



Kodak Flexcel NX Digital Flexographic System



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Challenges facing brand owners

- Achieve greater efficiency to reduce time to market
- Maintain color and graphic consistency, no matter how, where or on what substrate they are printed
- Boost shelf impact to differentiate your brand from the competition
- Build brand equity



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Kodak Flexcel NX System: Flexo, but not as you know it!

- Challenge the traditional boundaries of Flexo printing
- Improved productivity, stability and repeatability
- Quality to challenge gravure and offset
- Unprecedented simplicity and predictability on press for digital Flexo



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Kodak Flexcel NX System Awards

To date in 2008, the printing industry has recognized the **Flexcel** NX System as differentiated technology for Flexo printing



**Flexographic Pre-Press
Platemakers Association**

Kodak Flexcel NX System awarded Technical Innovator of the Year Award



Kodak customers won printing Awards using the **Kodak Flexcel** NX System, including a Special Achievement award

2008
INTERTECH
TECHNOLOGY
AWARDS



Kodak Flexcel NX System awarded prestigious PIA/GATF InterTech Technology Award

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Why invent a new digital flexo plate system?

- Flexo had a significant constant growth in packaging printing since its introduction more than 75 years ago
- Digital flexo plates have been available for over a decade
- Flexo is now the leading print process for packaging



The challenge

Yet the most common complaints from our customers are still based on technical limitations such as:

- Unacceptable color matching to proof
- Inconsistency in the process
- Unpredictability of results job-to-job, and run-to-run

Flexo must move forward to another dimension to meet the demands of customers and brand owners



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Traditional digital flexo plates and results



Flexo tries to match the original image

Without adjustment it fails, leaving hard edges



Original tonal values 0% - 100%



Uncorrected plate loses dots in highlights, first dots at 10% area (example for 150lpi)



Uncorrected print shows hard edge

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Traditional digital flexo plates and results



A bump curve is used to set the minimum dot size

Flexo tries to match the original image



File

Bump is applied to compensate highlight loss, tonal range is compressed to 10% - 100%



Plate

Compensated plate values range 2-3%-100%



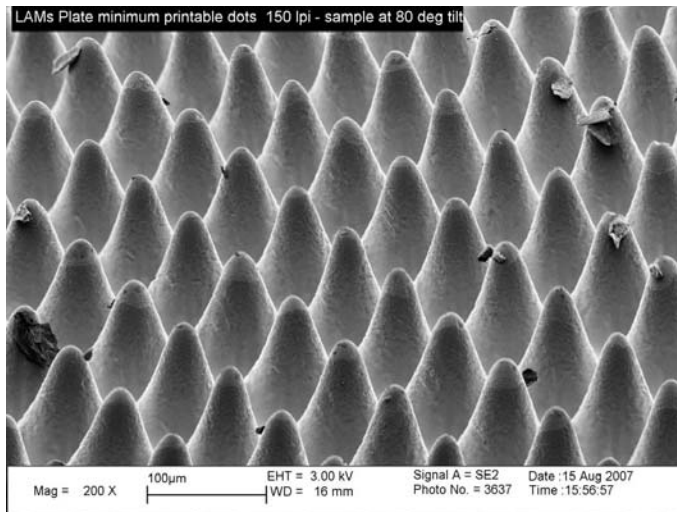
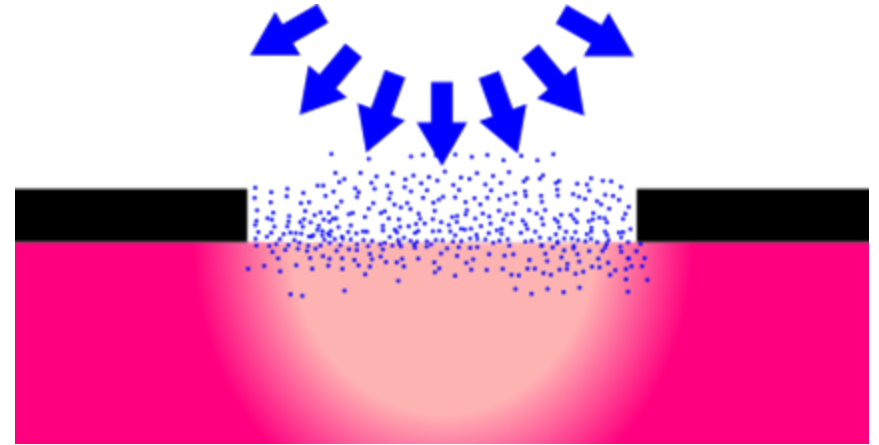
Print

Final compensated print

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Traditional digital plates: a renown limitation



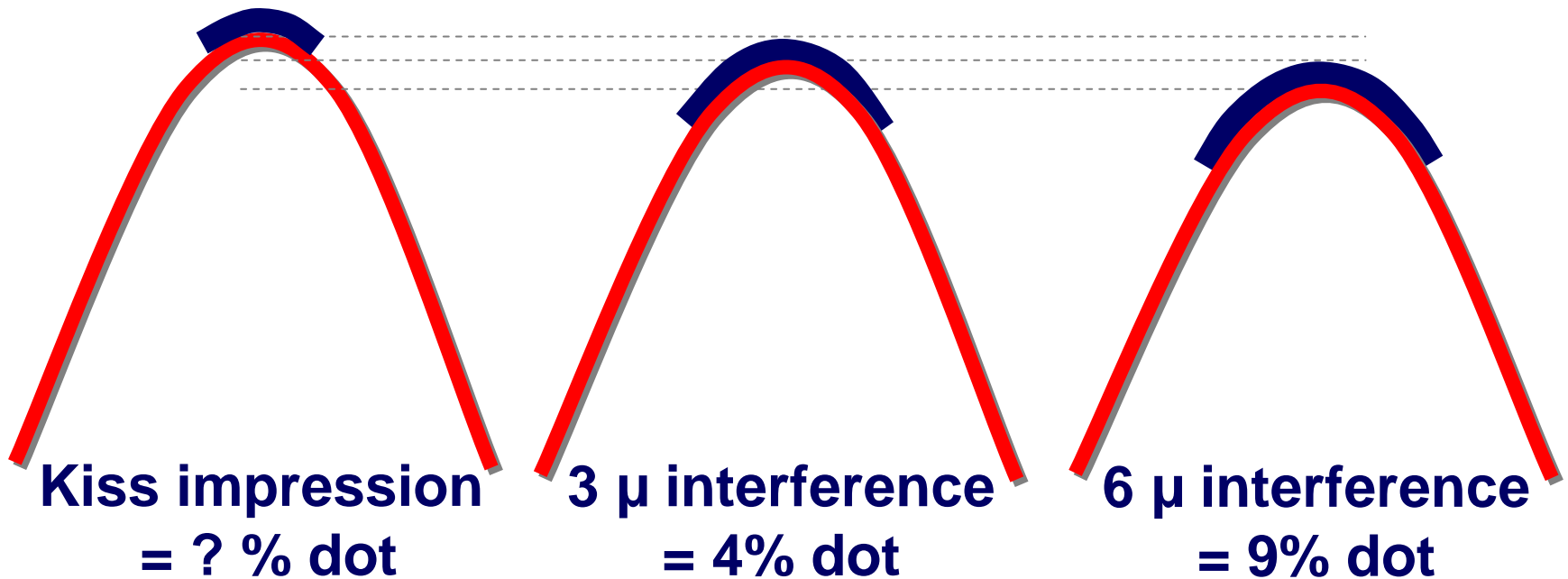
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Effects of “round top” surface

- Measurability
- Inking & Printing predictability

Considering a
typical digital
flexo dot profile
cross section



- How do we calibrate?
- What will it print?

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Results with the **Flexcel NX System**



