

Stripping Station

January 2011

Recommended tips and techniques for release paper stripping stations.

Explore a variety of tips and techniques for creating your perfect stripping station. There are many distinctly different stripping station designs that function well. Each casting line will need a stripping station custom tailored to the equipment, process, and products being made. These tips and techniques will help minimize cracking, coating pick, edge tear, and hole burst and improves reuse and strength.

Stripping Station Design

Stripping station design is important if one of the following issues occur:

- The forces generated at point of strip are high.
- The release web is weak (either coatings or base sheet).
- There are defects in the release web.
- The stripping station is damaging the release web.

Typical problems created by poor stripping techniques:

Release web problems:

- Picking
- Delamination
- Edge cracks
- Tear outs
- Web breaks

Cast product problems:

- Distortion of cast product
- Film breaks
- Film tear outs

Techniques for Good Stripping

There are three important rules which always apply in the design of a good stripping stations. If these rules are followed, regardless of the design, the stripping station will perform satisfactorily.

Rule #1

- Always strip the plastic from the paper – not the paper from the plastic.

Rule #2

- Maintain a constant speed at the point of strip.

Rule #3

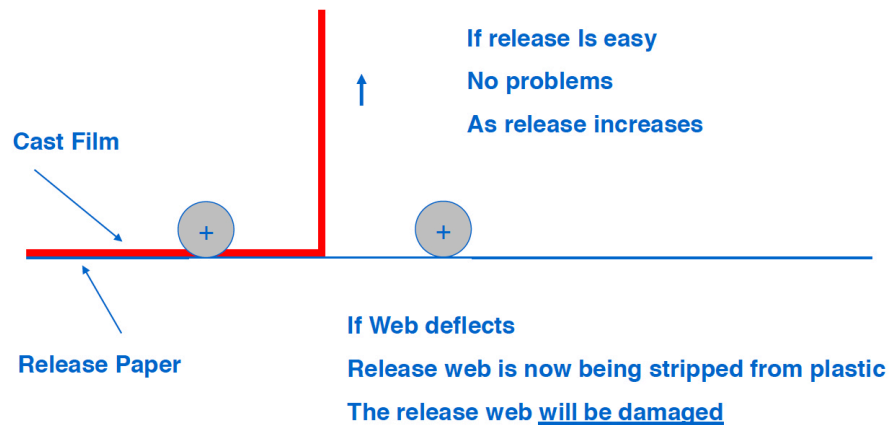
- Minimize “Z” direction forces acting on the release web.



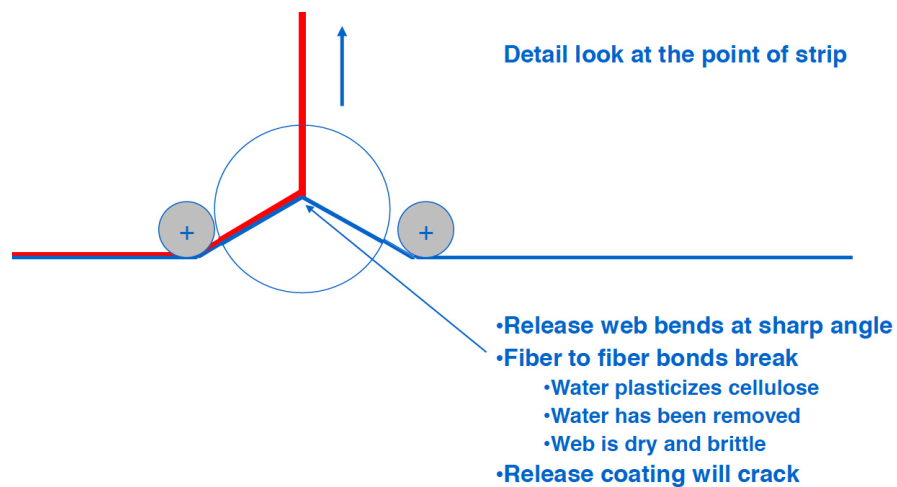
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Rule #1 - Strip Plastic From Release Web - NOT Release Web from Plastic

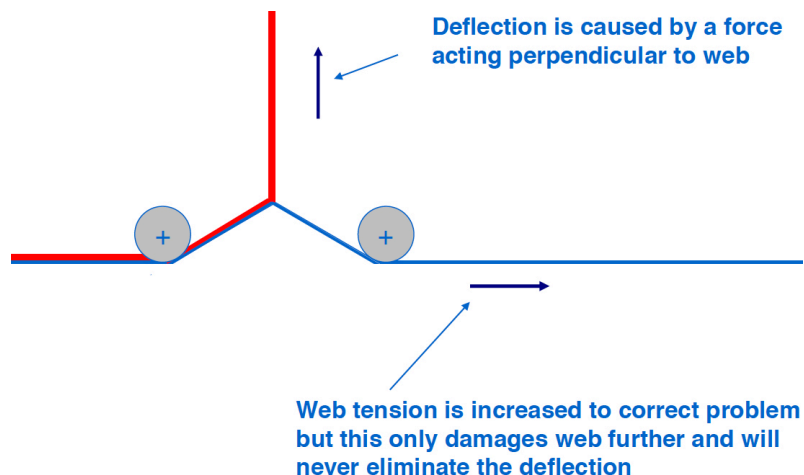
Rule #1
Figure 1:
Stripping plastic
from the release web



Rule #1
Figure 2:
Detail
Point of Strip



Rule #1
Figure 3:
Deflection



Rule #1 - Strip Plastic from Release Web - Recommendations

Always support the release web at the point of strip.

