

PROPER DESIGN KEY FOR SUCCESSFUL FOLDING/GLUING

by Jeff Peterson, editor-in-chief, PostPress



With the multitude of paper stocks, coatings, inks and other finishes available today, it has become more important than ever to have communication up front on any job that will be moving through folding/gluing equipment to finish the project.

Whether it is a folding carton, direct mail piece or presentation folder, specific areas need to be addressed prior to the folding/gluing process and before the piece is printed, coated, decorated and/or diecut.

"It is surprising to hear that in many cases the folding/gluing process isn't even considered at the design stage," said Chris Leary, director of sales at W.H. Leary Co. "Unlike printing and diecutting, the finishing process is three-dimensional and the structure of the carton is critical to successful finishing."

Coatings and metallic finishes

Many of the pieces, especially folding cartons, are typically coated in some way before they are folded and glued. This is important to do, in many cases, to help protect the print and prevent scuffing. However, it is always important that this coating is not applied to the glue flaps where the glue from the folder-gluer is applied. Even an aqueous coating can prevent the glue from properly penetrating the paper stock and creating the right fiber tear.

"UV coatings or any type of coatings should be avoided on the glue flap," said Bobst North America Product Support Manager for Specialty Folder Gluers Yvan Magni. Magni pointed out that there are now technologies available, such as plasma surface treatment, that allow operators to treat the coating surface to get the glue to properly penetrate.

However, even plasma treating the stock is based on having the coating applied properly, so it isn't always 100 percent efficient.

Leary added that if the stock being used includes a metallic surface (hot or cold foil, or a metallic board), "glue assist" perforations may need to be added during the diecutting process in the gluing area on the carton. This will allow for cold glue to penetrate the metallic surface and create a proper bond. "Another idea when working with a metalized surface is to use a combination of both hot melt and cold glue," explained Leary. "The hot melt system can apply a couple of dots to hold the carton together while the cold glue sets."

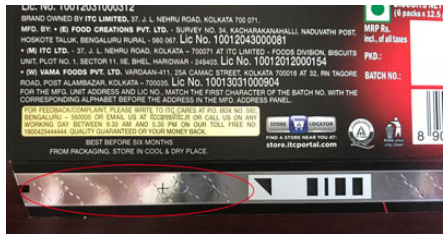
If the carton or other printed piece is not coated, it is important the ink dries completely before putting it through the folder-gluer.

"If you dare to run pieces that aren't coated, at least wait until the ink is completely dry before running them through the folder-gluer," explained Chris Pett, engineering manager for Brandtjen & Kluge. "Wet ink can wreak havoc. It can easily scuff and can offset from tracking on the machine and then transferring ink back onto the pieces."

Paper stock/carton board

This is an example of a metalized board with glue assist perforations that can be performed in the diecutting process. As with any type of process, the quality of the paper stock can have a huge impact on the folding/gluing process. The better quality of stock, the more likely it will run smoothly through the machine and decrease rejects. The challenge is in the

end user balancing the cost of the paper stock. For larger runs, the paper or board can have a huge impact on the final cost of the job. So this must all be considered. (See side bar on carton boards.)



This is an example of a metalized board with glue assist perforations that can be performed in the diecutting process.

Pett pointed out that glue flaps on heavier board will fold more easily and lie flatter if they are scored in the same direction as the paper grain. And with lighter stock, ranging from 4 to 8 point, the paper may fold better when it's turned over and scored from the opposite side (reverse scored).

"It is best to be proactive and get the folder-gluer operator(s) involved to validate the best way to score the stock being used," said Pett. "We have seen some 4-point stocks have perms in place of scores. In these instances, we noticed that the folds followed along the perms better than the scores."

Pett also recommended following the diemakers' suggestions on scoring the piece. The diemaker should have a comprehensive chart that will match up the correct matrix and scoring rule thickness with the material thickness to help ensure optimal scores for excellent fold quality.

Although scoring is mostly done during the diecutting process, there is folding/

gluing equipment available where a blank aligning module and creasing section adapted with creasing rollers can be used and potentially eliminate the need of an additional process through the diecutter.

"This type of creasing process can help with precise and straight guiding of the folding and allows the paper fibers to be re-molded after the printing and the coating process," explained Magni. "This allows the paper fibers to bend in the newly created scoring channel instead of breaking, and essentially will help avoid cracking."

Avoiding scuff

The best way to avoid scuffing of the printed piece through a folder-gluer is to be sure it is coated. This can be either a cured UV or aqueous coating that can be applied inline or offline. Either way, as discussed earlier, it is best to keep the coating off the flaps or other areas that will be glued.

Even if the carton or other printed piece has been coated, it is still best to avoid contact with any static tooling (bars, guides, deflectors, etc.). However, the belts on the folder-gluer also can create challenges with scuffing, particularly the feeder section where a carton will go from zero speed to over 2,000 feet per minute in a matter of seconds, which can create a burn-out effect on the printed side of the carton.

"The belt manufacturers have done an incredible job in the past few years to create rubbers that can sustain those high speeds without putting too much stress on the printed surface," explained Magni. Magni went on to say that the operator also has a part to play in this

process; a good setup allowing for a larger surface of these belts to contact the carton also will lower the burn-out effect.

Ultimately, the use of a good quality coating, a quality folder-gluer machine, and fresh and clean belts with a good setup should all help combat any type of scuffing. "In the worst case scenario, the production speed may need to be reduced slightly to avoid any scuffing," continued Magni.

Conclusion

The design of the piece and the consideration of areas such as the coating used and the quality of paper/board are important to achieving a quality outcome on the folder-gluer. Pett recommended communication from the end-user, printer and the final folder-gluer operator as an important step in determining final quality.

"When creating designs, get the folder-gluer operators involved early," said Pett. "They have a vast amount of experience. Show them the drawings and ask them to show you how it would run through the machine."

"Every step along the way will affect the next one, and the more mistakes or wrong choices that are made during this process will not only affect the time needed to produce the job, but most of all, will increase the cost of manufacturing which will affect the profit of the job," concluded Magni. "This is why I always emphasize the fact that a well-conceived job starts by the design team's knowledge of the products and equipment that will be used during the manufacturing process."