Original offset
separation



Original Tonal Range 0% - 100%



Plate tonal range 0% (0.4%) – 100%

Up to 300 lpi – 120 lpcm

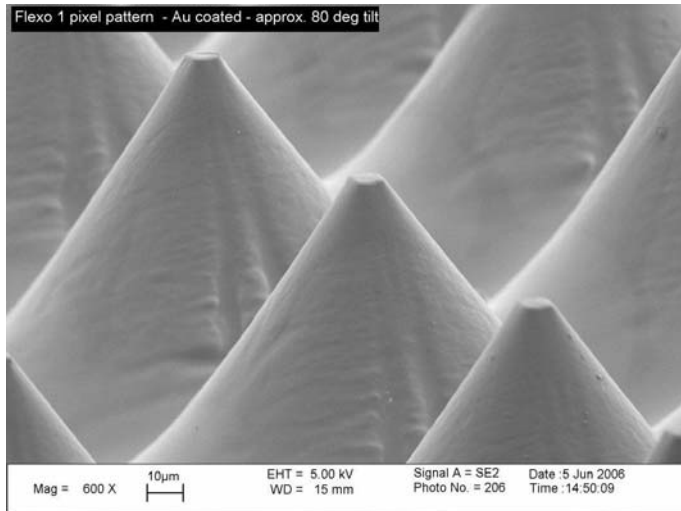
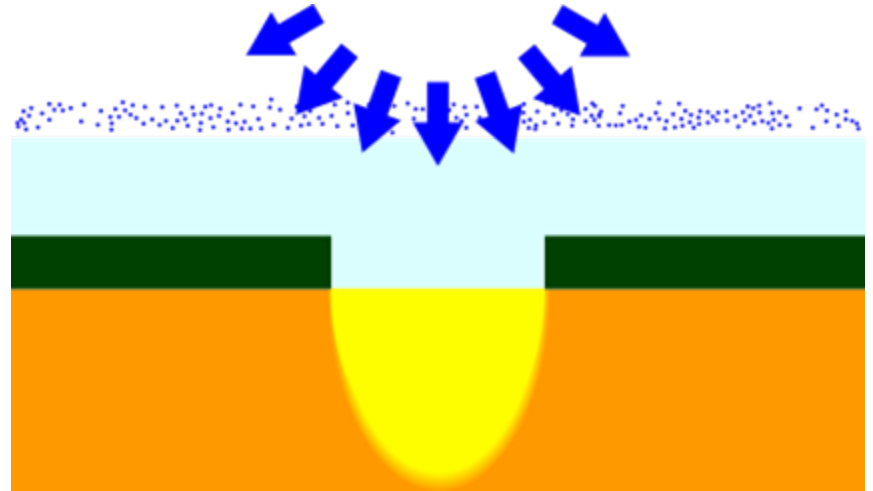
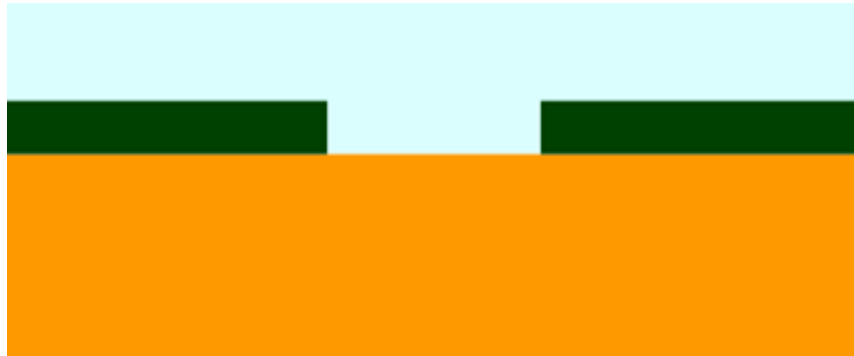
Result: faithful reproduction of the original



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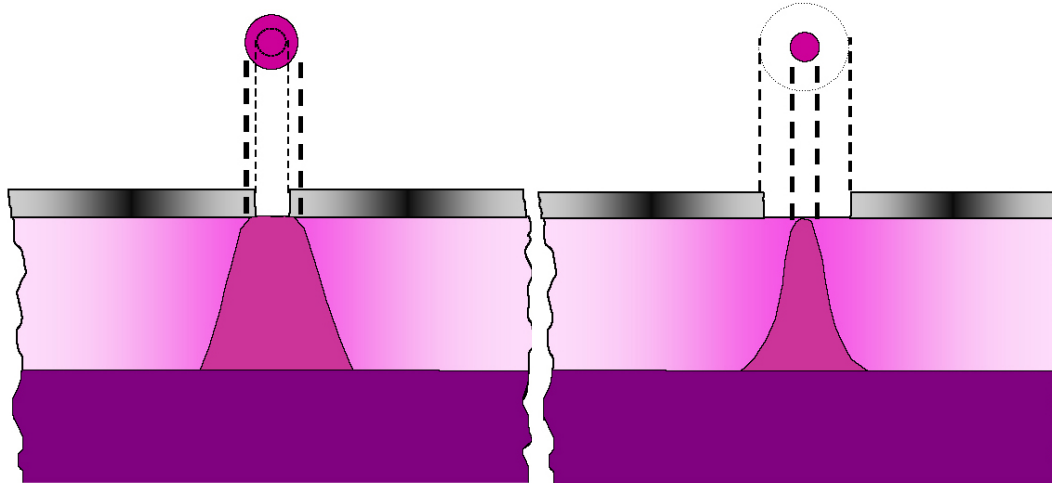
How do we solve this with **Flexcel NX**?



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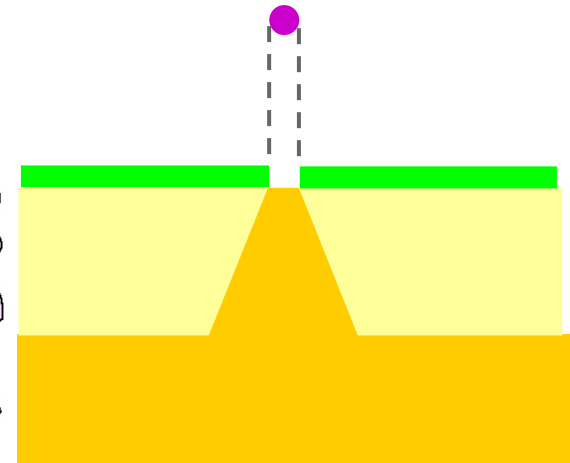


Dot Replication – Image Transfer To Plate



To achieve 1% dot
conventionally you need
<1% dot on film.

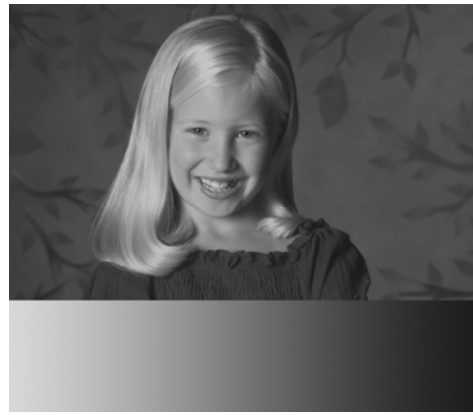
To achieve 1% dot with digital
you need ~4 – 5% opening in
mask @ 120 lpi



1% dot in TIL produces 1%
dot on plate



Conventional



Traditional Digital flexo



Flexcel NX

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What is the **Flexcel NX** System?

- A new digital Flexo plate system from Kodak
- Consists of the following components:
 - **Kodak Trendsetter NX Imager**
 - **Kodak Tiff Front End**
 - **Kodak Flexcel NX Laminator**
 - **Kodak Flexcel NX Thermal Imaging Layer**
 - **Kodak Flexcel NXH Flexographic Plates**
 - 24" x 30" (610 x 762 mm)
 - 31.5" x 42" (800 x 1067 mm)



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Just 5 simple steps

1. Image the **Flexcel NX** Thermal Imaging Layer in the **Trendsetter NX** Thermal Imager
2. Laminate the imaged layer to the **Flexcel NXH Plate**



3. Expose the back and face side of the layer and plate
4. Simple removal of the **Flexcel NXH** plate from the layer
5. Standard solvent processing

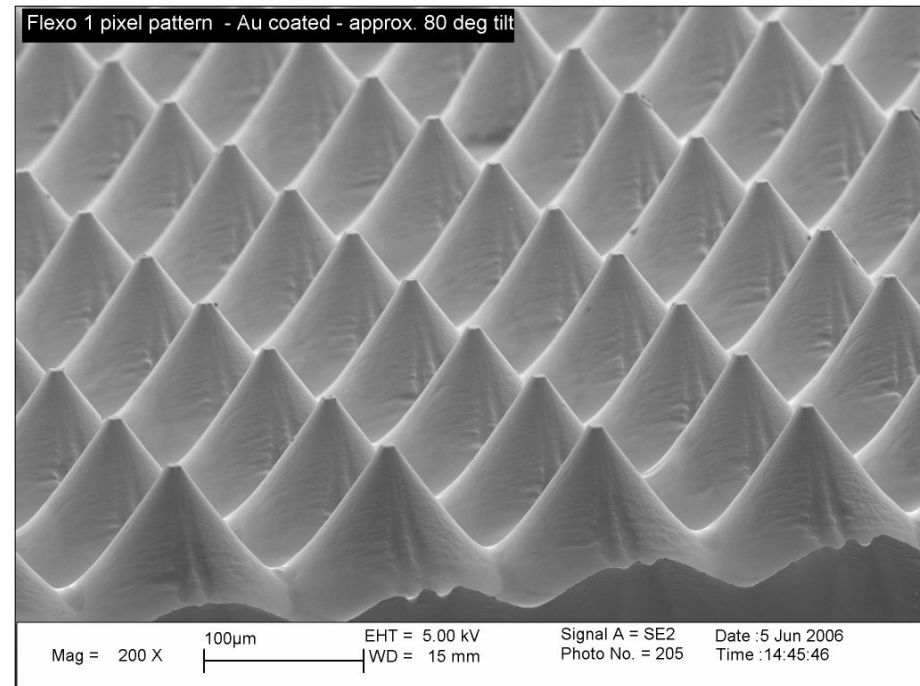
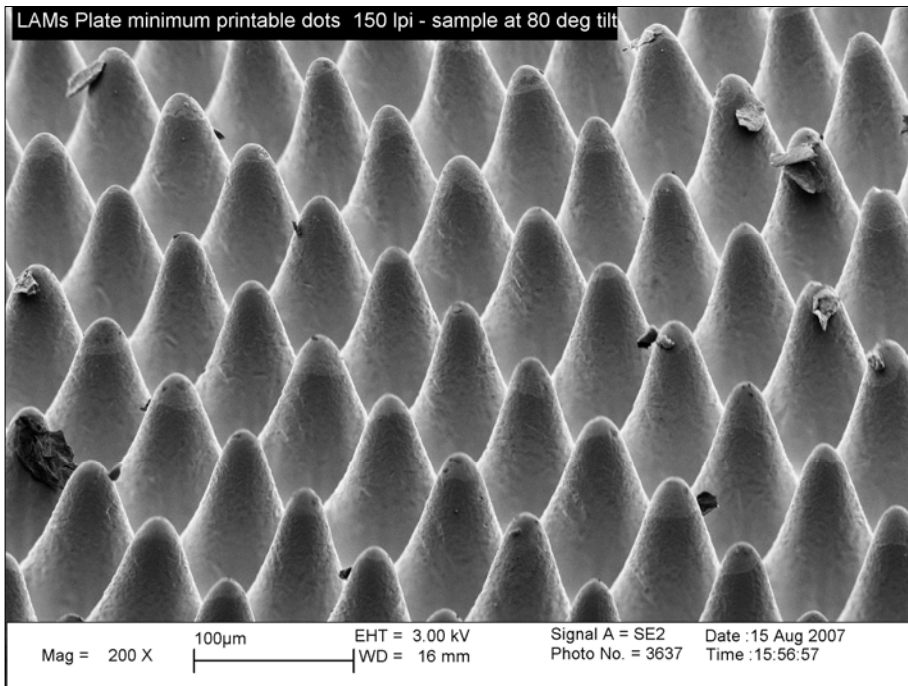


