



Common Problems and Solutions Part 1

Knife and Anvil Set-Up on Horizontal Flow Wrappers

In this article we discuss some of the more common cutting problems that occur on horizontal flow wrapping machinery. Each problem is followed by several possible solutions, and we have attempted to present these in a practical sequence, beginning with the simpler or more obvious options before suggesting more complex possibilities. In every case we assume that the knife being used is high quality and, as such, the solutions deal primarily with the process of set-up and adjustment.

Good procedure dictates that crimpers should be set up prior to installing the knife, and that alignment, clearance and pressure settings should be adjusted initially for optimal seal quality. If any of these settings are subsequently changed in order to get the knife to cut, seal quality should always be rechecked.

1) PROBLEM- On initial set-up, the knife just won't cut cleanly through the film.

POSSIBLE SOLUTIONS

a) A fresh knife requires a fresh anvil. Whenever installing a new or reground knife, make sure the anvil has also been changed. A worn anvil surface can cause cutting problems as well as premature knife wear.

b) Diagonal and zig-zag knives require a radius anvil. Make sure the cutting surface on the anvil is ground to the proper radius (rather than flat).

c) Make sure that the knife and anvil are both adjusted to the proper height. The cutting edge of the knife should not protrude beyond the sealing face of the crimpers (the crown of the crimper serrations). And the working surface of the anvil should ideally not fall below the root of the crimper serrations.

e) For knives adjusted with shims, try adding shim in .002" increments as long as the knife is not banging hard and is not adjusted beyond the sealing face. Be sure that as few shims as possible are used, substituting a thicker shim for multiple thinner shims where possible. Too many shims can cause a "spongy" effect allowing the knife to flex in the center.

f) For screw adjusting knives, try adjusting the knife out a little further, taking 1/16 to 1/8 turns on the screws as long as the knife is not banging hard and the knife is not adjusted beyond the sealing face.

g) If the problem continues even though the knife is fully adjusted, try increasing the spring pressure, but take care not to cause seal problems in the process.

2) PROBLEM- On initial set-up, the knife cuts on one side of the package but not the other.

POSSIBLE SOLUTIONS

a) The knife or anvil may not sit properly in the slot. Make sure the base of the slot is properly cleaned so that it's free of product and material build-up.

b) For shim adjusting knives and anvils, make sure that all of the shims are longer than the knife or anvil. Try adding another .002" shim. (If this is ineffective and the knife is now hitting too hard on one side, remove the extra shim.)

c) If knife adjustment is made with screws, try adjusting the knife out further on the side that's not cutting.

d) Try increasing the spring pressure a bit on the side where the cutting problem occurs, making sure that this does not have a negative impact on the package seal.

e) If the cutting issue persists, a very slight adjustment of the clearance, tightening it a bit on the side that's not cutting, may do the trick. However, as with the pressure adjustment, care should be taken to ensure that this adjustment does not adversely affect seal quality.

3) PROBLEM- On initial set-up, the knife cuts on the ends but not in the center.

POSSIBLE SOLUTIONS

a) The knife or anvil may not sit properly in the slot. Make sure the base of the slot is properly cleaned so that it's free of product and material build-up.

b) For knives adjusted with shims, follow the procedures in Problem 1, steps (e) and (g). Also make sure that the knife isn't bowed. Knives that are held in by a single set-screw from the end might be bowed up in the center if the screw is over-tightened. Loosen the screw and just snug it back against the knife.

c) For screw adjusting knives, follow the procedures in Problem 1, steps (f) and (g). Make sure that the center adjustment screw is adjusted hard against the knife and that all set screws are properly tightened.

4) PROBLEM- The knife stops cutting shortly after installation.

POSSIBLE SOLUTIONS

a) Depending on the initial set up, this could just be normal break-in. The knife will often start cutting properly again with a minor height adjustment. Add a .002" shim for shim adjusting knives, or, for screw adjusting blades, make a 1/16 to 1/8 turn on the screw.

b) For shim adjusting knives, too many shims can create a "spongy" effect. Be sure that as few shims as possible are used, substituting a thicker shim for multiple thinner shims where possible.

c) For screw adjusting knives and anvils, set screws may not have loosened. Re-adjust the knife or anvil and make sure set screws are fully tightened.

d) If original pressure or clearance settings were subsequently changed because of sealing problems, then cutting could also have been affected. Go back to the suggestions in Problem 1 and re-set the knives and anvils.

5) PROBLEM- The knives work fine for a while, but seem to stop cutting too quickly.

POSSIBLE SOLUTIONS

a) Poor initial set-up may have had a negative impact on longevity. Back off the pressure and clearance settings prior to installing a new knife and anvil, adjust for a good seal and follow the guidelines in Problem 1.

b) Changes made to the clearance or pressure settings since initial set-up may be having a negative impact on knife life. Make sure that proper procedures are followed when readjustments are required because of sealing or cutting problems.

c) Some packaging film components can be abrasive and cause premature knife wear. Check to see if anything has changed.

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