

Mactac® Technical Assistance Guide: Converting

Mactac® Roll Label's Technical Assistance Guide reviews common issues that can occur when converting pressure-sensitive adhesive products at high speeds. There are wide varieties of presses on the market, and Mactac recognizes that not all presses have the same capabilities. The goal of this guide is to help converters understand best practices for optimizing equipment.



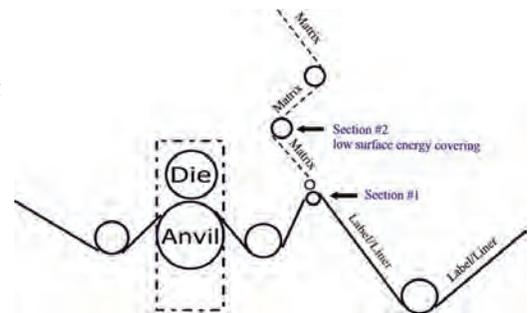
Factors to Consider

- Matrix Stripping and Rewind
- Web Tension and Support
- Die Tooling and Maintenance
- Press Maintenance
- Environmental Issues

Consider the following tips for improved converting performance, especially concerning matrix breaks and press run times.

Matrix Stripping and Rewind

- As press speed increases, the force required to pull away the waste matrix also increases, resulting in additional stress on the facestock. To reduce stress on the facestock, pull the label and liner down at the point of matrix removal. (right)
- To alleviate adhesive flow back that can contribute to matrix breaks or labels going up with the matrix, strip the matrix as close to the die as the press allows, sometimes going as far as stripping directly off the die. Other ways to prevent labels going up with the matrix include packing the dies with foam that can be purchased through your die manufacturer and/or taping the stripping roller in line with the label. This will help hold the label down as the matrix is removed.
- A smaller diameter stripping roller can increase the angle at which the matrix is removed, further helping to prevent matrix breaks.
- If the height of the stripping roller is adjustable, a slight gap between the roller and the web can assist in matrix removal by initiating a 'pre-lift' of the matrix out of the web.
- Matrix breaks can occur due to tension variations when the adhesive-coated side of the waste matrix adheres to, or begins to follow, any idler and/or driven roll it contacts. This is especially true when converting aggressive or softer adhesives. Incorporate low surface tension wraps around the rollers to reduce the risk of the adhesive sticking to the roller. Examples include grit paper, Velcro®, Teflon®-coated tape, Tesa® Tape (#4863), plasma coatings, etc.
- If the waste matrix adheres to, or begins to follow, any idler and/or driven roll it contacts, avoid using petroleum-based sprays on those rollers. Petroleum-based sprays can cause adhesives to become more aggressive. Use a spray wax, such as a common household furniture polish or dry silicone spray that will prevent the adhesive from becoming tackier.



Web Tension and Support

- The press operator should always try to maintain good ladder tension control. As the matrix rewinds and builds, the matrix web can lose tension back down to the stripping roller, which can cause 'ladder walk,' which could result in matrix breaks. The press operator can finesse how the matrix strips by adjusting the rewind tension rolls. Maintain good web tension before, during and after the point of matrix removal by using strategically placed idler rollers at sharp angles. The use of an idler support roller under the matrix-stripping roller is recommended.
- Avoid long distances of unsupported web. Shorter distances between rollers helps ensure tension is isolated, reducing chatter and web breaks.

Die Tooling and Maintenance

- Although different die manufacturers often tool their dies to the liners they stock, those dies should be able to accommodate a certain range of specifications. However, liner calipers can vary, so dies need to be tooled to the specific product that is running. A properly tooled die is essential to successful converting.
- Recent transitions to paper liners with lower apparent densities, along with the down gauging of film liners and extensible film facestocks, require consistent, precise tooling to be converted successfully. Lower density paper liners generally yield lower die life turn counts due to increased compression. Lower density paper liners may present additional converting issues such as fibers around the label edge or matrix breaks in wide web presses and with some hot melt adhesive systems.
- Ensure that dies are level, making a solid impression. If the die is not making a straight impression on the product, it will imprint more on one side than another and cause the matrix to strip unevenly and possibly break.
- The press operator should look at the die strike at the beginning of a run to verify that it is making a clean impression while avoiding cutting through the liner. Deep liner strikes can cause label dispensing problems in the future. Incorporating pressure gauges on your dies will allow you to maintain a consistent die cut.
- Check dies for natural wear. The first sign that a die is worn may be that additional pressure is required to cut. Next, the edge quality of paper labels may degrade, leaving fibers, while film labels may "ticker." If a die is older or worn, it might not be making a clear impression through the liner, and poor die cuts can often lead to labels winding up with the waste matrix. A worn die can also cause adhesive drag.
- Incorporating a die maintenance routine includes cleaning bearer wipes, wiping the anvil in the bearer area and lubricating bearer wipes with a 50/50 mixture of STP and synthetic motor oil.



Press Maintenance

- Converting issues could arise due to normal press wear-and-tear over time. Take time to properly clean all areas of the press, verify the state of all bearings and dies and perform routine maintenance on a regular basis.

Environmental Issues

- Given dry or humid environments, labelstock faces and liners can lose or absorb moisture, causing crowning or curling and affecting the strength and performance of the product during converting. Consider all environmental conditions that could influence the performance of the press and address those within your control.



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