

**Achieve higher densities  
and greater efficiency  
in flexographic printing**



**Kodak**  
DigiCap NX  
Screening

# Kodak DigiCap NX Screening

Flexography is an extremely versatile and cost effective printing process used in the packaging sector, excelling in its ability to print on a wide variety of substrates. In recent years the flexographic print process has enjoyed a period of continual development, elevating its reproduction capabilities far beyond what has traditionally been possible with flexography, and putting it on a somewhat level playing field with other print processes, like offset litho and roto-gravure.

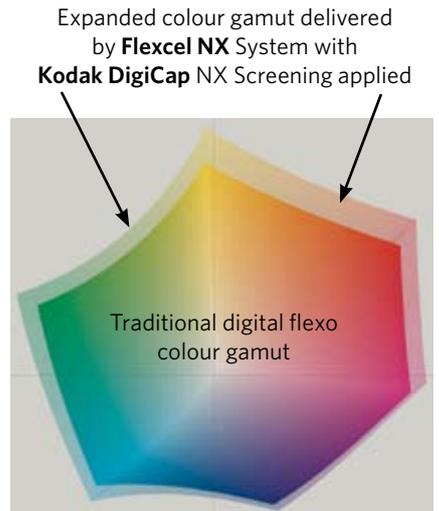
However, one area where flexography has continued to struggle in some applications is that of ink transfer efficiency. This is particularly noticeable in, though not exclusively limited to, wide web applications that use solvent based inks to print on film substrates. Inefficient ink transfer to the substrate leads to solid print areas displaying a mottled appearance and lower measured densities that negatively affect visual impact of the printed packaging. It is a known deficiency that often leads to roto-gravure being selected as the preferred print process despite its higher cost and unsuitability to meet the industry demands for declining run lengths.

**DigiCap NX Screening** is a software-based feature for the **Kodak Flexcel NX Digital Flexographic System** that enables a major step forward in ink transfer efficiency through the application of a micro surface texturisation pattern to the surface of all elements on the **Kodak Flexcel NX Digital Flexographic Plate**. Print applications that traditionally struggle with efficient ink transfer can now enjoy higher print densities, smooth solid area ink coverage and expanded colour gamut with process printing. It is a development that now allows flexo-graphy to truly compete on a quality level with roto-gravure for flexible packaging.

## Dramatic results

The application of **DigiCap NX Screening** to a job has an immediately visible impact on the smoothness of ink coverage. The traditional voids evident with traditional flexo printing are dramatically reduced and the visual results speak for themselves.

In addition to improvement in the smoothness of ink laydown, dramatic density increases have been measured on prints produced with **Flexcel NX Plates with DigiCap NX Screening**

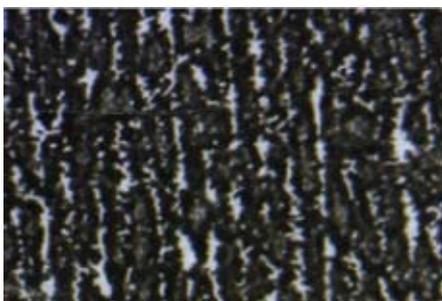


applied. Users are reporting average density increases of 0.4 in cyan, magenta, and black, and 0.2 in yellow.

Density increases of that magnitude have a huge impact on the visual appearance of print. Higher contrasts deliver a depth and brilliance that is immediately visible, and increasing the density throughout the full tonal range widens the available range of colours and increases the process colour gamut. Combine that capability with the print stability of **Flexcel NX Plates** and the door is open to make greater use of process colour printing, reducing spot colours and reducing costs.

As a result, a print buyer can now achieve superior print quality, with freedom to design, while printers drive efficiencies in the production process.

## Solid black print sample — same press, same ink, same anilox, same substrate



Traditional digital flexo



**Flexcel NX Plate with Kodak DigiCap NX Screening applied**

DigiCap NX Screening for the Flexcel NX System elevates the visual impact and efficiency of flexographic printing to a new level.

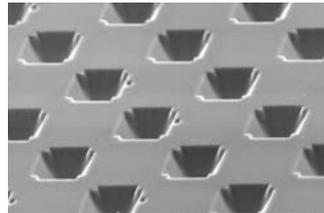
## A new implementation

The concept of using surface texturisation techniques to improve ink transfer efficiency is not a new one. Plate surface texturisation has generally been accepted as theoretically holding the key to improved ink transfer and has been implemented in a variety of forms over the years. The most recent attempts have been the digital imaging of a cell pattern within the image areas of the plate. Some users have definitely seen improvements with these techniques but, in general, none that could be described as dramatic, consistent or predictable.

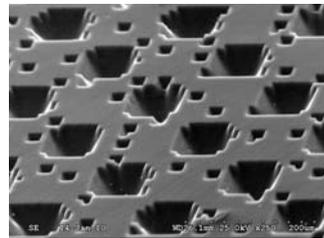
The challenge has really been to image a pattern fine enough on the surface of the plate to dramatically affect ink transfer, and to be able to implement it across the entire plate, including solids, lines and halftones. A challenge that has eluded pre-press and plate suppliers until now.

