

Greater Contrast With Less Ink

HOW TO SAVE INK // Savings is a top priority given the global economic situation. Among other things, this means maximizing production efficiency. In offset printing, for example, there is a prepress trick for delivering greater contrast with less ink.

Paradoxical as this may sound at first, closer examination reveals that it is entirely possible. After all, four-color images are normally printed with a total area coverage (total ink application) of up to 330 percent if the ISOcoated_v2 profile is used. The figure for black alone is around 98 percent, with the remaining 232 percent being accounted for by chromatic colors. As every printer knows, it is difficult to keep the shadow tones open with this level of "saturation." Some may well have blamed the press on occasion, without considering the copious amounts of ink applied as a possible cause. What's more, large amounts of ink result in drying problems and, in many cases, poor registration due to paper distortion. If the press operator reacts by reducing the amount of ink applied, the shadow tones do lighten, but the image contrast is lost in the process. So what's the solution?

The simple answer to this predicament is GCR (gray component replacement), which involves replacing the achromatic ink components, i.e. everything that blackens the colors, with black itself. With a green that comprises 95 percent yellow and 70 percent cyan for example, 20 percent magenta would neutralize the color, i.e. make it achromatic. The same color could, however, also be printed using 75 percent yellow, 50 percent cyan, and 20 percent black. This has the benefit of reducing the ink application from the original 185 percent to just 145 percent, a remarkable reduction.

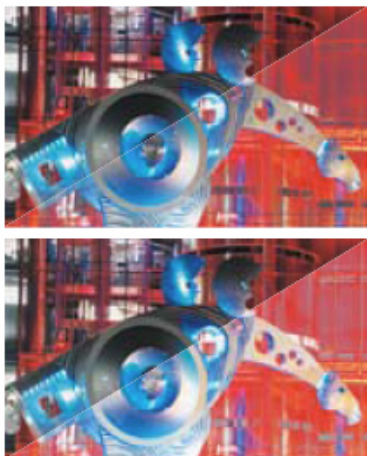
An appropriate ICC profile is all that is needed to convert a customer's image data in this way. If such a profile does not exist, it is easy to create one using the Prinect Profile Tool. The standard ISOcoated_v2 profile is modified for the reduced amount of ink applied as described below. The first step is to reduce the total ink application in the profile settings, for example to 270 percent. In extreme cases (car tires, night shots or images with strong gray tones, for example), it may be possible

to go even lower. The next stage is to select "GCR" and set the required compensation. Some 80 has been shown to work well in practice for some print shops. If the result is still not satisfactory, the optimum compensation can quickly be determined using one-off print tests with various settings. The ICC profile is then incorporated into the workflow. The Prinect Prepress Manager workflow from Heidelberg is ideal for this, so there is no need to invest in additional software.

If a printer does not wish to change the customer's data or is not permitted to do so, the alternative is to create a device link profile. The only important thing to remember here is to ensure that the data provided corresponds to the color space expected by the device link profile. In the above example, the customer sends his images in the ISOcoated color space with 330 percent ink coverage. As soon as the customer data passes through the Prinect workflow, it is automatically set to an ink coverage of 270 percent – without this changing the original data.

Although this technique does save on (chromatic) ink, it is ultimately a completely unrelated benefit – the fact that it is much easier to set up the press – that enables offset printers with their many job changes to achieve far greater potential savings. Time savings occurs in many ways. Register accuracy is achieved faster, less powder is used, less ink is transferred between sheets and ink trapping improves. Owners of high-performance perfecting presses, such as the Speedmaster XL 75-P or XL 105-P, benefit from optimum transport over the jackets during and after sheet reversal. Items that normally require straight printing with two passes can be produced with ease in half the time with reduced ink application and GCR. Last but not least, postpress operations are also optimized because saddlestitchers and folding machines no longer become soiled as quickly.

It is worth mentioning that, even with a modified ISOcoated profile, the ISO 12647-2 standard is



Greater contrast, less ink: The top image is printed with a "conventional" total coverage of 330 percent, the bottom one with just 270 percent thanks to gray component replacement.

complied with because the characterization data in the profile is not changed. As a result, press operators kill several birds with one stone, achieving greater contrast with less ink while still ensuring ISO compliance. Their lives are made much easier and customers appreciate the enhanced image quality. ■

Info

The products described may not be available in all markets. Further information is available from your local Heidelberg representative.