Kodak Flexcel NX
Digital Flexographic System



Kodak

Innovative technology for flexo printing

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Challenging times

The flexo industry today is challenged to:



- Print Better, Print Smarter
- Deliver greater shelf impact at same or lower price
- Maximize press efficiency and reduce internal costs
- Meet critical deadlines with compressed lead times
- Meet demands for the highest print quality regardless of job size
- Deliver differentiation
- Reduce inventory
- Make the right choices for environmental impact

The technical challenge

Common dissatisfiers with flexo today that take time and effort to overcome:

- Inconsistency in the process
- Unacceptable color matching to proof
- Unpredictability of results job-to-job, and run-to-run
- Dirty print
- Hard breaks
- Insufficient density
- Narrow color gamut
- Complex prepress

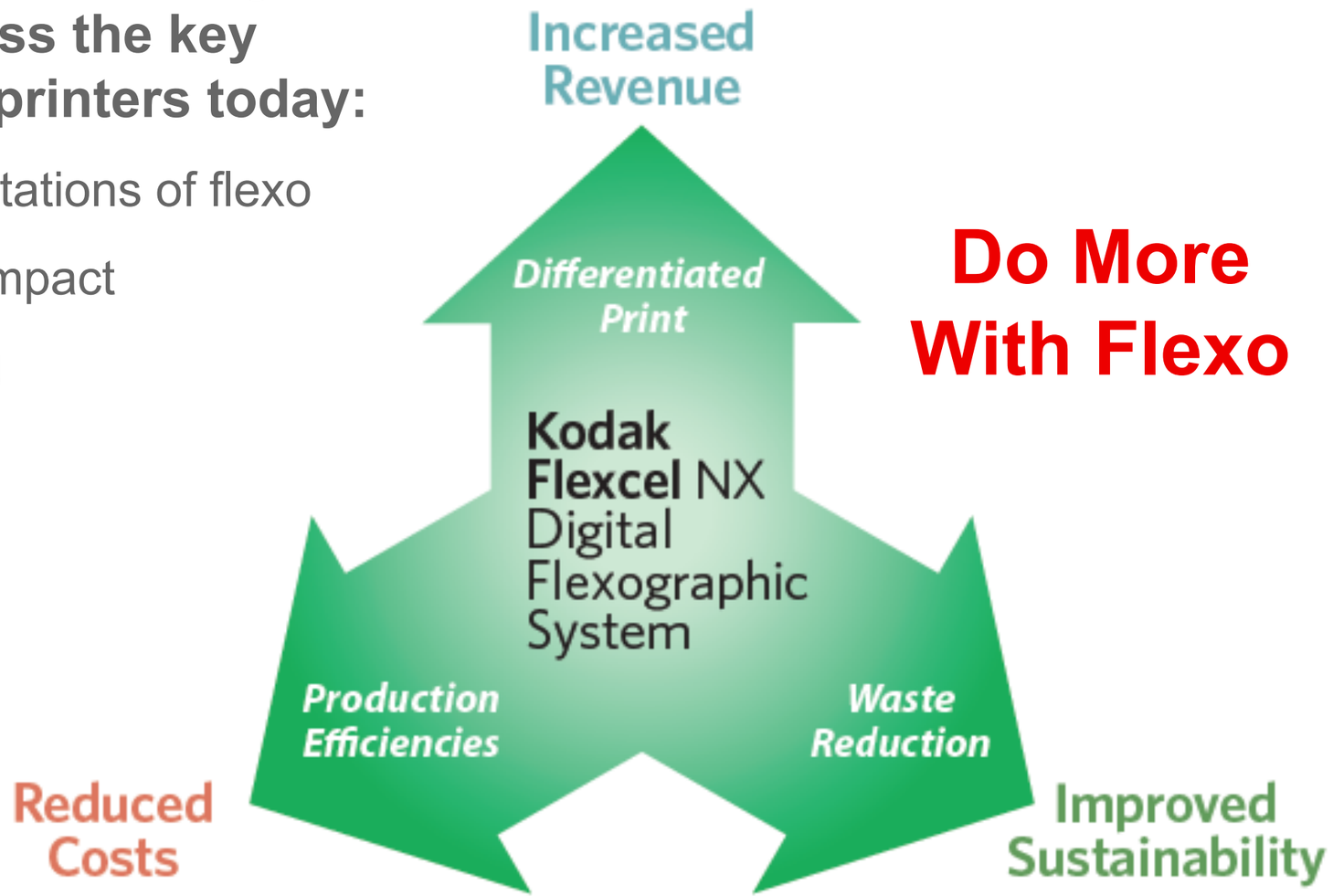
Flexo must move forward to another dimension to meet the increasing demands



The Kodak Solution?

A brand new approach to digital flexo designed to address the key demands of flexo printers today:

- Address key limitations of flexo
- Improve visual impact
- Stabilize printing
- Reduce costs
- Reduce waste



Do More With Flexo

Kodak

What is the **Flexcel** NX System?

A completely new approach to digital flexo plates:

A unique Kodak combination of:

- Superior imaging technology
- World class Color and Material science
- Innovative software solutions

Produces plates that deliver outstanding on-press performance



This is digital flexo…but not as you know it!

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A complete solution

With 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
- **X-rite** 361T densitometer









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

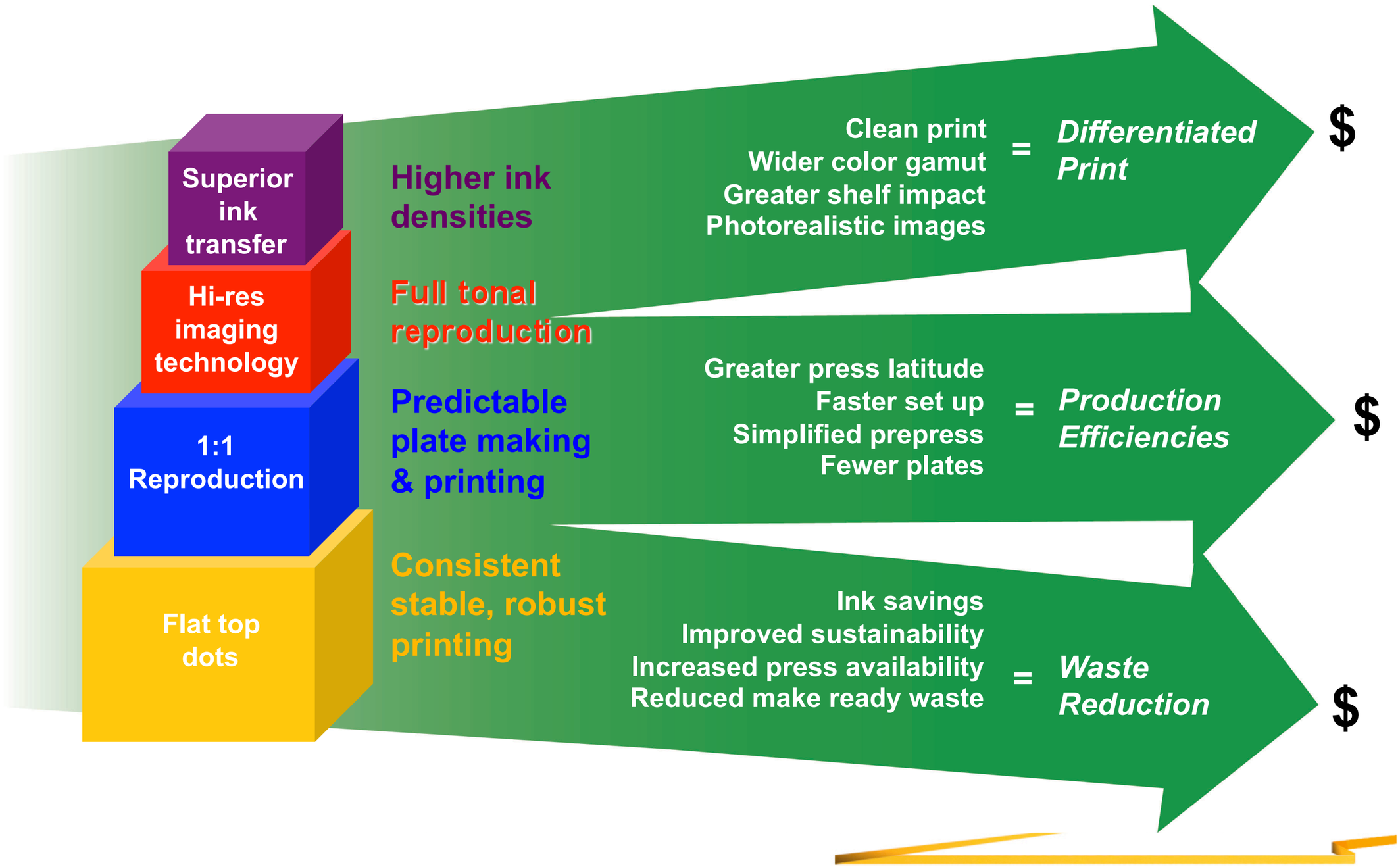




3. Expose the back and face side of the layer and plate
4. Simple removal of the **Flexcel** NX Plate from the layer
5. Standard solvent processing

Kodak

What makes the **Flexcel** NX System unique?

