

## Tips & Tricks

# Avoiding Ghosting in Sheet-Fed Offset Printing

Ghosting in sheet-fed offset printing refers to the phenomenon in which glossy darker areas are visible on the back of otherwise evenly colored surfaces with high ink concentration. The image on the front side reappears in the ghosting area. Ghosting effects are particularly malicious, since they can only be identified after the completed printing process. Also called matt/gloss effects, they occur through contact between the front and back of consecutively printed sheets in the pile. According to a Fogra research report (No. 50.035), this contact image impression comes from the different drying speeds of the inks on different spots. In order to salvage a print run affected by ghosting, a dispersion coating needs to be applied. This can eliminate the perception of the matt/gloss occurrence, but requires additional time and money.

### Paper/ink combination factor

It's therefore best to avoid ghosting in advance by choosing the right combination of paper and ink. Since certain interactions between inks and papers encourage ghosting, it's advisable to run a lab test before using the materials. During the test, two press proofs are produced on a test printing device. Afterwards, they are stored in a pile of papers like sandwiches so that the front and back once again follow consecutively. One of the two press proofs is given an image with more than one edge, for example two stripes next to each other, and the other is printed full-surface. In this example, the visual perceptibility of the double stripes on the full surface is evaluated according to a comparison scale with eleven levels. This can also be catered to specific details of the print job, for example the length of time between printing and perfecting or perfecting and finishing.

### Time interval factor

These time intervals play a decisive role in the emergence of matt/gloss effects. That, in turn, means that ghosting can be reduced with the appropriate time interval! The time interval between printing and perfecting is crucial in determining if and how the byproducts of oxidative drying of the ink on the printing side acts on the still unprinted perfecting side. Since the chemical bonds involved are volatile (aldehydes), preconditioning decreases with increasing length of the perfecting interval, the same as the extent and prob-

ability of ghosting effects. Immediate perfecting is more practical, however, in order to rule out an influence on the surface of the perfecting side of the paper in advance. In addition, the time interval between perfecting and finishing should be as short as possible, because the longer the storage time, the more apparent are the ghosting effects. In order to avoid ghosting effects, it's nevertheless necessary to allow enough time for the inks to dry.

### Lab test ensures reliability

While these methods for avoiding matt/gloss effects can help to remedy the situation during the printing process, they are not entirely reliable. The tried-and-true method of airing the pile, for example, only helps reduce ghosting when it is done directly following perfecting. Airing the pile after the contact impression has already formed may even strengthen the image and is not a suitable measure then. The best protection against ghosting is the appropriate choice of printing ink and paper combination. A lab test is the only measure which can ensure that ghosting doesn't occur later in the printing process. The results from the Fogra research report demonstrated a high congruence between lab tests and actual printing. The test can be carried out at Fogra as an award. ■

### Facts & Figures

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