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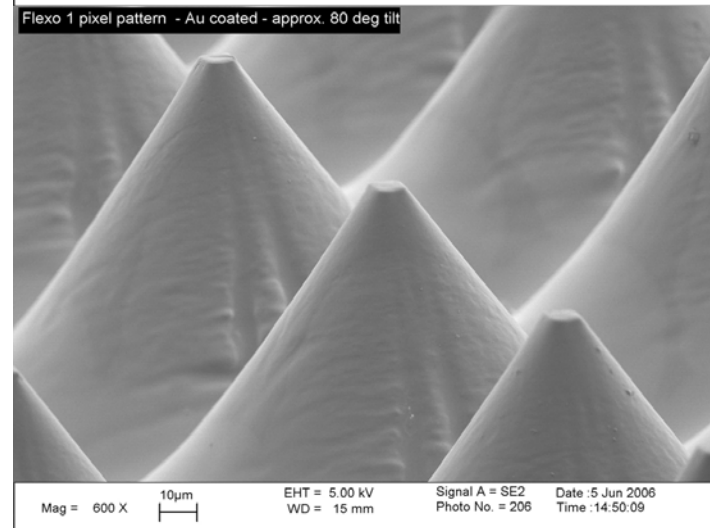
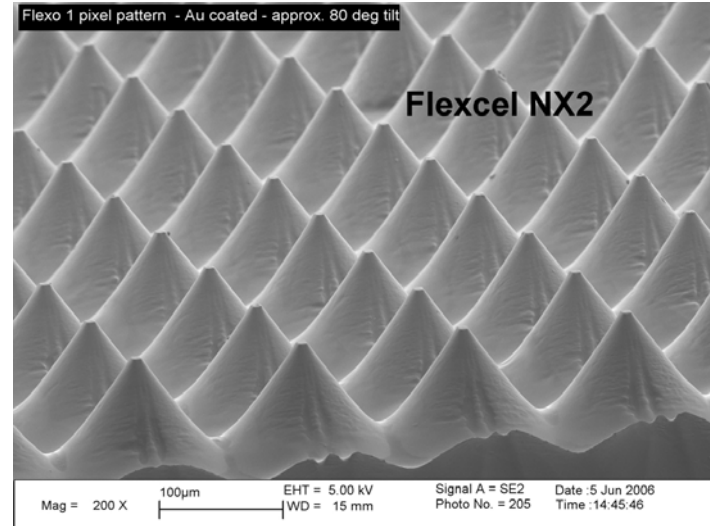
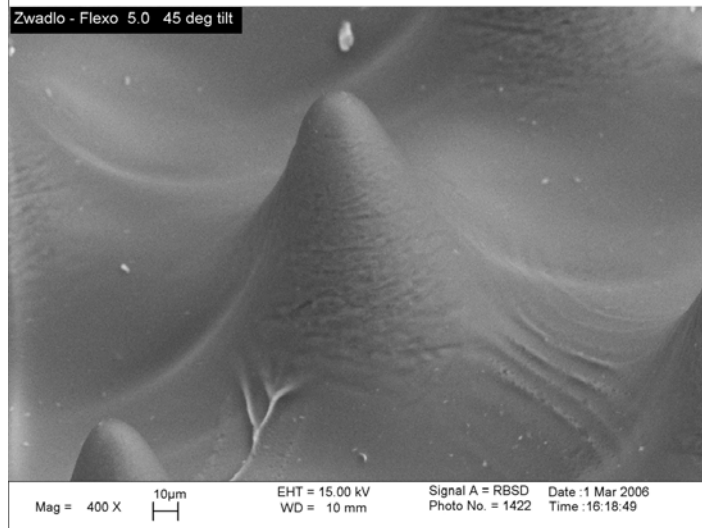
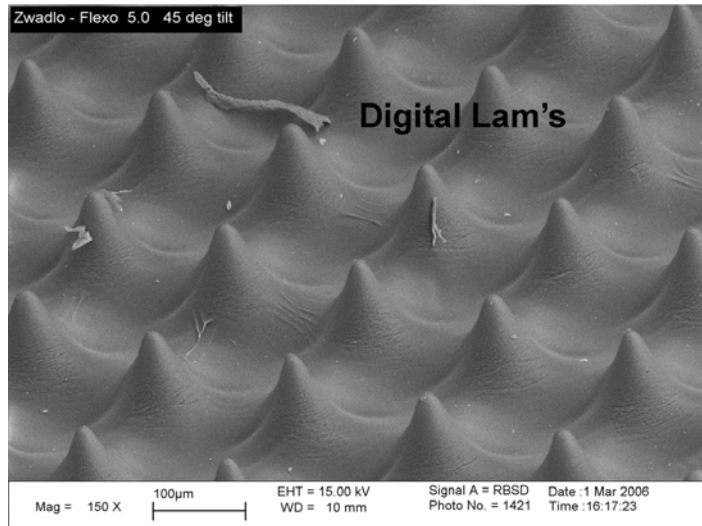
LAMS plate vs. **Flexcel** NX plate

- **Flexcel** NX System achieves stable flat top dot structure
- Provides consistent structure and repeatability on press





Traditional digital plate vs. Flexcel NX plate





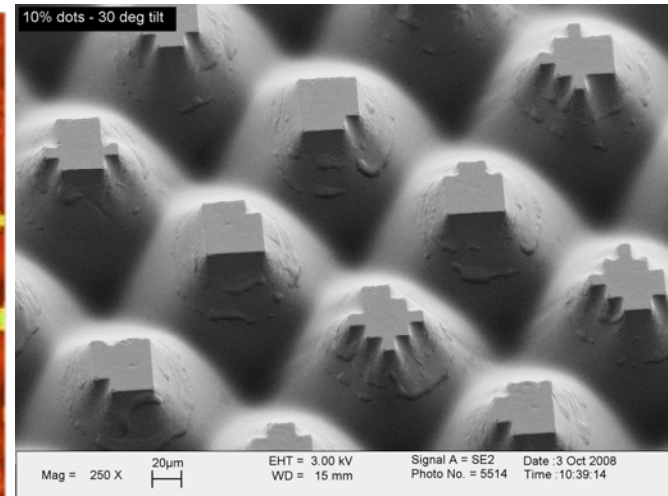
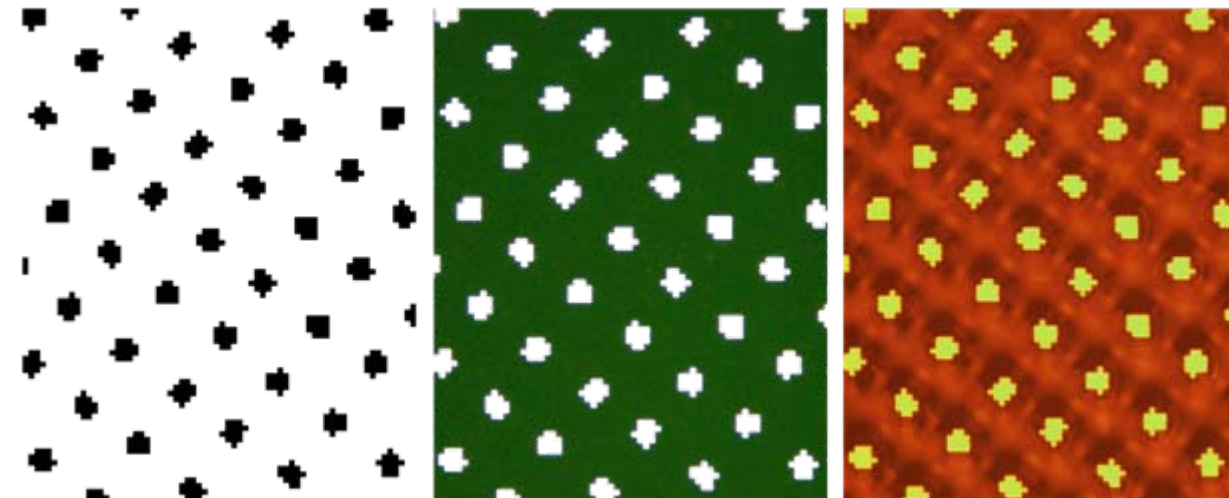
Flexcel NX System characteristics

