrate.
4. Press the exposed adhesive onto the substrate near the center of the sign panel. Then, while slowly working from the center towards the edges, continue to firmly press the adhesive onto the substrate.
5. Feed the adhered portion of the sign panel into the squeeze roll applicator.
6. Drape the remaining sheeting over the top nip roller. Then, remove the release liner.
7. Roll the sign blank through the laminating nips while keeping the draped portion of the sheeting taut. However, do not place any excess tension on the reflective sheeting during lamination.
8. Roll the entire laminated sign through the applicator a second time to ensure all edges have received appropriate lamination pressure.
9. Trim the edges with a sharp blade.

Automatic Applicator Procedure

Machine Set-up

1. Insert the unwind shaft through the core of the reflective sheeting. The sheeting should unwind with the release liner in the up position.
2. Insert the shaft collars into the core of the sheeting roll and secure to the unwind shaft. If necessary, lightly tap the collars into the core with a rubber mallet. Be careful not to damage or telescope the roll of reflective sheeting.
3. Place the shaft and sheeting onto the automatic laminator. Center the sheeting with the laminating nip rolls and lock into position.
4. Center an empty core on the rewind shaft.
5. Feed the sheeting around the stripper roller and onto the rewind core.
6. Set the brake to prevent the sheeting from moving. Then, remove a few inches of release liner and securely tape it to the rewind core.
7. Peel back a sufficient amount of sheeting from the release liner to allow it to freely drape over the top nip roller and below the laminating gap

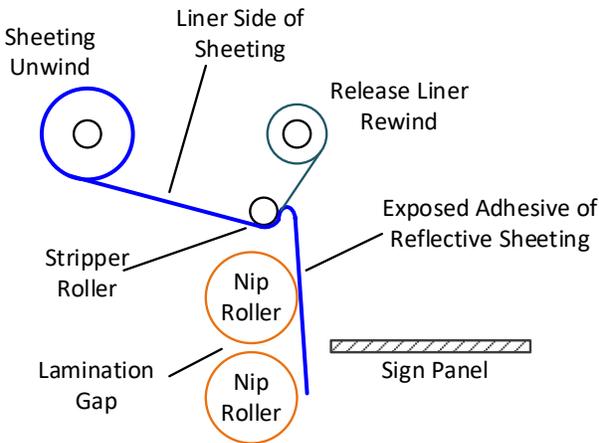


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between the nip rollers. See Figure 2. At this point, the sheeting and release liner must be centered and appear flat with no visible diagonal wrinkles.

Figure 2:



8. Align edge guides so that sign blanks will be laminated in the center of the sheeting. Note: Nominal sheeting widths typically allow for approximately 1/8" to 1/4" of overage on each side of the sign panel.
9. Release the brake to prepare for sign lamination.

Start-up and Lamination

1. Use a starter panel to begin the lamination process. The panel should be at least 12" in length and slightly wider than the width of the sheeting.
2. Feed the starter panel against the hanging sheeting and into the entry of the nip lamination point. Then, engage the drive to pull the starter panel through nip rollers.
3. Setting the proper lamination tension is critical to proper sign fabrication. Adjust the brake to create a small tension loop (Figure 3A). Be certain the tension is not too high (Figure 3B) or too low (Figure 3C). High tension may cause sheeting to crack or delaminate on the finished sign panel. Tension that is too low may allow wrinkles to occur. The tension loop of Figure 3A may occasionally disappear and then reappear throughout the laminating process.

Figure 3A:

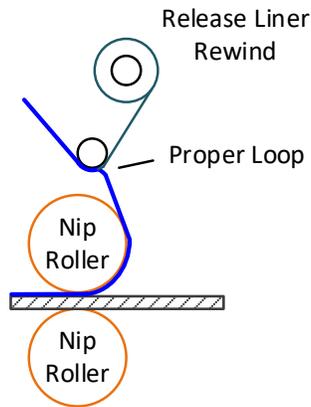


Figure 3B:

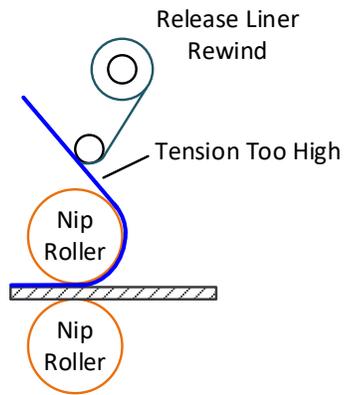
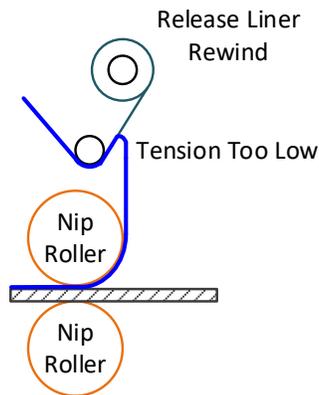


Figure 3C:



4. Feed a prepared sign panel into the nip rollers immediately behind the starter panel to maintain a continuous process. There should be a 1/4" gap between sign panels. A larger gap may allow sheeting to adhere to the lower nip roller. If this occurs, carefully remove the sheeting and clean the bottom roller.



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5. Proper lamination speeds should be between 8 – 12 feet per minute (2.5 – 3.7 meters per minute).
6. Continuously feed consecutive panels through the laminator while paying attention to tensions and the gap between consecutive panels. The brake may need to be adjusted during the process to ensure a proper tension loop is maintained.
7. Cut apart consecutive panels with a sharp knife after lamination. Do not attempt to separate the panels by manually tearing the sheeting between sign panels.
8. Trim the edges with a sharp blade.

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