How to achieve this:

- Take a wrap on a roll.
- The larger the roll the better (no less than 25 cm).
- The greater the wrap the better.
- Keep the tension on the release web higher than the force required to release the plastic.

Results of supporting the release web at the point of strip:

Minimizes fiber to fiber bond breaks

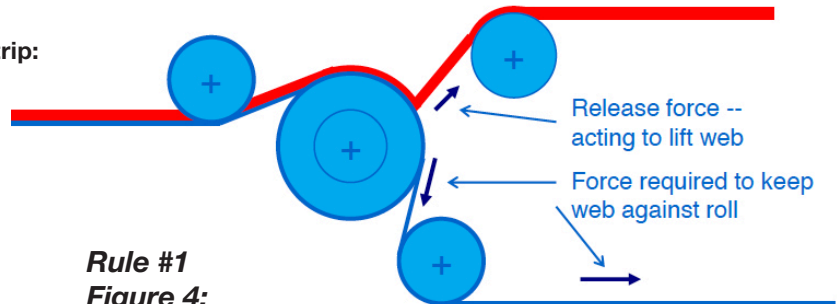
- Improves paper web strength with reuse

Improves paper web strength with reuse

- Reduces coating pick problems

Minimizes tension on release web

- Improves web strength with reuse
- Minimizes edge tear and hole/burst type failures at the stripping station



Rule #1
Figure 4:
Supporting
release web

Rule #2 - Maintain a Constant Strip Speed

The forces generated at the point of strip are directly proportional to the stripping speed:

- Faster stripping = more damage of release web.

Therefore minimize stripping speed:

- Theoretically – that will be line speed.
- If line speed is 10m/min.
- Strip speed should be 10m/min.
- Strip speed is usually quite different.

If the point of strip is vibrating:

- Line speed may be ----- 10 m/min
- But actual strip speed — 0 to many times line speed
 - The point of strip must accelerate to get back to starting point.
 - The higher the frequency the greater the acceleration.
- Coating pick will occur in a line across web at point of highest acceleration.

Rule #2 - Maintain a Constant Strip Speed - Recommendations

How to achieve this:

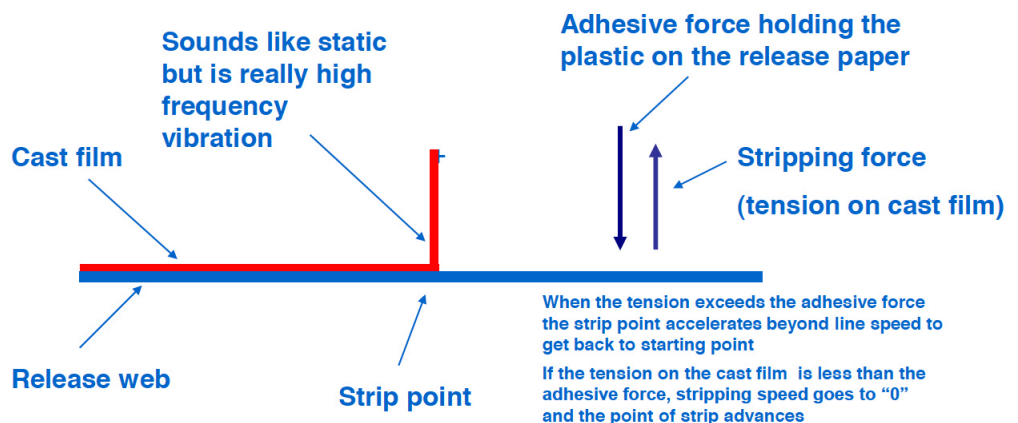
Strip the cast film at a high angle (>90°)

- Low angle ----- low frequency (rumble sound)
- Right angle --- high frequency (high pitched static sound)
- High angle ---- no vibration (no sound)

Results of maintaining a consistent strip speed:

The forces generated at the point of strip are minimized and coating pick is reduced or totally eliminated.

Rule #2 Figure 1:
Consistent
strip speed



Rule #3 - Minimize "Z" Direction Forces

The release web is strongest in the cross web and with web directions, the "X" and "Y" directions.

It is weakest in the "Z" direction (perpendicular to the web):

- Individual fibers can fail
- Adhesive failure of the coatings can occur
- Cohesive failure within the coating can occur
- Edge tears and bursts will propagate more easily

The reason for lower stripping forces at higher stripping angles is leverage

Rule #3 - Minimize "Z" Direction Forces - Recommendations

How to achieve this:

Strip the cast film from the release web at as high an angle as possible (135 or greater).

Results of minimizing "Z" direction forces:

Perpendicular forces acting in the "Z" direction are minimized. Defects that cause web failures at low stripping angles will often run without failure at high stripping angles i.e., edge tears and hole bursts.

Rule #2 Figure 1:
Higher stripping angles