Prepress

- Offset parameters
- CMYK gamut improved
- No bump curve needed

Imaging

- Kodak SQUAREspot Technology
- Productivity
- Platemaking
- 1:1:1 reproduction

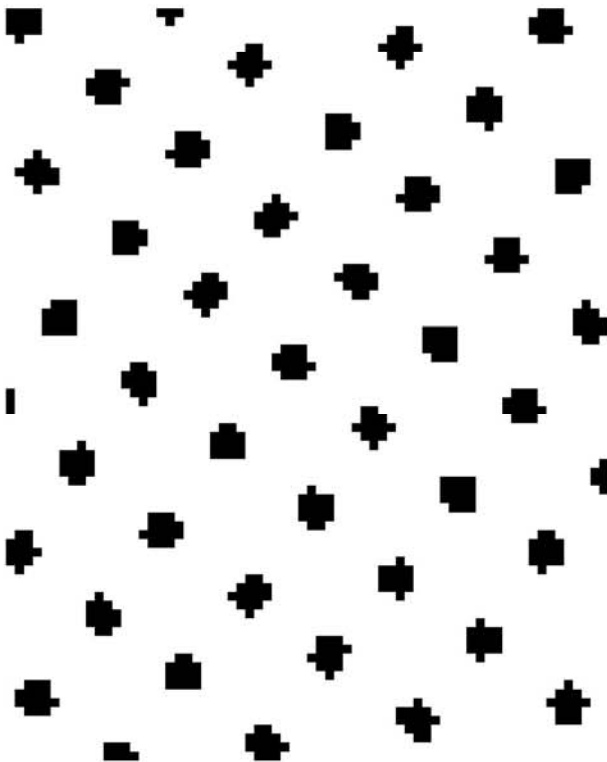


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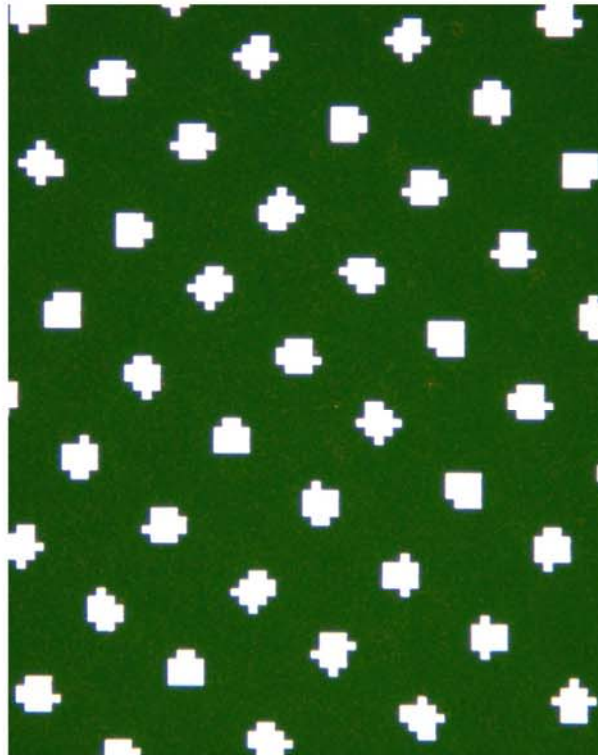
1:1:1 Transfer For Bitmap → TIL → Plate