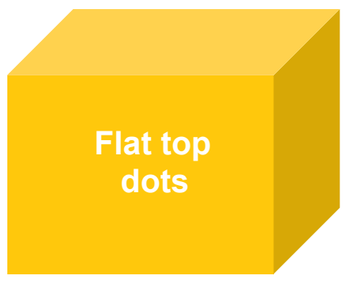


Start with flat top dots

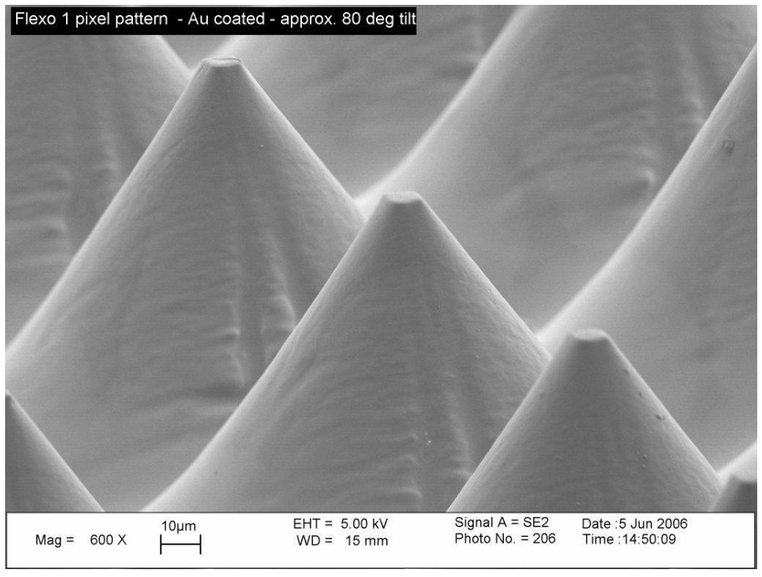
Why do we want flat top dots?

- For print stability
- For wide impression latitude
- For even ink transfer
- For robustness and resistance to wear
- For predictability
- For consistency

Flat top dots are the foundation for stable, consistent print



Consistent stable, robust printing

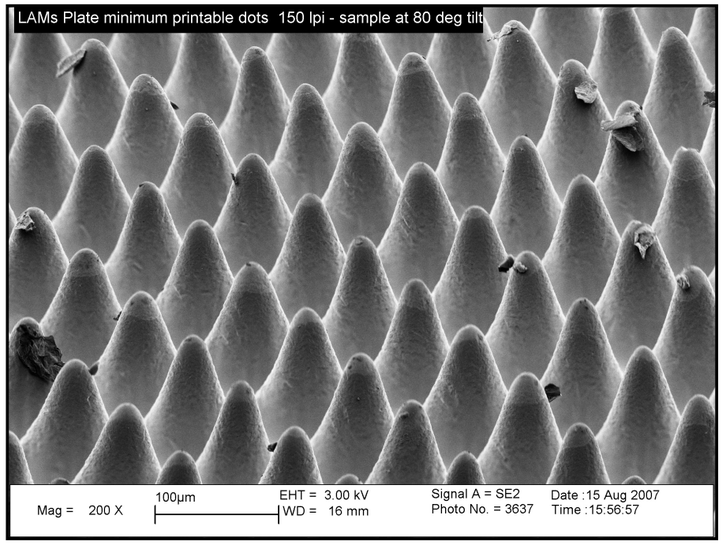


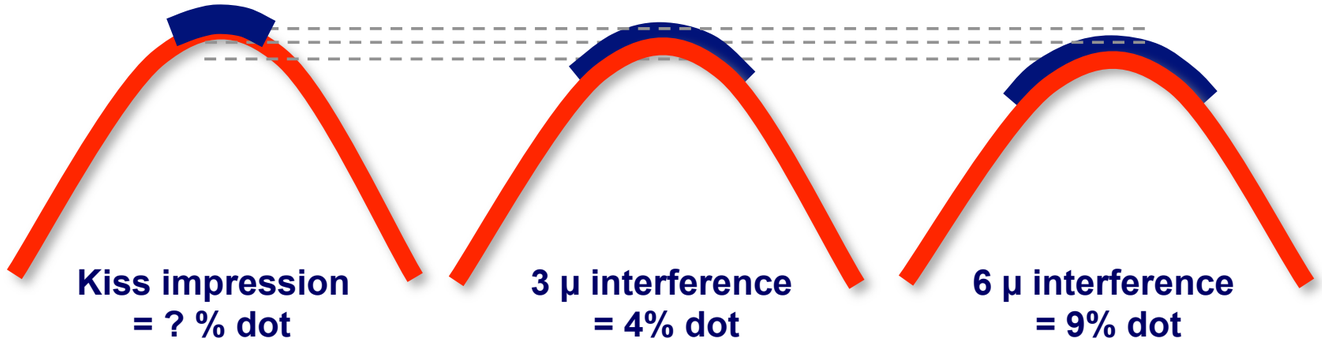
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What's wrong with traditional digital flexo?

Traditional digital flexo dots are bullet shaped due to oxygen inhibition during formation

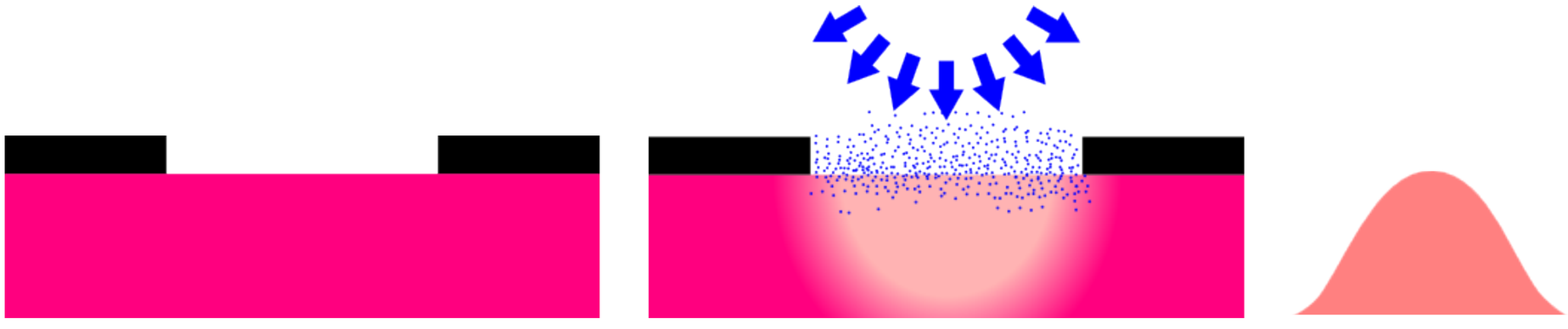
- Surface is prone to wear – especially in highlights
- Scum dots form easily
- Inking and printing is unpredictable
- How do we calibrate?



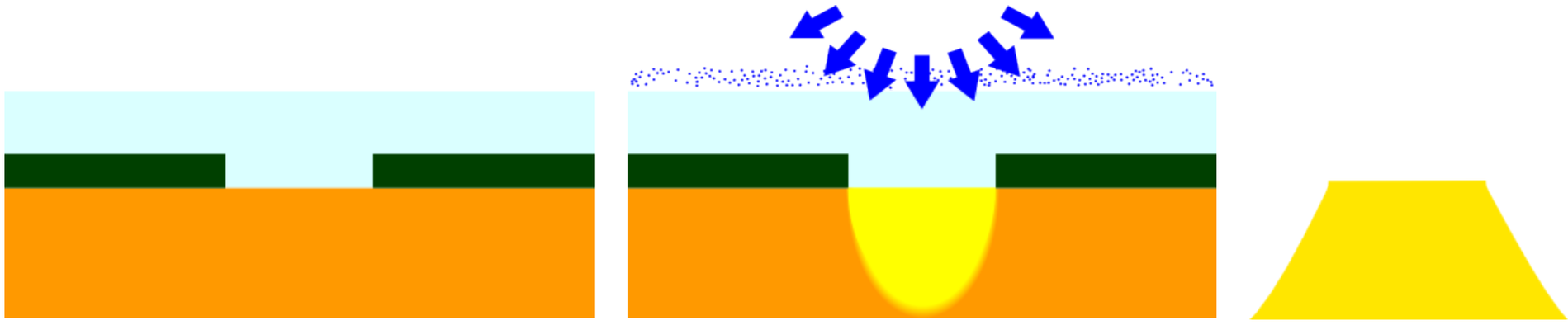


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The effect of oxygen inhibition



Traditional digital flexo plates: presence of oxygen inhibits dot formation

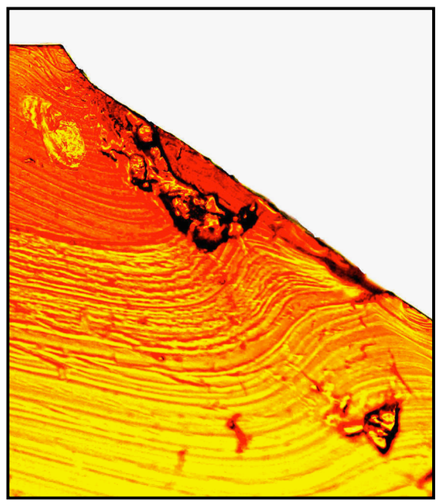


Flexcel NX Plates: absence of oxygen leads to strong dot formation

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Flexcel NX System solves the problem

