

***Printed Sheets Stick to the Screen***

**We have trouble when printing thin materials, especially 5- and sometimes 10-mil polycarbonate, on our four-post sliding table press. The take-off grippers do not always want to take prints off because they stick to the underside of the screen the moment the vacuum switches off. We have made several adjustments and even tried using full vacuum but nothing seems to make a difference. Any suggestions?**

**Answer:** There are three likely causes of this very irritating production problem:

- Too much squeegee pressure,
- Too much vacuum or
- Both.

Consider for a moment the surface attractiveness of the substrate and print table smoothness when they make contact with one another. They are both very smooth — just like two pieces of glass — and therefore relatively difficult to separate without literally sliding one away from the other.

In this situation, however, sliding is not an option. Because of the way a printing press works it has to break or separate the substrate's leading edge with one straight lift from the table. Without the aid of air cushion, the rest of the substrate may then slide off the table — but that action naturally builds up destructive static. The roughness of paper-type substrates is usually enough to create less-than-100 percent surface contact, and that is why they do not usually pose a similar sticking problem. This roughness prerequisite is similar to a screen maker obtaining the ideal surface smoothness on the emulsion face (commonly known as  $R_z$  value) to permit a more successful print through better separation.

With this particular job, one has no choice but to use a smooth polished surface material, one recognized to be very static-prone. Even if operators anticipate the likelihood of experiencing some problems separating the two surfaces from one another, they unconsciously tend to make that task harder with excessive squeegee pressure.

One could consider this action like a superb laminator — the squeegee presses two smooth surfaces together under great force. Then, after printing, there is so much attraction between the two entities that a great deal of static is generated inadvertently to force a separation. That is usually not a problem mechanically because grippers will take the sheet off (watch carefully) as static simply travels through the automatic take-off mechanism. However, once the grippers release the sheet, static has nowhere else to go so the printed sheet attaches itself to the nearest body—which happens to be the screen.

While a press operator must be careful not to work with insufficient vacuum, employing too much vacuum produces a similar effect to that of excessive squeegee pressure. Most likely, the root cause of the stated problem is excessive vacuum power aiding and abetting the squeegee in creating the destructive laminating-like effect.

**-- The Print Guru, Mike Young, August 2004**