10% dots, 200 LPI, 52 deg

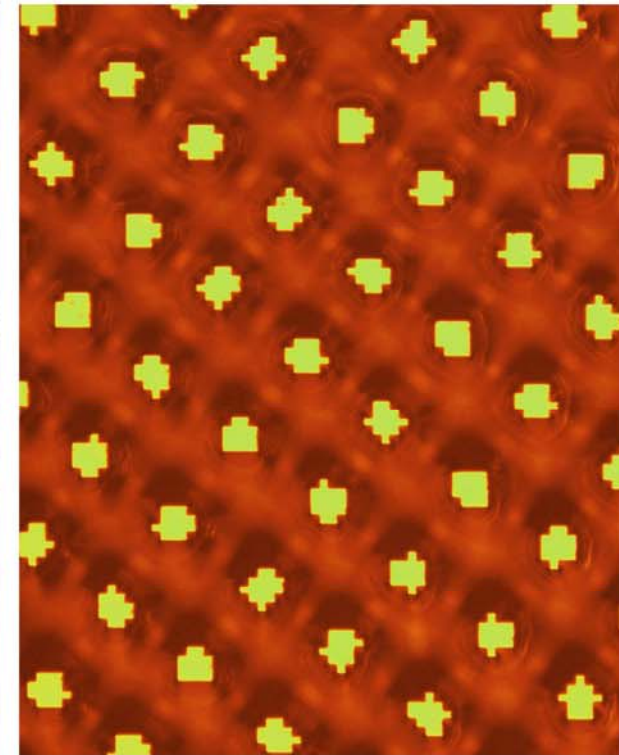
File BITMAP

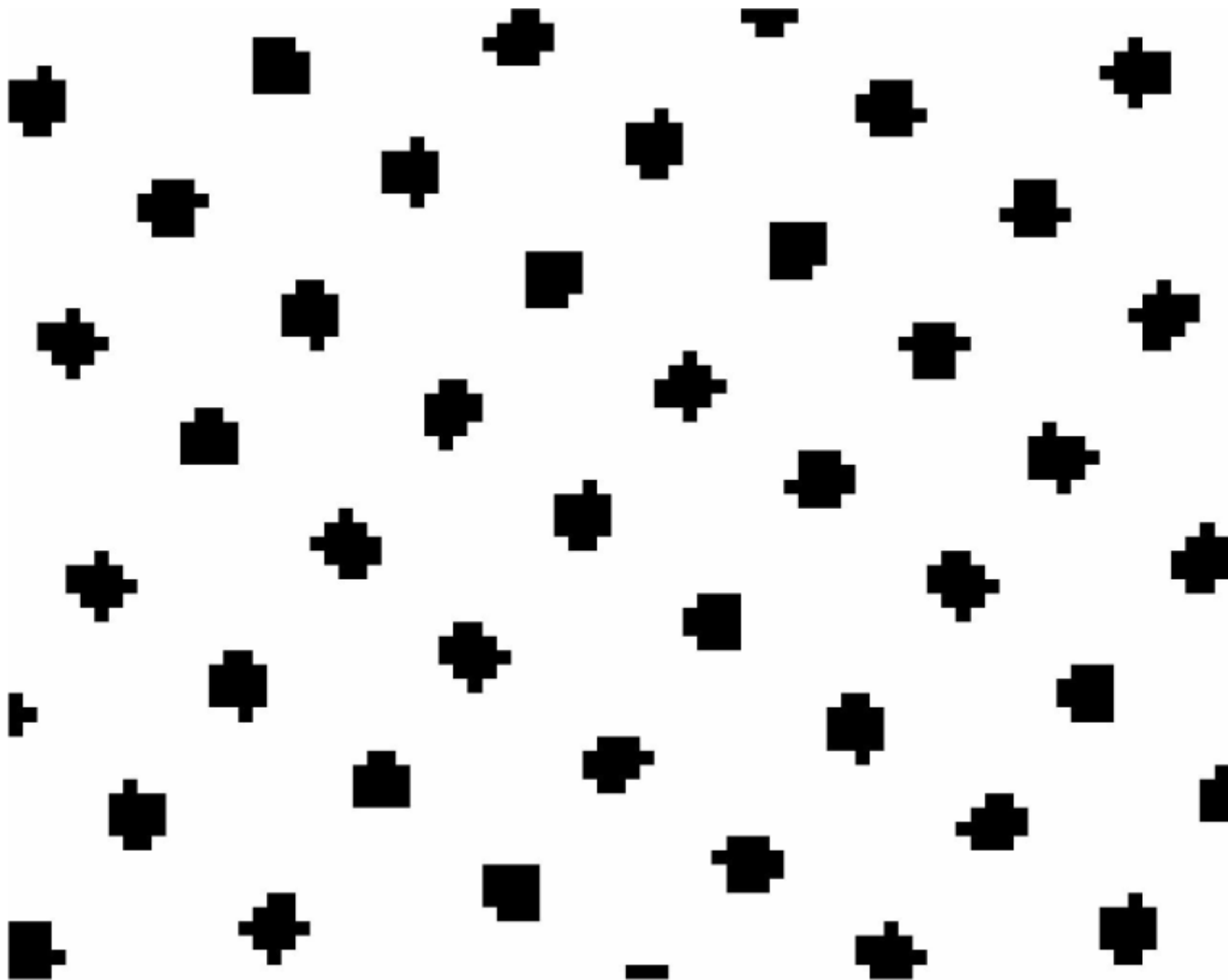


TIL Mask



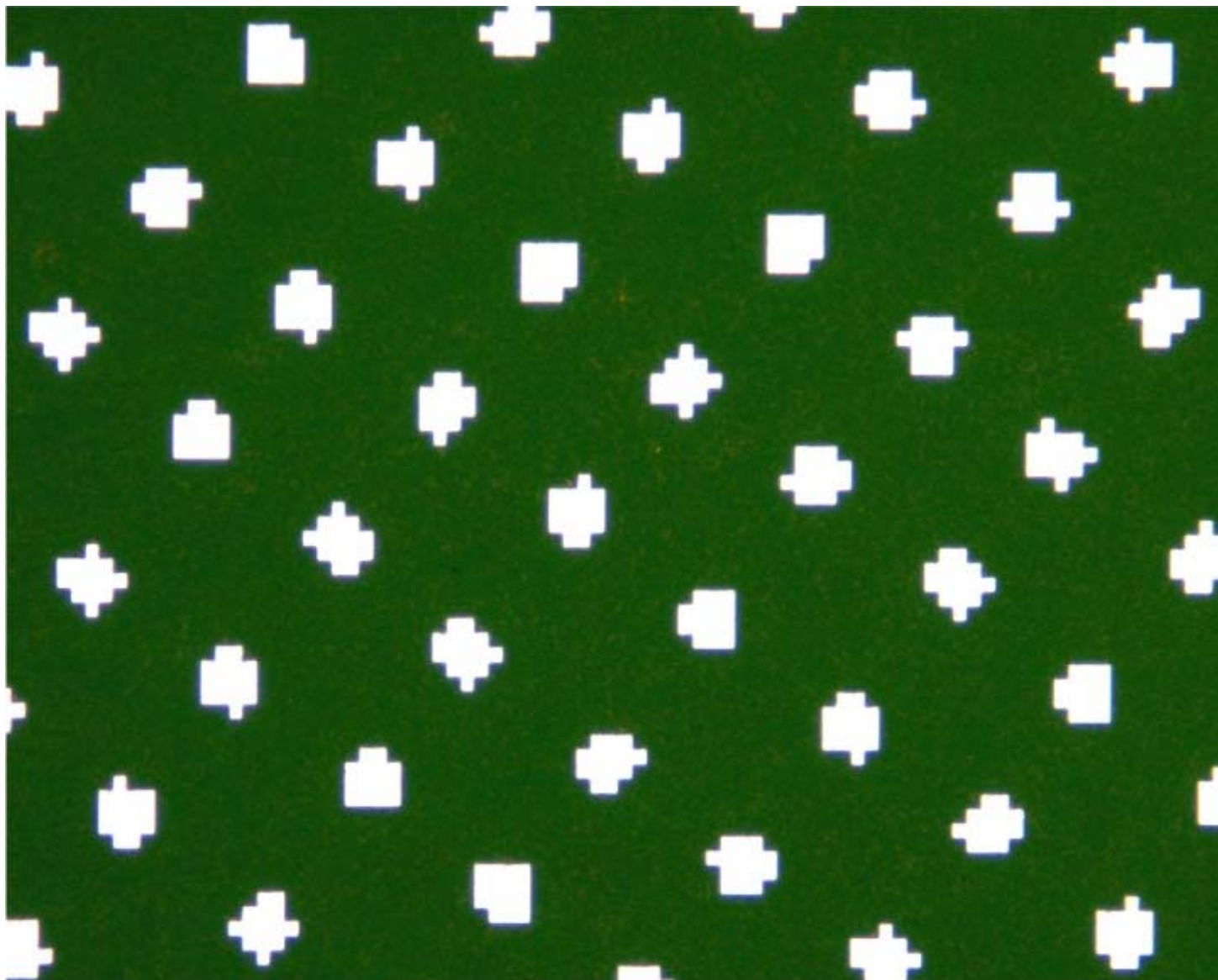
Flexcel NXH Plate





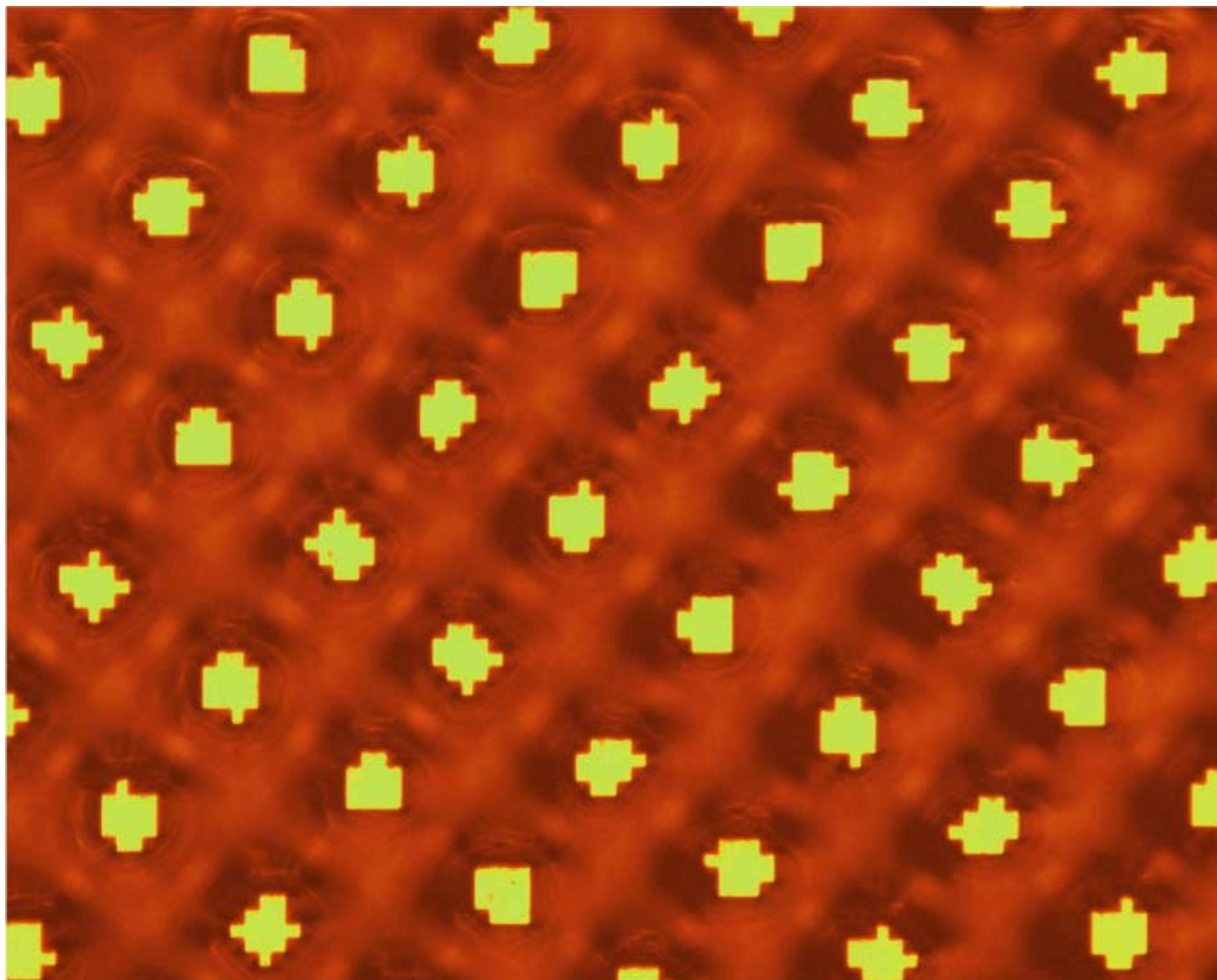
Digital File

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Flexcel NX TIL

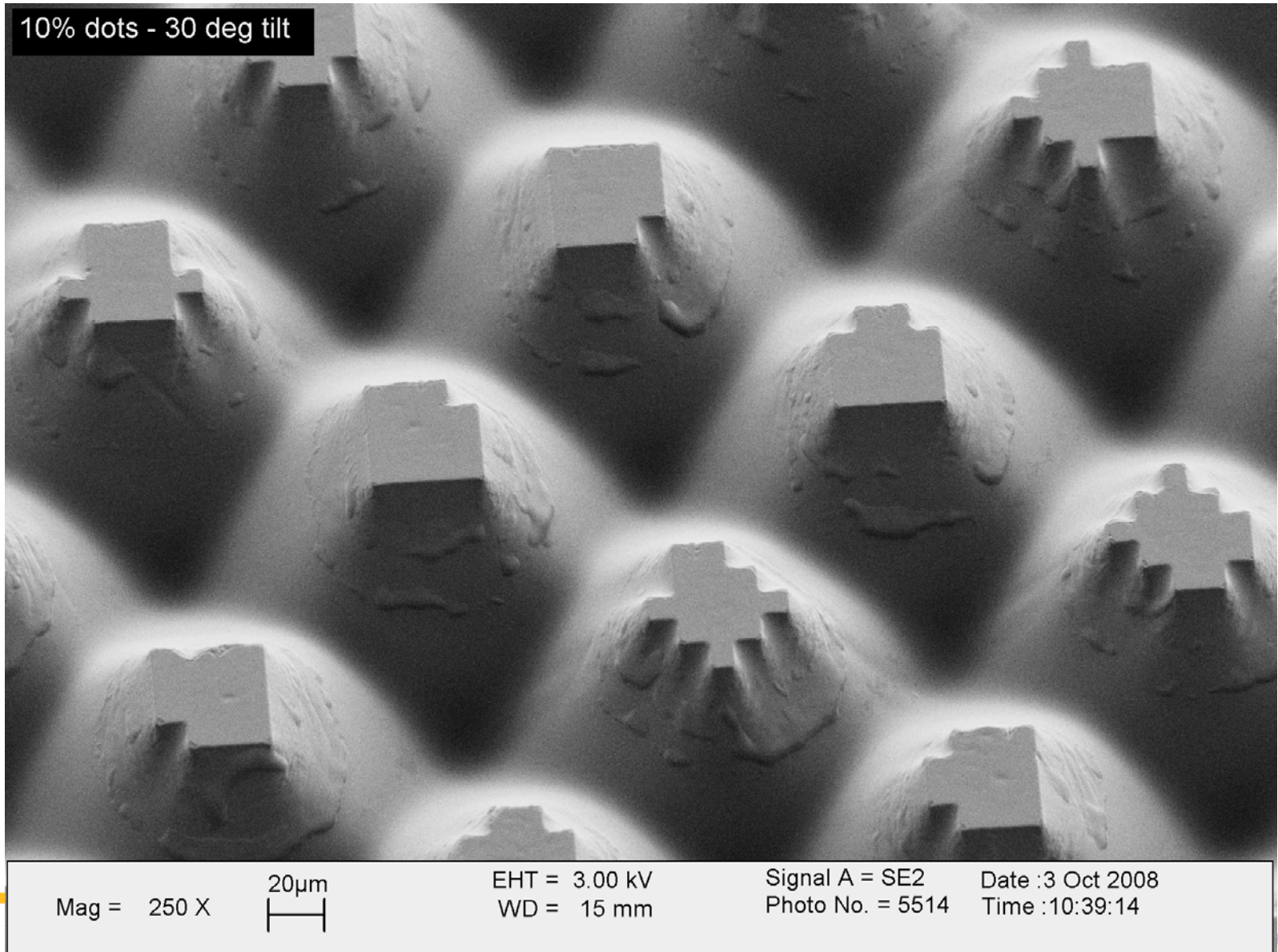
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Flexcel NXH Plate