- The **Flexcel** NX System lamination process ensures absence of oxygen
- The lamination process is quick and simple
- Flat top dots are formed across the entire tonal range



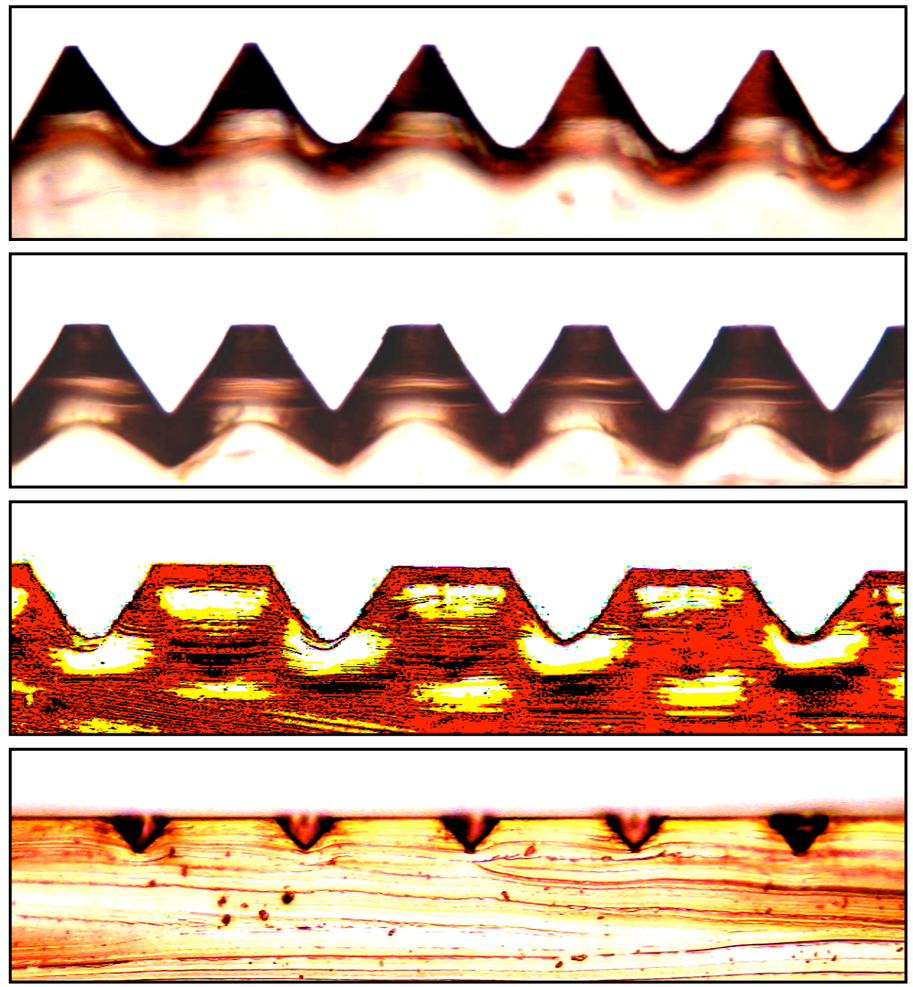
Ramp shoulder close-up

0.4%

10%

50%

90%



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Flexcel NX System users enjoy consistent, stable, robust printing

"We have found that with **Flexcel** NX Plates we can print at higher speeds. All of our process designs have been given a wider tonal range which gives us a higher stability when printing long runs and delicate designs."
Torbjorn Garthammer – Scandiflex Pac AB



"Our operator has been able to mount the plates, set his impression and run. We've improved our productivity by at least 10%, if not more."
Mark Gaw, General Manager - Labeltronix, LLC.

Flat top dots

Consistent stable, robust printing

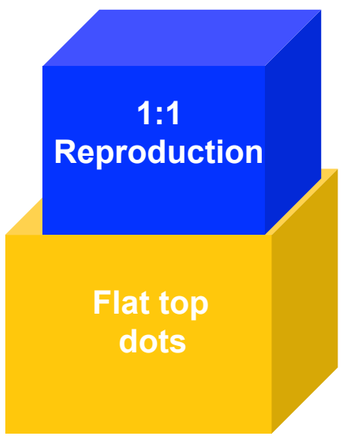
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Now add 1:1 reproduction

Why do we want 1:1 reproduction?

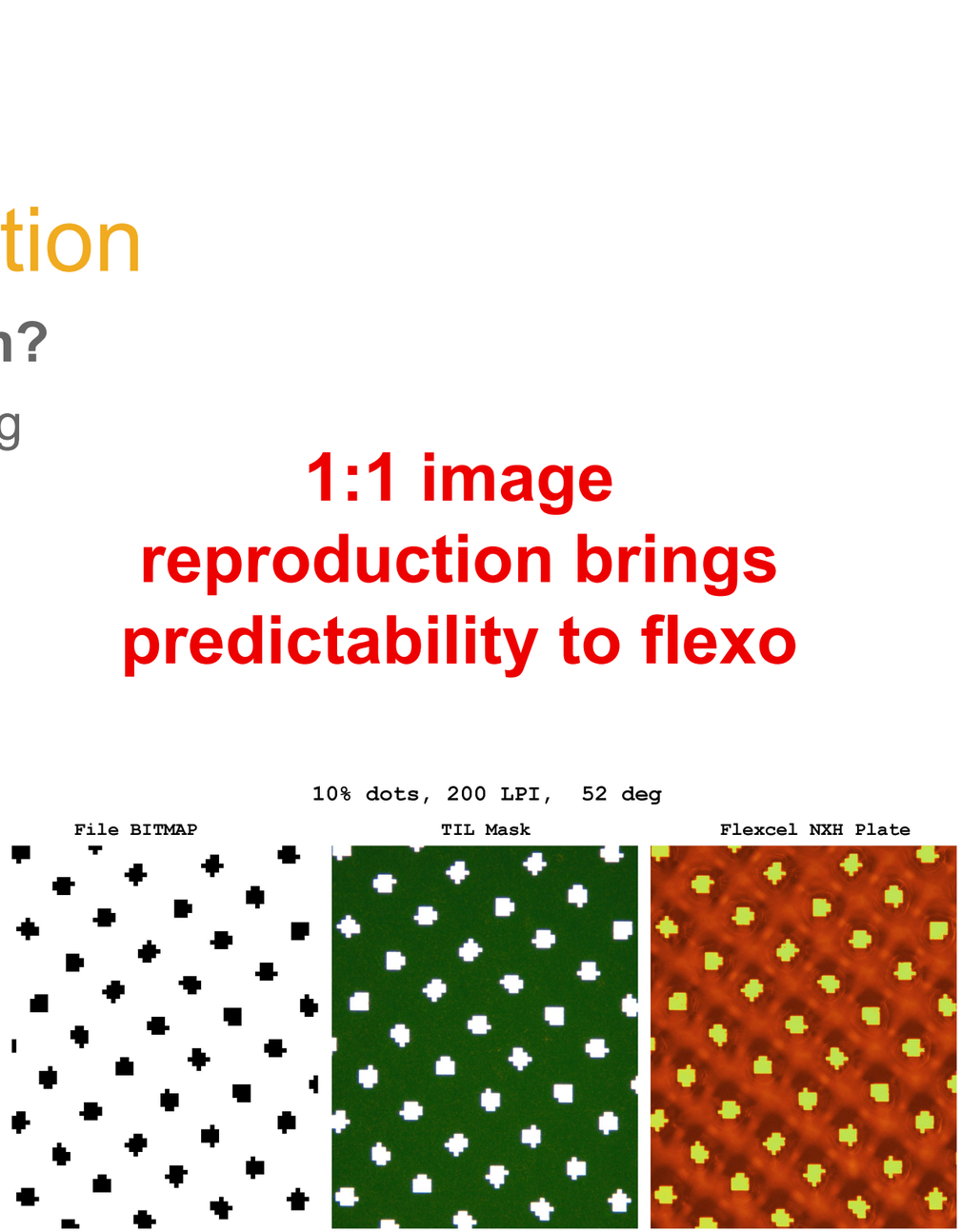
- For predictable plate making
- For predictable proofing
- For predictable printing
- For simplicity in prepress

1:1 image reproduction brings predictability to flexo



Predictable plate making & printing

Consistent stable, robust printing



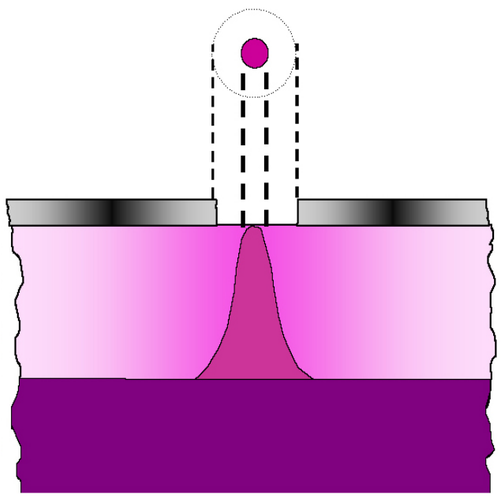
From the digital file to the plate

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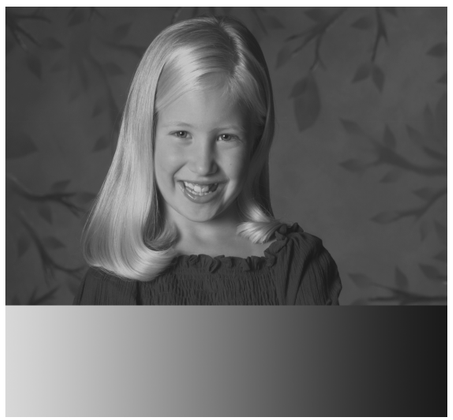
What's wrong with traditional digital flexo?

