

Image Poor or Missing Right at Start of Printing

We struggle with some of our presses to get a decent print at the start of the print stroke. Sometimes, it will not print at all while other times the squeegee seems to vibrate and leaves chatter-like marks on the print. We've tried everything, but the problem is still there in one form or another. Any ideas? We hear similar questions to this, where it would not print at the beginning in one corner.

Answer: Sounds initially like too much off contact and possibly peel-off are used. Let's assume the start of the image is near the edge of the screen, as the case would be printing the maximum image size to the screen. When printing commences, fabric deflection (the angle of screen separating immediately behind the squeegee) is at its greatest point; it gradually decreases throughout the print stroke. As proof of this, many operators experience the problem stated at the beginning, as you report, but also encounter one at the end of the print because the screen's negative deflection (fabric itself having no off-contact at all) means it will stick to the wet print — but that's another issue.

For the squeegee to come down and start printing, in which the off-contact distance at this point could be as much as 6.4 mm ($\frac{1}{4}$ inch) or more, it must overcome the significant upward force the fabric exerts because the squeegee blade is near the screen's edge. The problem is further promoted if the image is nearer to the edge than it ought to be. Either way, the upward strength of the fabric is greater than the downward force of the squeegee trying to deflect the screen, which is merely a simplistic description of what happens. In the worse case scenario, if the squeegee manages to overcome the fabric's strength with too much force, the screen may pop and it will be blamed for being lousy!

Not knowing the setup parameters or other vital conditions of the press(es) in question, it is safe to say that you must reduce the amount of off-contact distance (through higher tension), zero out peel-off at this point, and review the positioning of the image. Check that the screen is not warped and the master frame holder is not twisted out of alignment — both are additional reasons to not print in a corner. The greater the distance the image is away from the frame, the less likely the problem will occur. Some other tips that may work are to switch to a dual/triple durometer squeegee blade (same durometer but with hard support), apply a little more print angle (from the vertical to counter chattering), slow the speed down and ensure the blade is no longer than 25 mm (1 inch) beyond the image at both ends.

If for any reason the squeegee tends to jump and skip over the leading edge of the sheet, as the case might be with thicker/harder substrates, tape down support (or nesting) strips of the same thickness against its edge and use the snowplow feature a little if available. This will allow the squeegee to travel on a firm flat level of the same height before it actually prints.

I do not wish to throw a curve ball at the issue, but I once witnessed this very problem being resolved purely because production changed the fabric grade used! Knowing what I know, I am not at all surprised.

-- The Print Guru, August 2004