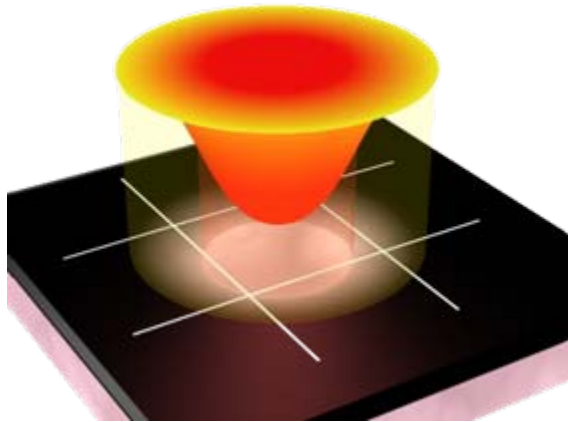
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Flexcel NX System Characteristics – 10% Plate

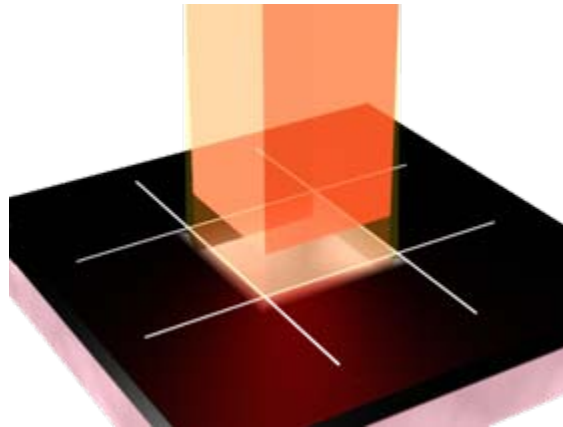




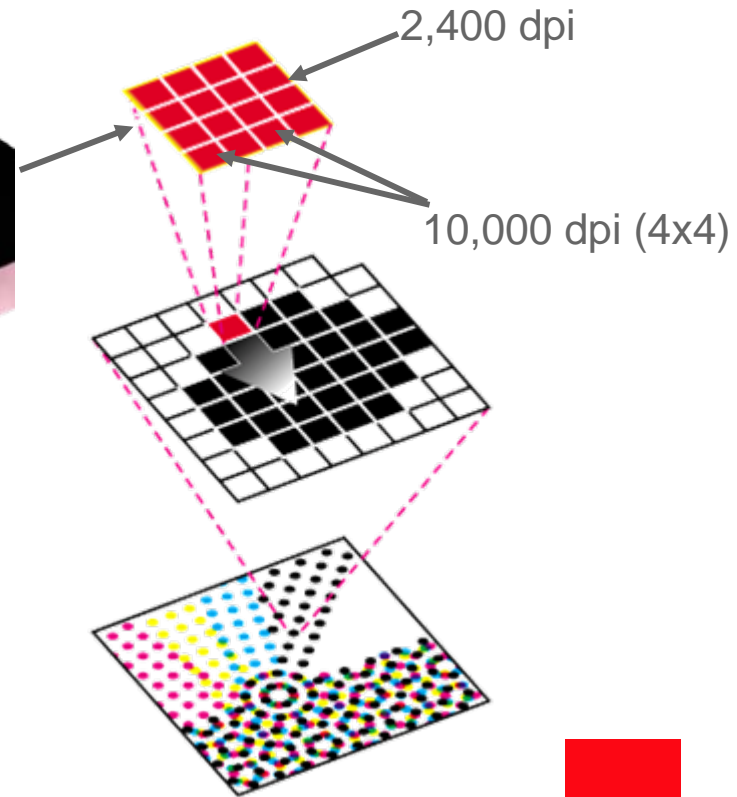
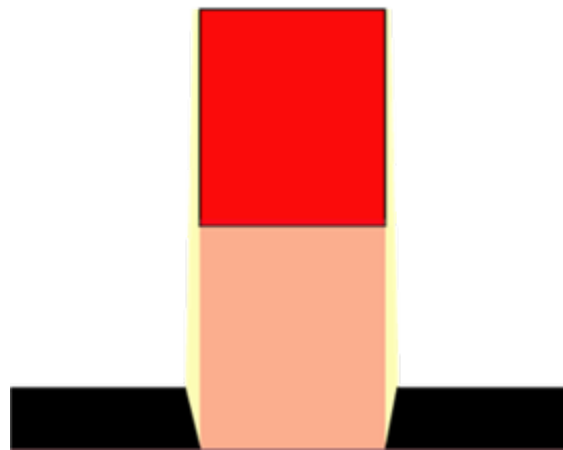
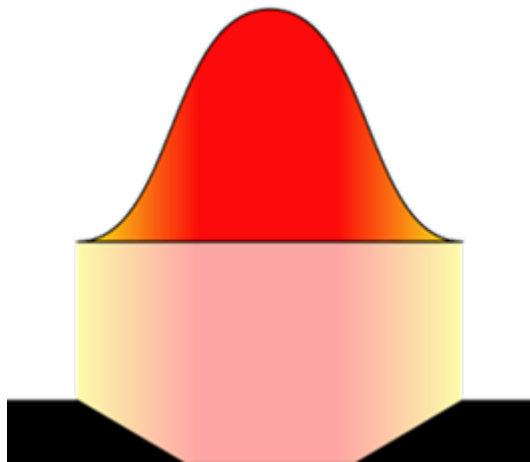
Benefits from SQUAREspot Technology



Gaussian



Square Profile



SQUAREspot™

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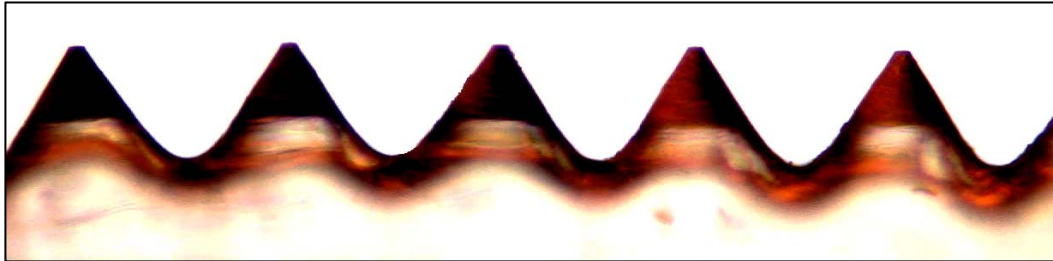
Flexcel NX System Characteristics

- In the original digital file each pixel is an individual square
- In traditional digital plates converting from individual square pixels to round Gaussian laser strikes causes conversion errors
 - The oxygen inhibition further significantly increases these errors
- For **Flexcel NX**
 - The pixels start in the digital files as squares
 - They remain 1:1 pixel for pixel **SQUAREspot** on the TIL
 - Again 1:1 on the plates
 - And often can be seen in the final print
 - Maximizes consistency, eliminating conversion errors
- Pixel To Pixel:
 - Digital File → TIL → Plate = Maximum Consistency

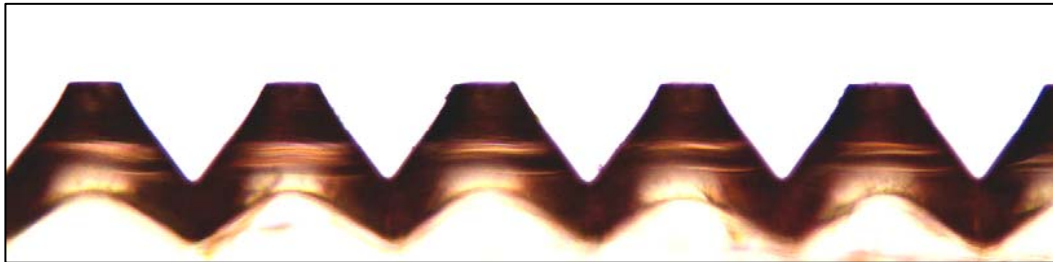


NX plate dots in cross sections: flat top dots

0.4%



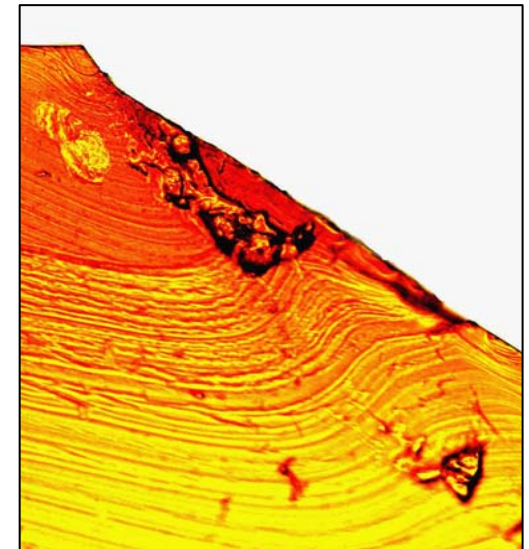
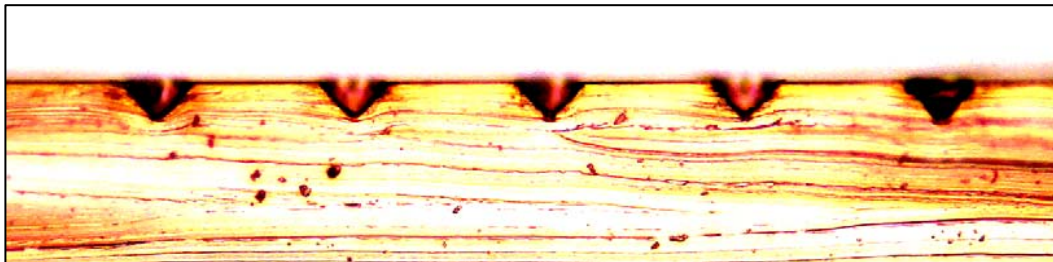
10%