Traditional digital flexo dots are difficult to predict due to oxygen inhibition during formation

- They rely on a process known as "digital dot sharpening" to achieve fine detail
- Process is uncontrolled
- Bump curves must be applied
- Proofing has to accommodate these effects



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

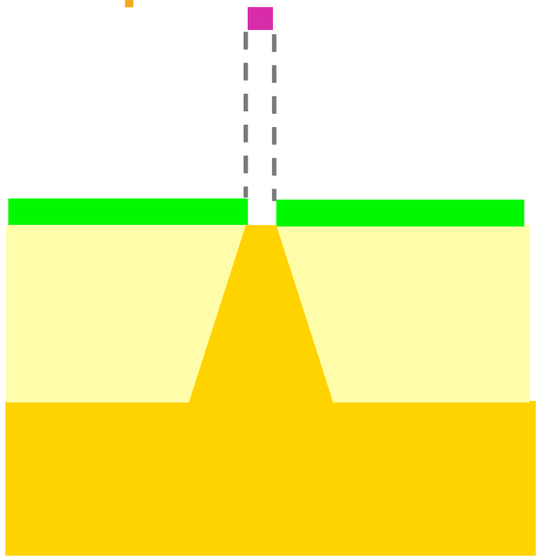


Traditional Digital flexo

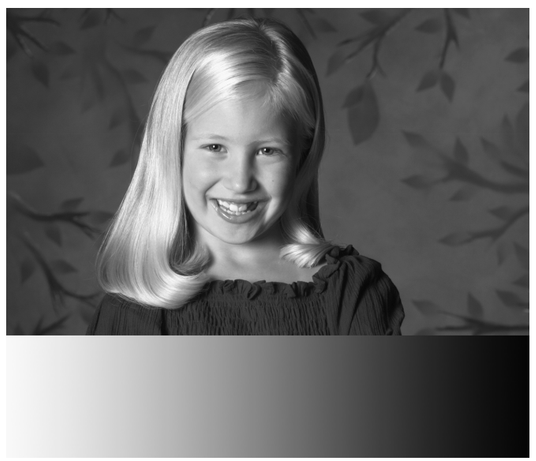
Flexcel NX System solves the problem

Only the **Flexcel** NX System enables true 1:1 image reproduction from digital file to plate

- Unique Thermal Imaging Layer formulation minimizes light scatter
- Intimate contact ensured during exposure
- The **Flexcel** NX System lamination process ensures absence of oxygen