The remarkable innovation in the **Kodak Solution** is the ability to produce a surface texturisation pattern that is finer, more regular and more consistent than ever possible before. The result is a reliable and dramatic increase in ink transfer efficiency, driving both quality and economic benefits for both printer and print buyer.

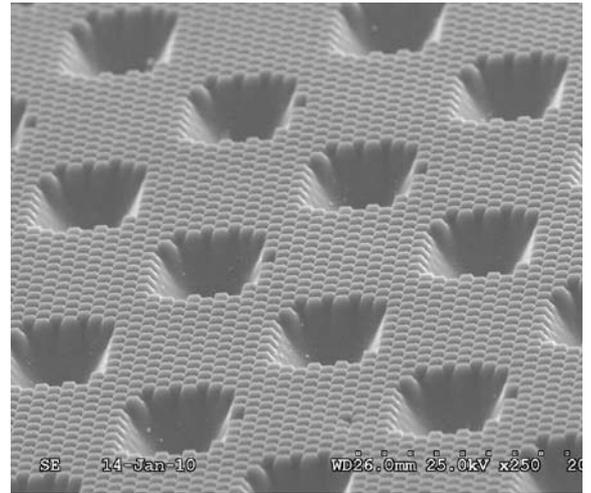
Plates imaged with 70% tint. Shown at 250x magnification.



No surface texturisation



Traditional plate cell patterning applied



Kodak DigiCap NX Screening applied

## Enabled by the Flexcel NX System

The innovative software-driven solution that is **Kodak DigiCap NX Screening** uses the high resolution, 1:1 digital file to plate reproduction capabilities of the **Flexcel NX System** to image a superfine micro pattern across the entire imaged areas of the plate. Pattern elements are only 5 by 10 microns in size and are distributed in an even pattern across all plate elements.

Implementation is simple for the operator. Any **Flexcel NX System** can be upgraded to include **DigiCap NX Screening** and, prior to imaging, the operator simply uses the **Kodak Tiff Front End** application to choose whether to have **DigiCap NX**

Screening applied or not. Powerful software routines apply algorithms to the 1-bit Tiff file and generate the unique regular pattern that is applied to all image areas of the plate, with the exception of the very finest highlight dots. Despite the complexity of the calculations, streamlined implementation means that the application of **DigiCap NX Screening** does NOT negatively impact platemaking efficiency, and the repeatability and fineness of the surface texturisation pattern has to be seen to be believed.

The texturisation pattern creates a surface characteristic that is significantly more conducive to efficient ink transfer. Many have compared it to the principle that anilox rollers employ to deliver ink efficiently to the plate itself.



## Maximise profitability

**DigiCap NX** Screening for the **Flexcel NX** System provides significant efficiencies and return on investment for packaging converters, trade shops, and, ultimately, print buyers.

**It can be used as a tool to pursue conversion of designs from roto-gravure production to flexography:**

**Kodak DigiCap NX** Screening for the **Kodak Flexcel NX** System closes a gap that finally enables flexography to compete on a quality level with gravure for flexible packaging. The lower production costs and shorter turnaround times associated with flexography make the transition extremely compelling for brand owners and print buyers. This provides significant opportunity for the wide web flexo converter to gain new business and for consumer product companies to reduce their production costs. Wide web flexo printers already using the technology consider it to be the most significant innovation in flexography in the last 10 years and a

tool that is allowing them to reposition the flexographic printing process.

**It is used more widely to improve the quality and efficiency of current flexographic production:**

**DigiCap NX** Screening has a significant impact on the visual appearance of print. All of these features have a highly positive effect on shelf impact — but what about the cost? Surely higher densities mean more ink is laid down and production costs increase. Not so. The power of **DigiCap NX** Screening is such that users are reporting all these benefits with no increased ink usage. And while this might seem counterintuitive, it is indeed what happens in practice. The secret lies in the smoothness of the ink coverage and the absence of voids (the main factor that reduces measured ink density) — the result is no increase in ink laydown but print densities that read considerably higher.

More importantly, the stability of ink laydown and increased colour gamut

that results from increasing ink density throughout the full tonal range allows flexographic printers to do more with four colour process printing and reduce the number of special colours used. Fewer colours means fewer plates, reduced ink costs, faster set up times and greater press efficiency. Wide web flexo printers using the **DigiCap NX** Screening technology for the **Flexcel NX** System are regularly enabling designs to be printed with fewer colours.

## The benefits — simply stated

**DigiCap NX** Screening is revolutionary technology that increases ink density with no increase in ink usage. **Flexcel NX** System users are using it to great effect to take their flexo printing to the next level, and enjoy print production efficiencies that are keeping them competitive.

- **Achieve higher densities**
- **Print with fewer colours**



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# Kodak

It's time for you **AND** Kodak



This paper is based upon an extract from the submission material that resulted in **DigiCap NX** Screening becoming a recipient of the prestigious 2010 PIA InterTech Technology Award.