50%



90%

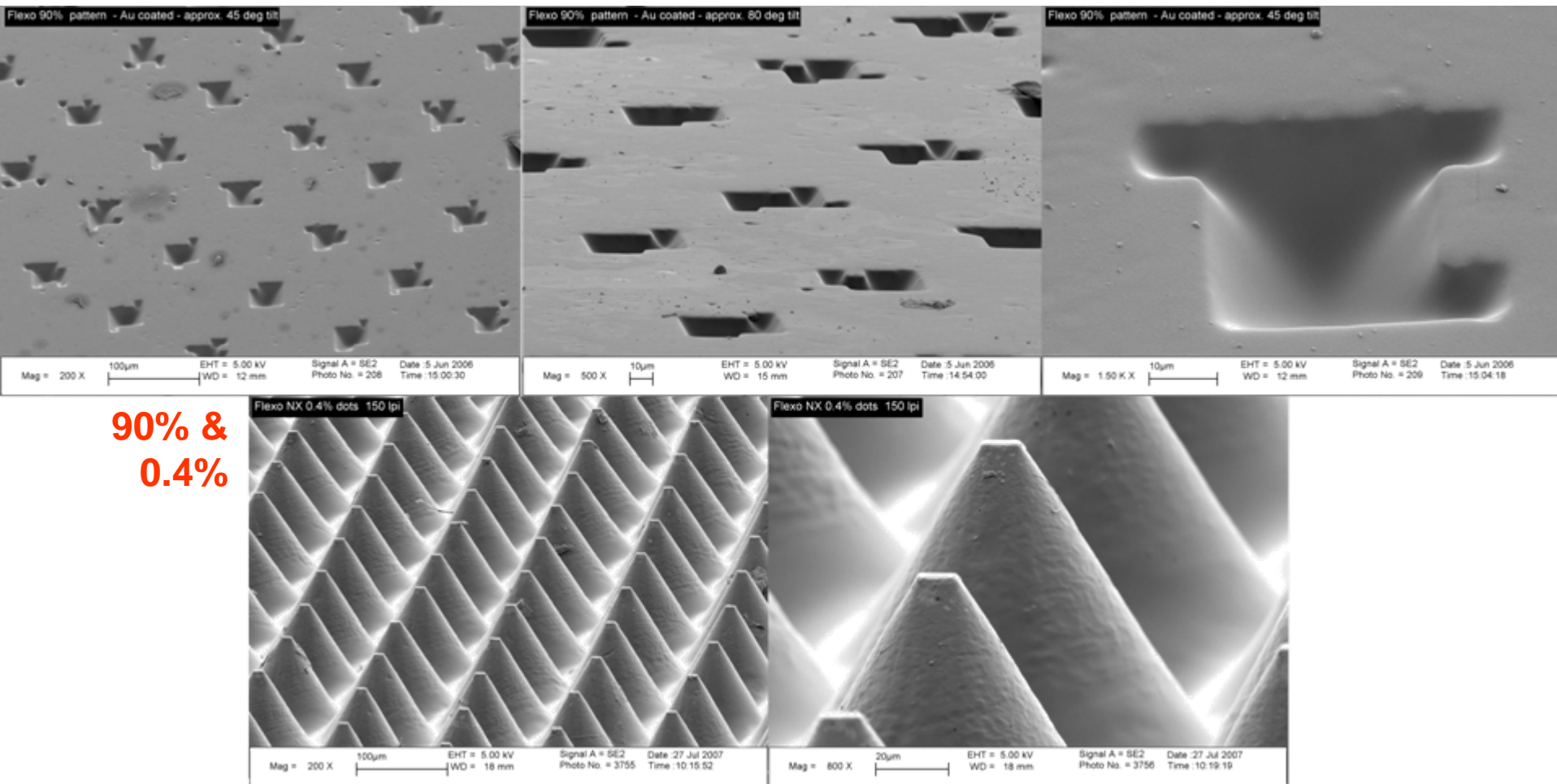


Ramp shoulder
close-up

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Not Just For Highlight But Shadows Too

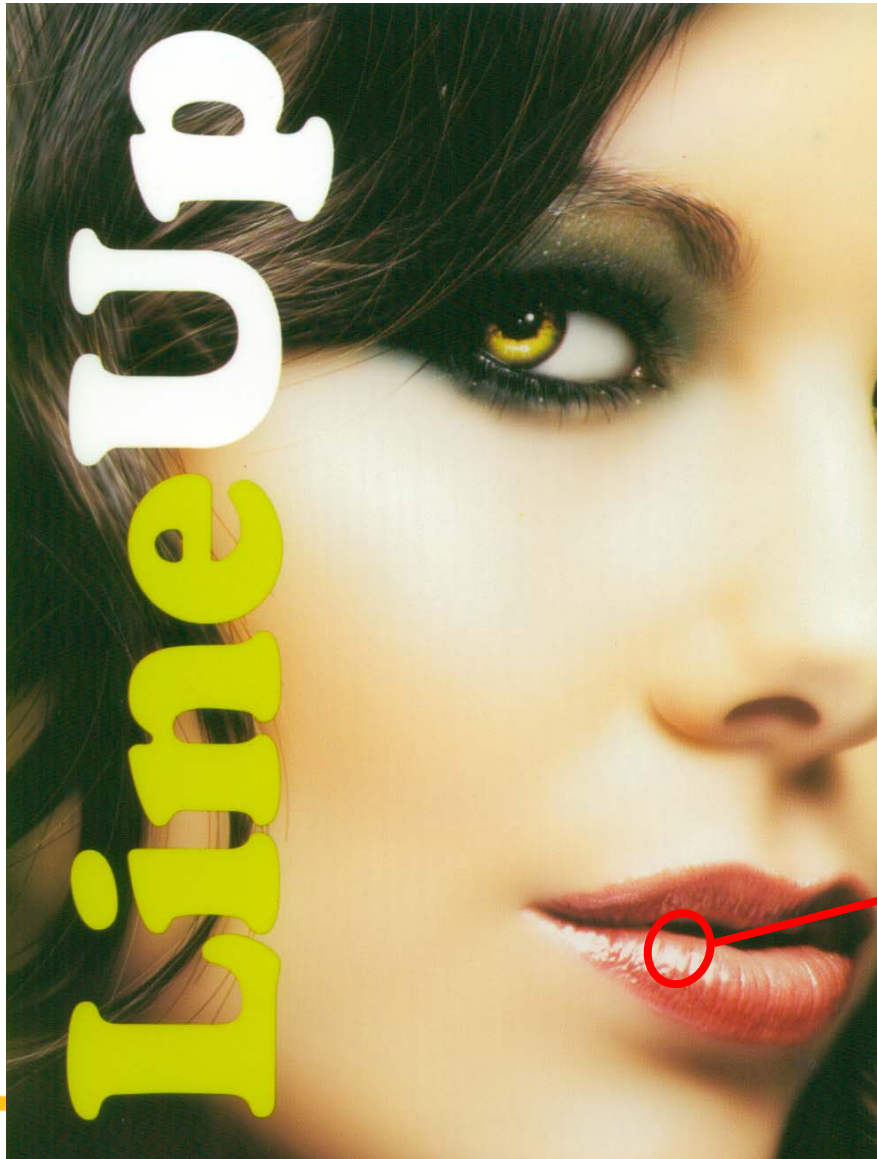


90% &
0.4%

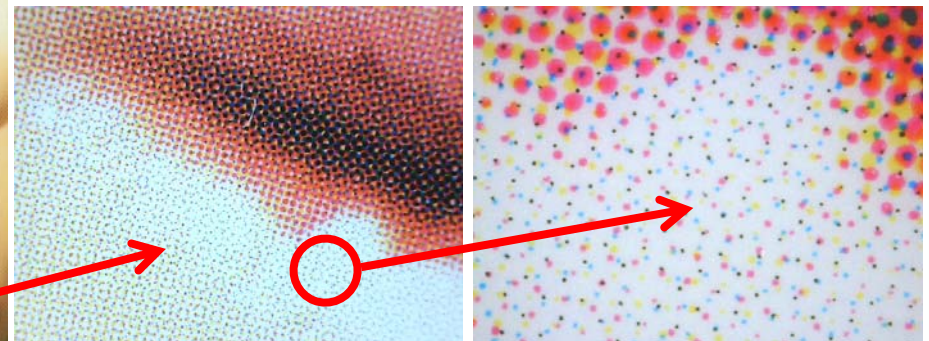
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Flexcel NX System benefits in printing



- Raising print standards and predictability
- Consistency on press, run-to-run and shift-to-shift
- Shorter press downtime, less cleaning
- Faster setup