1% dot in TIL produces 1% dot on plate



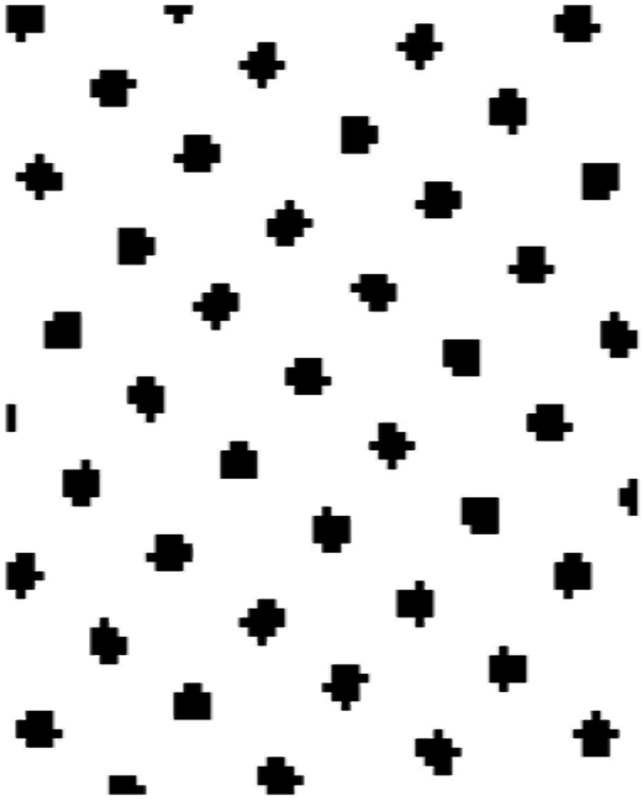
Flexcel NX System

Kodak

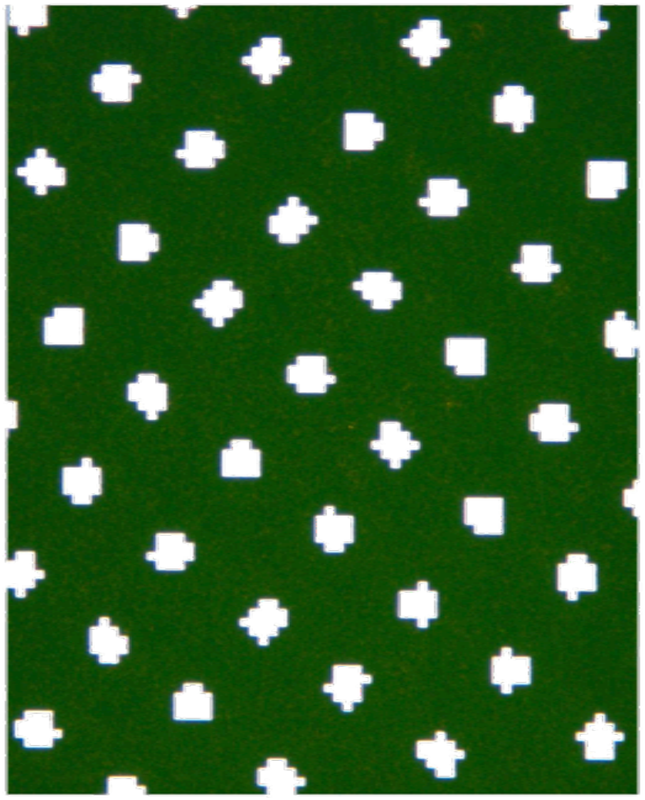
Take a close look

It really is true 1:1 reproduction

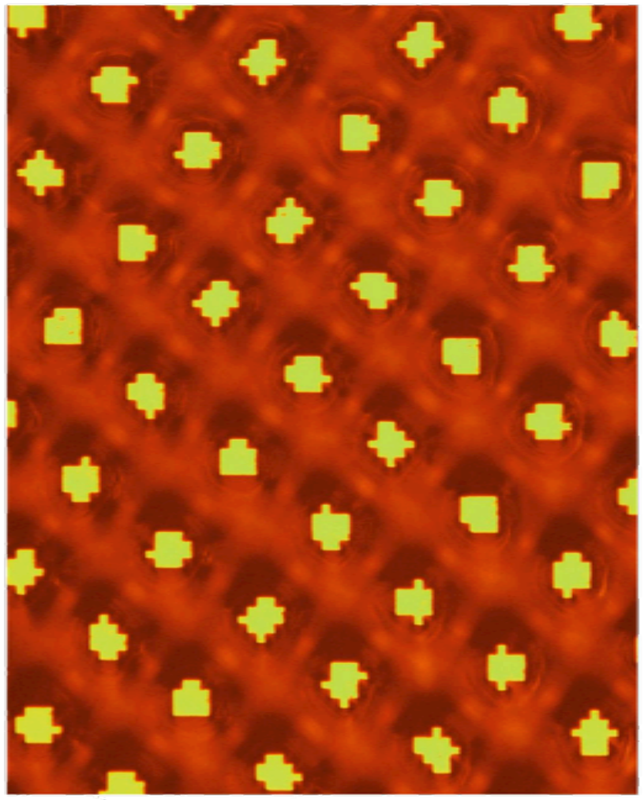
File Bitmap



Imaged TIL

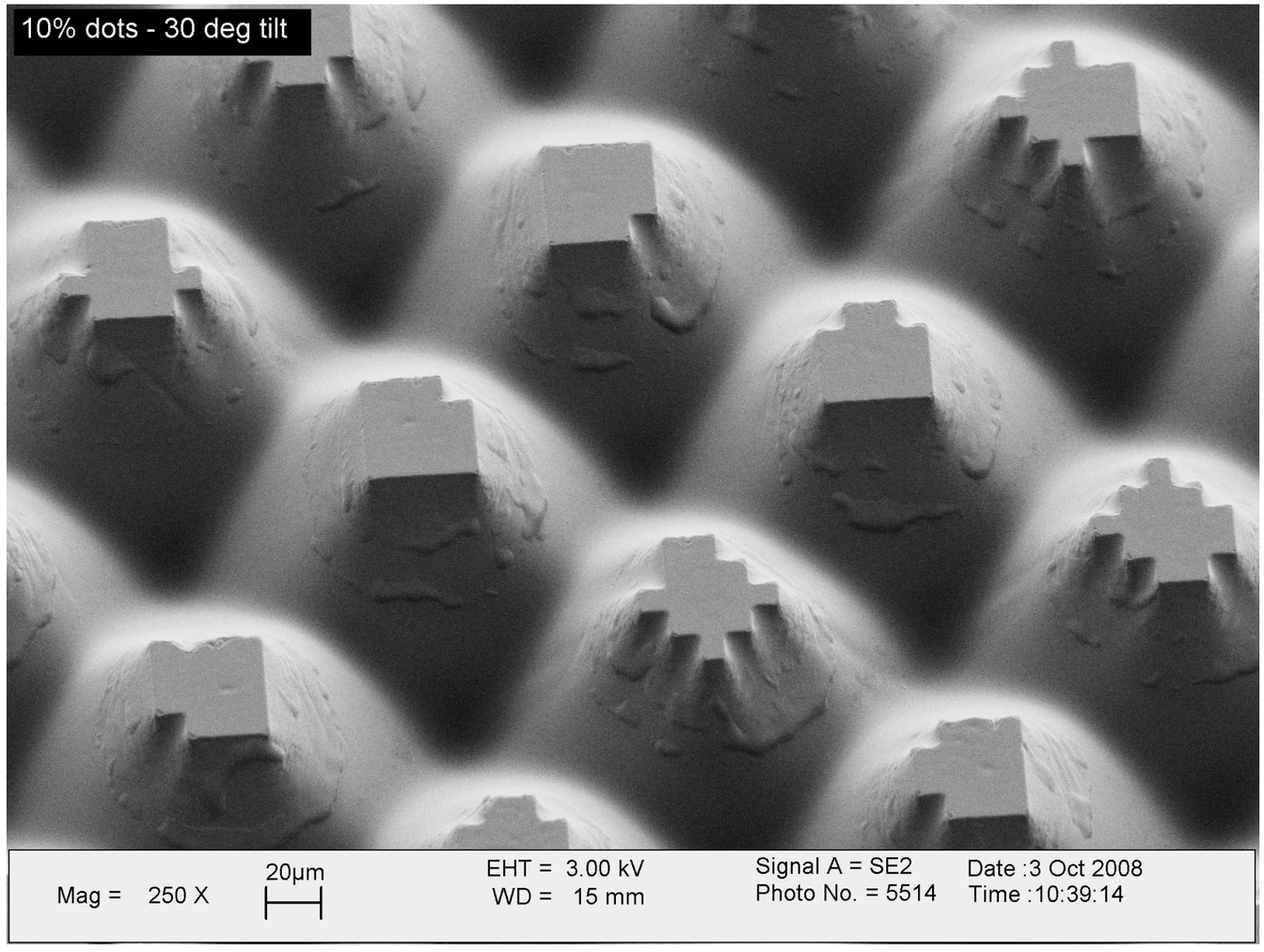


Flexcel NXH Plate



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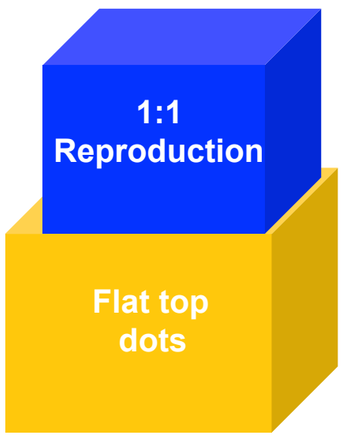
Pixel for pixel all the way



Flexcel NX System users enjoy predictability **and** consistency

We experienced runs of more than 750,000m with no stops and with consistent results. Prepress is just easy: the system is so reliable that contract proofing with match the final printed results consistently.”
Rok Setina – Compress d.o.o.





Predictable plate making & printing

Consistent stable, robust printing

With **Flexcel** NX Plates, flexo printing is no longer an art, it’s a predictable process.”
Andrew Sharp, CEO – Packstar Flexible Packaging.

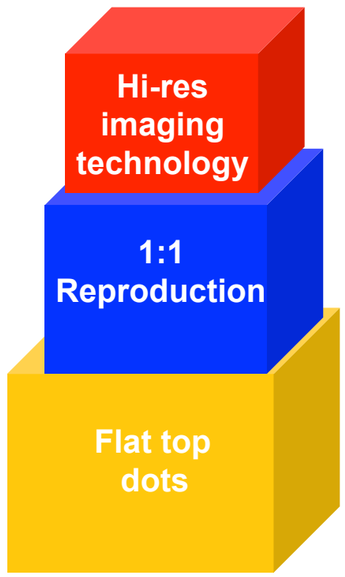
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Hi-res imaging is the next step

Why do we want it?

- For fine highlights and shadow detail
- For smooth transitions
- For FM screening
- For micro text

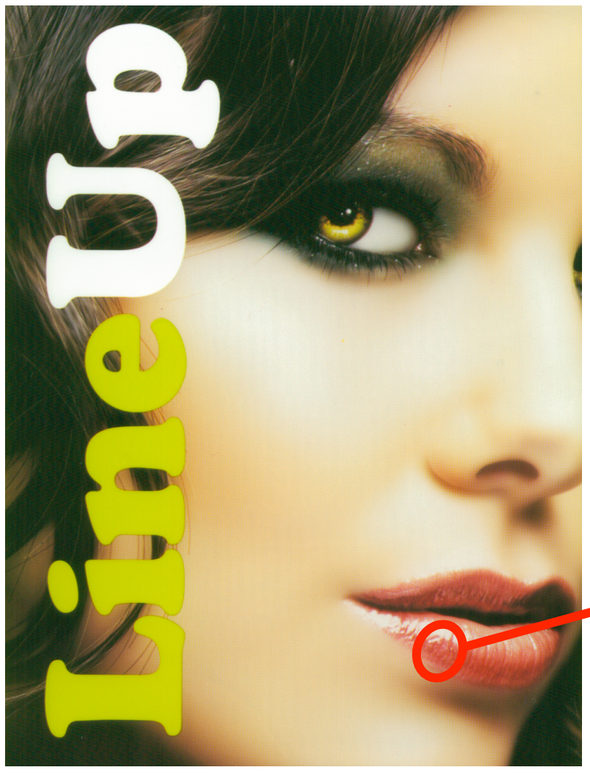
Hi-res imaging combined with a stable printing process delivers outstanding print quality in every day production

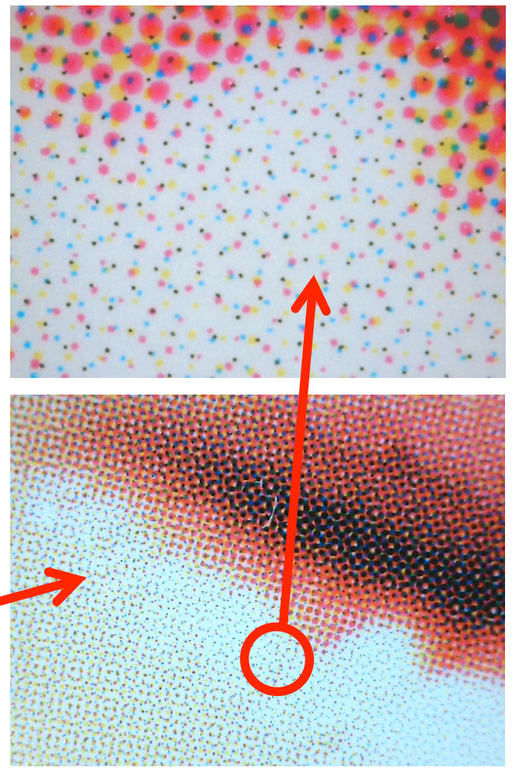


Full tonal reproduction

Predictable plate making & printing

Consistent stable, robust printing



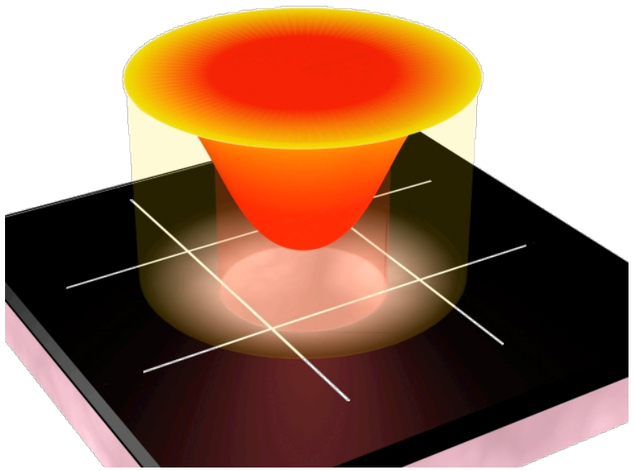


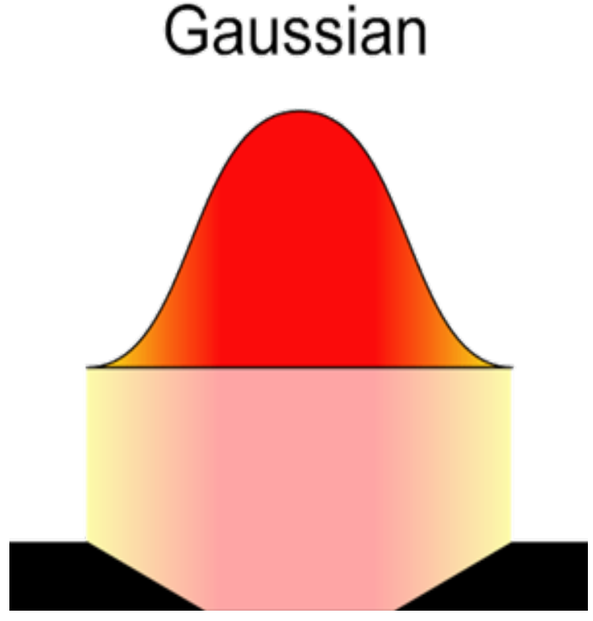
Kodak

What's wrong with traditional digital flexo?

Traditional digital flexo ctp imagers create a round Gaussian laser profile

- With fiber lasers the energy tapers off towards the outer diameter
  - High power in middle
  - Low power at edges
- Results in a Gaussian (soft / fuzzy) profile
- Leads to variability in mask imaging
- Round beam trying to match a square pixel
- Beam has to be larger than the pixel to overlap for full coverage
- Increasing resolution does not overcome these fundamental limitations



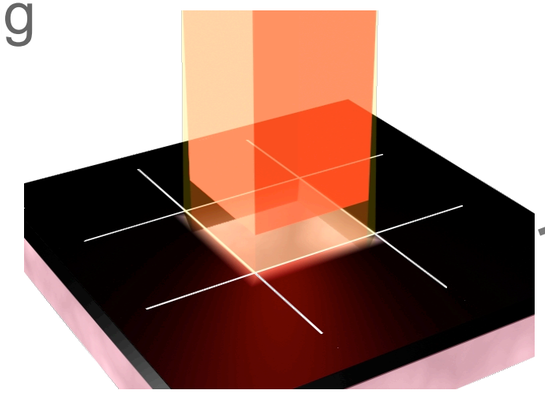


Kodak

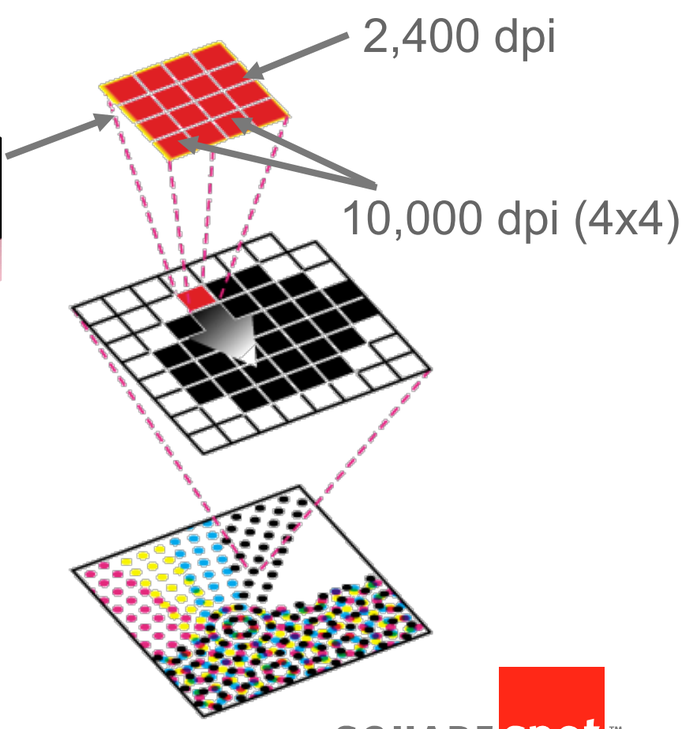
Flexcel NX System solves the problem

The **Trendsetter** NX uses **Kodak SQUAREspot** Imaging Technology

- The pixels start in the digital files as squares
- 1:1 reproduction with even energy distribution maximizes consistency, eliminating conversion errors
- 2,400 dpi resolution
- Effective 10,000 dpi resolution
- 10.4 micron dots and micro lines become a reality



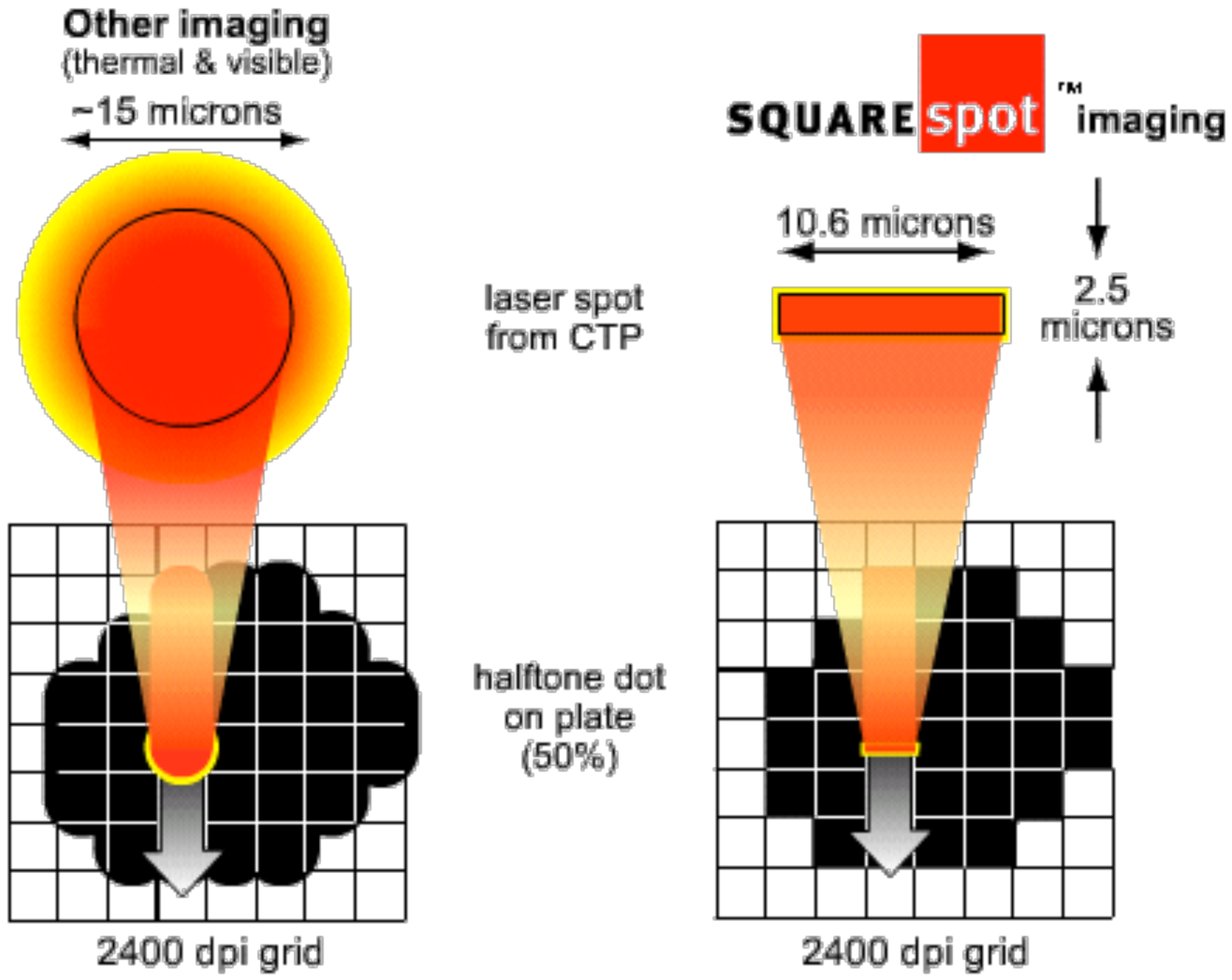
Square Profile



SQUARE spot™

Kodak

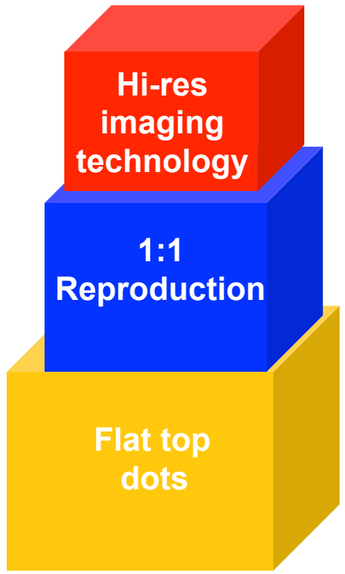
Comparing pixel accuracy



Flexcel NX System users enjoy great image quality, predictability **and** consistency

"There's nothing else out there that can come close. In a highly competitive market, the **Flexcel** NX System gives us a quality advantage that separates us from our competition."
Tristan Zafra, Owner - Trisoft Graphics, Inc.