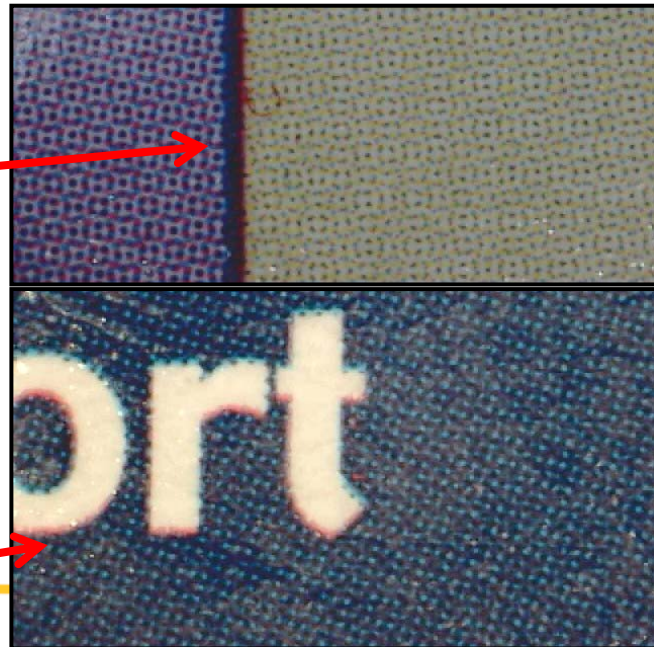


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Flexcel NX System benefits in prepress

- Higher resolution achievable (up to 300 lpi)
- Spot colors can be reproduced in standard CMYK
- Use of offset print separations in flexo
- Significantly better match to standard proofs
- Job portability from gravure, offset, digital to flexo



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Flexcel NX System benefits in quality

- Full tonal range, better cleaner highlights, smooth transitions
- Extended contrast, better shelf appeal

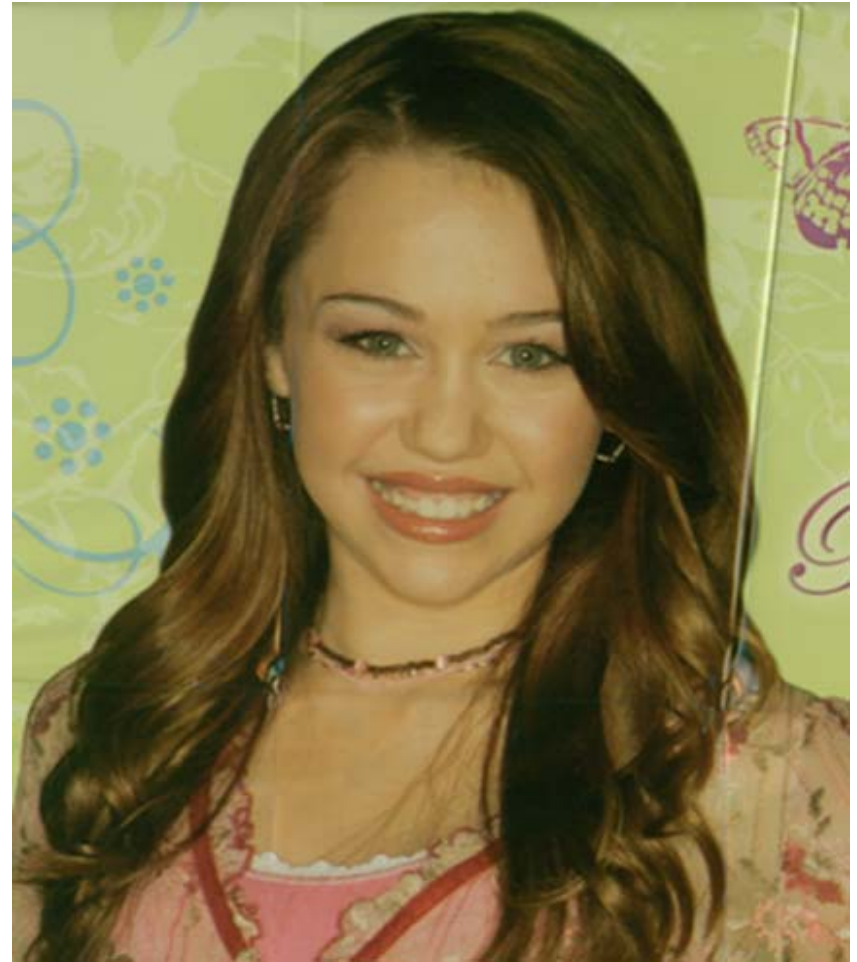
Traditional → NX



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Hannah Montana balloon – Traditional vs. NX



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Unprecedented Performance And Properties Opening New Doors To Flexo – Lenticular Printing



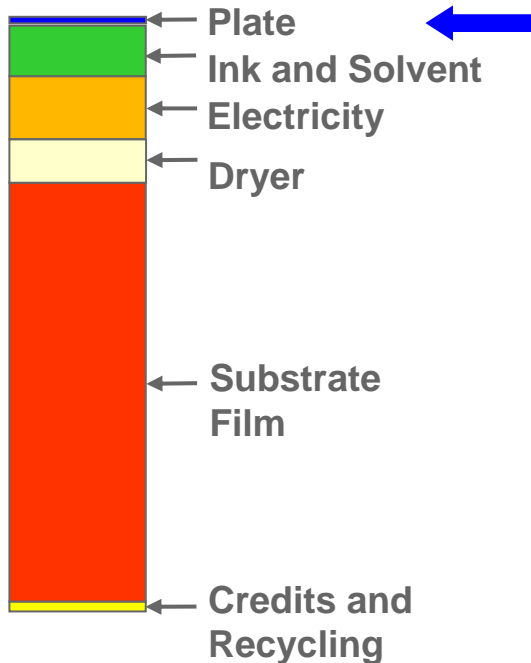
A Few Words about Sustainability

Making a flexo plate choice

- We read a lot about flexo plate choice and sustainability these days
- Should you go thermal? Or water wash? Or solvent processed?
- Actually, you should be asking yourself a different question
- To look at the true sustainability benefits of a particular plate choice you must look beyond the plate making and plate processing and look at the whole Flexographic printing picture.
- You need to take a look at the impact your plate has on *“the big picture”*

A Few Words about Sustainability

Let's Consider the Whole Flexographic Printing Process



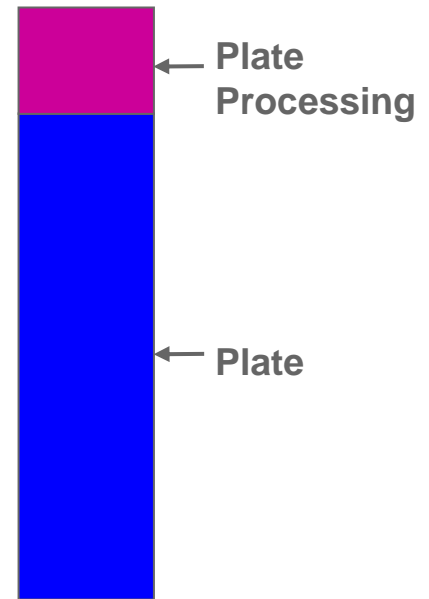
Recently publically published independent studies demonstrate that although the flexo printing plates have a significant impact on quality and end result for the customer..... they only represent a very small part of the overall non-renewable energy consumption utilized in the flexographic printing process

Reduction in substrate waste has a significant positive impact on sustainability

If we consider the plate component, independent studies once again agree.

The plate itself contributes significantly more to the non-renewable energy consumption than the plate processing component.

Reduction in plates produced has a significant positive impact on sustainability



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A Few Words about Sustainability

Flexcel NX as your plate of choice

- Predictable flat top dots, deep relief and strong shoulder angles.
- Fast to color, resistant to impression changes, resistant to substrate wear, require less cleaning.
- Faster make ready times, fewer cleaning stoppages and fewer plate changes.

***The result is a significant reduction in ink and substrate waste . . .
better for you, better for the environment***

- 1:1:1 imaging process - predictable plate making – **less wasted plates and remakes.**
- Predictable stable flat top dots - plates that last significantly longer on press – **fewer sets of plates required.**
- Superior highlight and shadow performance reduces need for spot colors, you can ‘do more with four’ – **less spot colors, less plates**

***The result is a significant reduction in plates made
better for you, better for the environment***

Kodak has once again been named to the list of
“**Global 100 Most Sustainable Corporations in the
World.**” Last 5 Years.. <http://www.global100.org/>



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Why would you use **Kodak Flexcel NX** Digital Flexographic Plates?

Predictability

- Consistent image quality during repeated stops & starts and over prolonged period
- Easier proof-to-print matching

Repeatability

- Even impression, quickly achieved
- Same high quality image from job to job and run to run

Productivity

- Make-ready time reduced significantly from competitive plates
- Faster print runs, 50% less time in some instances

Quality

- High resolution output capabilities, up to 300 lpi
- Smallest printing dots (as low as 10 μm on plate)

Sustainability

- Reduction in ink and substrate waste
- Reduction in plates made

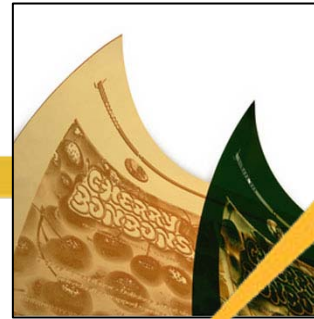
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Questions?



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Thank you for your attention



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www.kodak.com/go/flexo