Full tonal reproduction

Predictable plate making & printing

Consistent stable, robust printing

"The **Flexcel** NX Plate holds a better dot, especially on process plates. It gives you more vibrant colors, and a deeper image. Our existing customers see a world of difference already."
Rhonda Baker-Capps , VP - Labels, Tags and Inserts, Inc

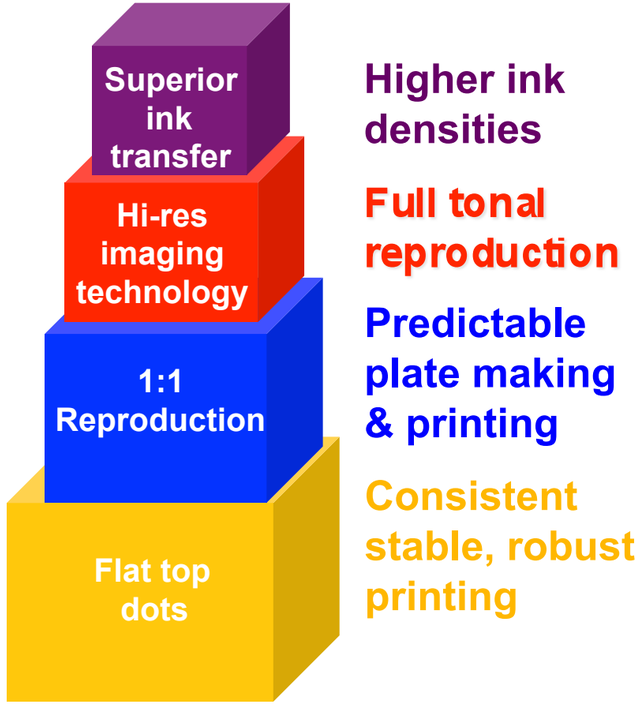
Kodak

And finally, superior ink transfer

Why do we want it?

- Visually appealing solids
- Higher densities
- Increased color gamut

Effective ink transfer has a tremendous impact on both visual appearance and print production efficiency

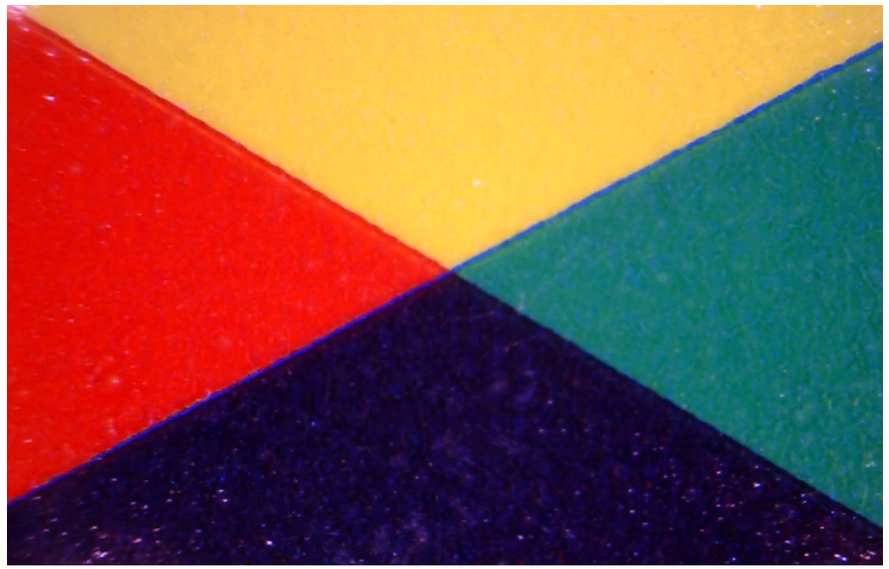


Higher ink densities

Full tonal reproduction

Predictable plate making & printing

Consistent stable, robust printing



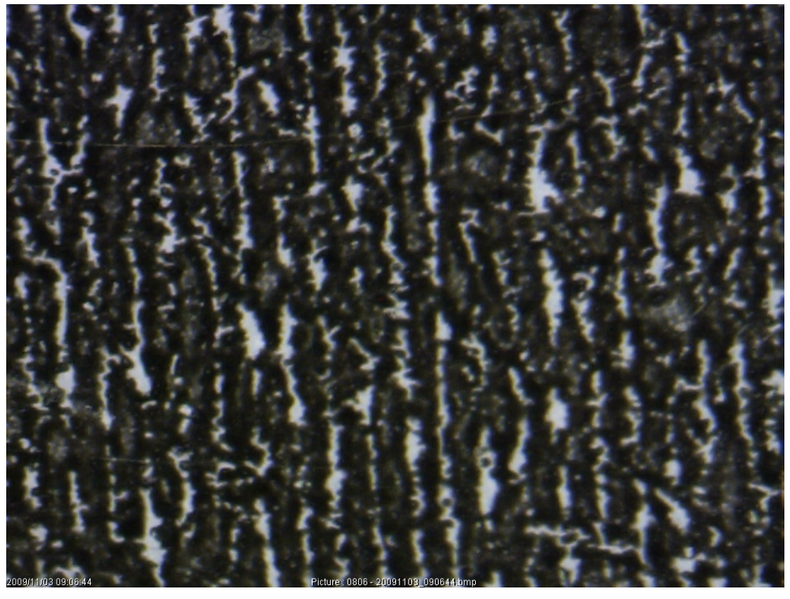
Kodak

What's wrong with traditional digital flexo?

Efficient ink transfer is always an issue, especially with solvent inks on flexible substrates

- Double hits are often required to get required opacity
- Poor ink transfer throughout tonal scale contributes to reduced color gamut
- Voids in printed solids reduce the visual impact

Traditional Digital Flexo Black



Kodak

Flexcel NX System solves the problem

Flexcel NX System applies **Kodak** DigiCap NX Screening to dramatically improve the efficiency of ink transfer

- Gravure like print quality
- Extra solid density, with less ink
- Smoother ink laydown
- Increased color gamut, more 4-color process
- **Kodak** DigiCap NX is unique to the **Flexcel** NX System



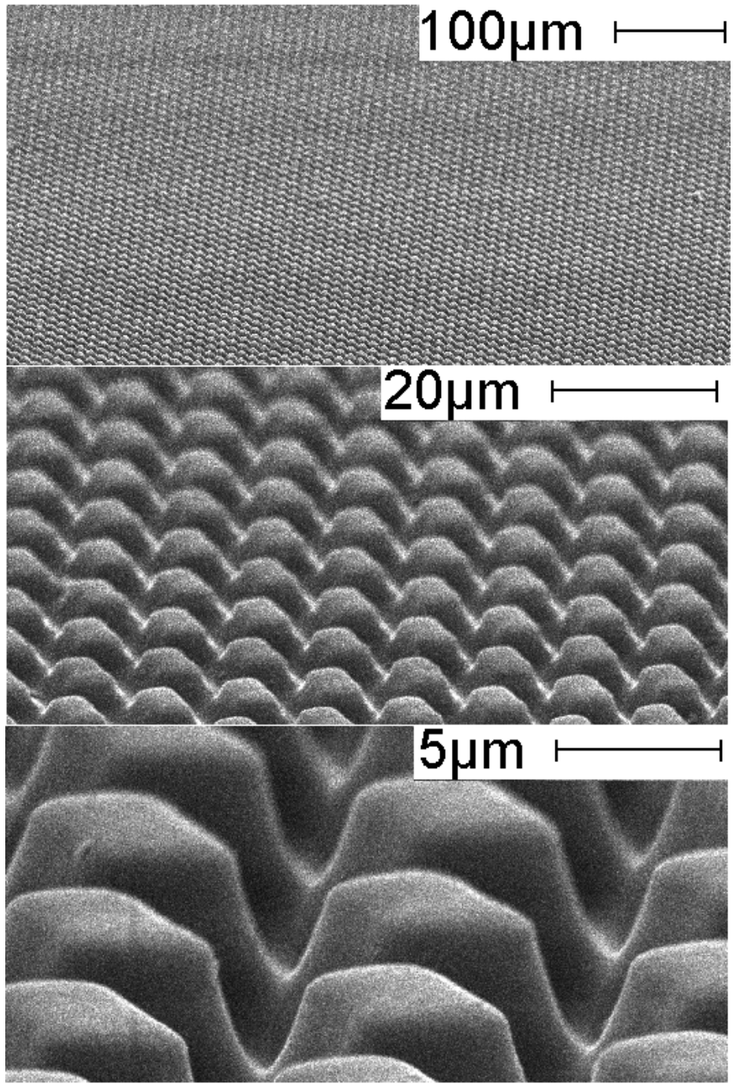
Kodak

Kodak DigiCap NX Screening explained

In action:

- **Kodak** DigiCap NX Screening uses the high resolution capabilities of the **Flexcel** NX System to image and form a micro pattern across the printing surface
- The pattern is fine enough to be applied throughout the full tonal range
- It is simply ‘applied’ or ‘not applied’ per imaged plate via a simple check box in **Kodak** Tiff Front End
- Application of **Kodak** DigiCap NX Screening does not impact productivity

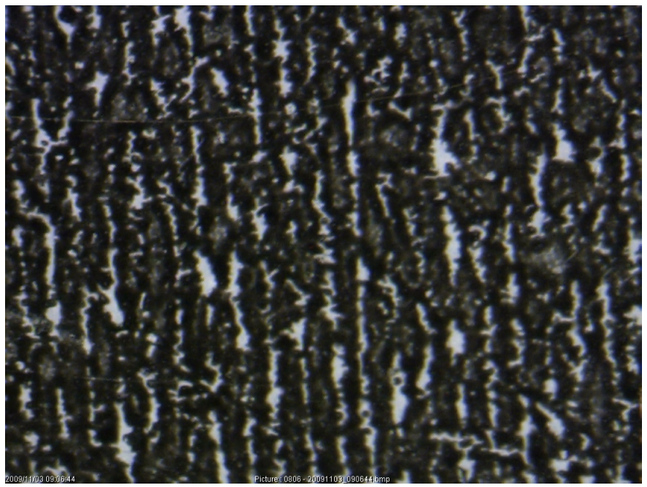
A super fine surface pattern



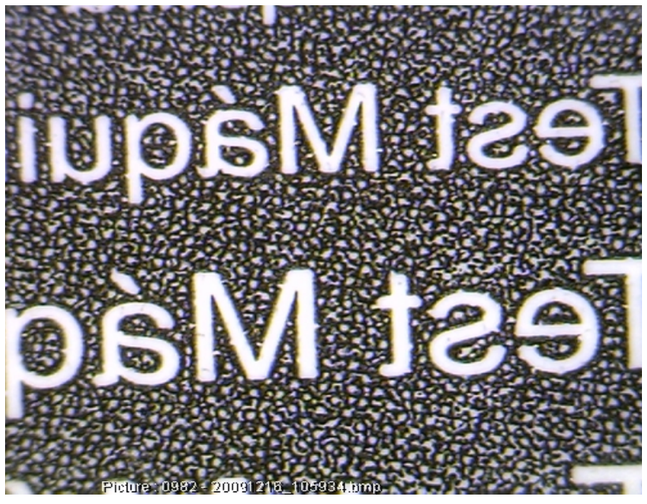
Kodak

Real prints show the power of **Kodak** DigiCap NX Screening

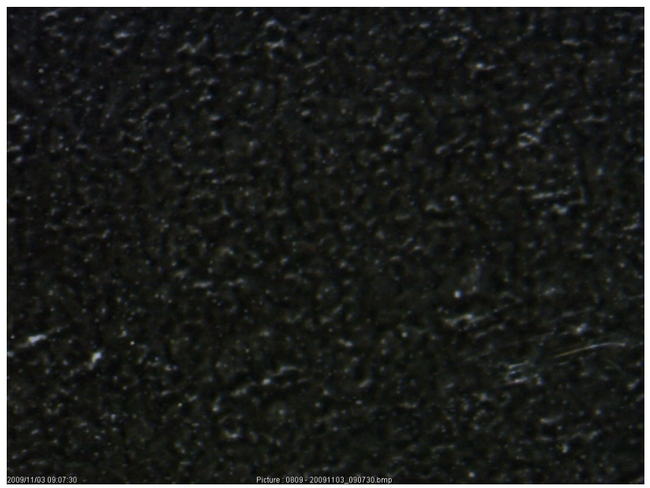
Traditional Digital Flexo



Traditional Digital Flexo with traditional plate cell patterning applied



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

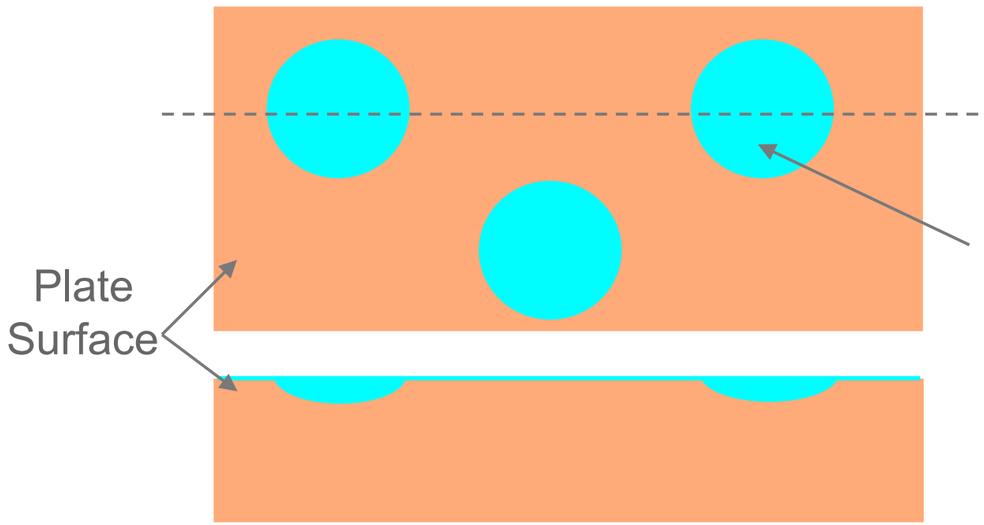


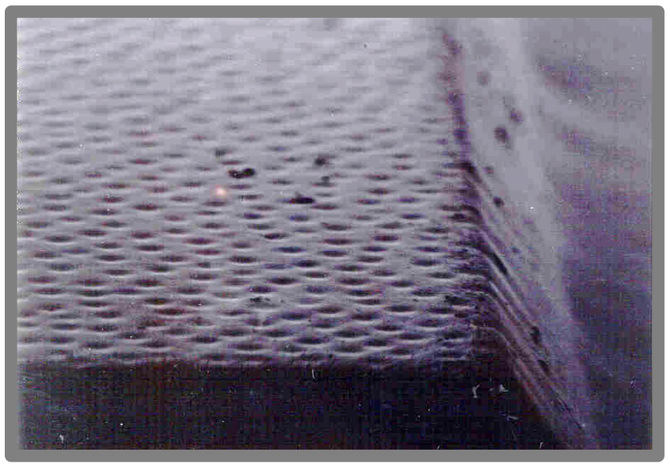
Flexcel NX with **Kodak** DigiCap NX Screening applied



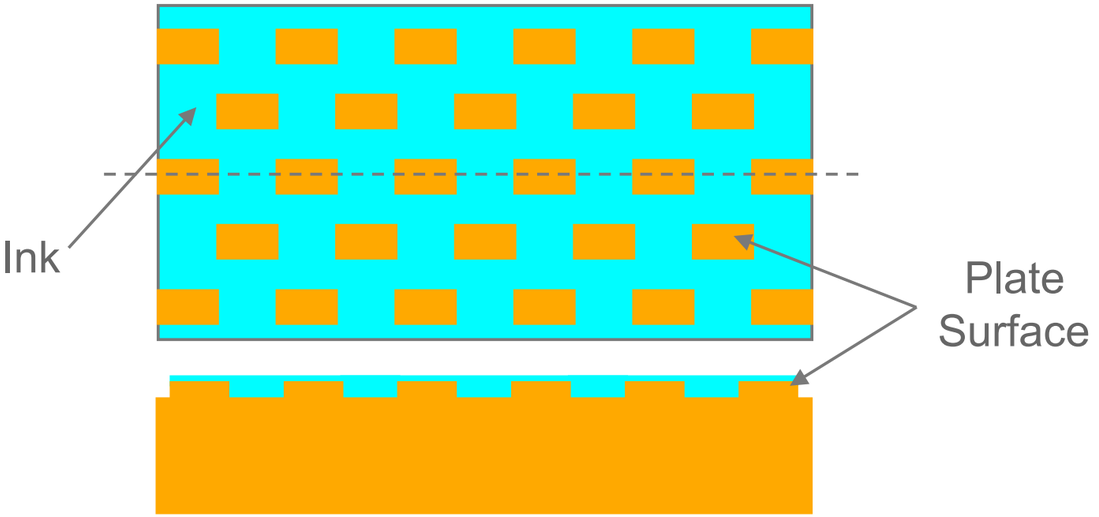
Efficient ink transfer: predictable and controlled

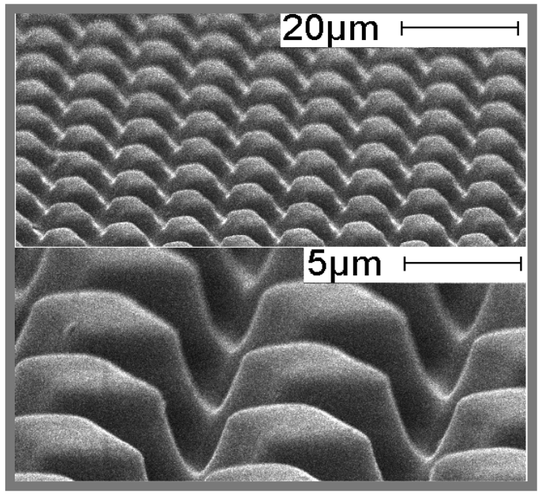
Traditional plate cell patterning





NEW! **Flexcel** NX with **Kodak** DigiCap NX





Kodak

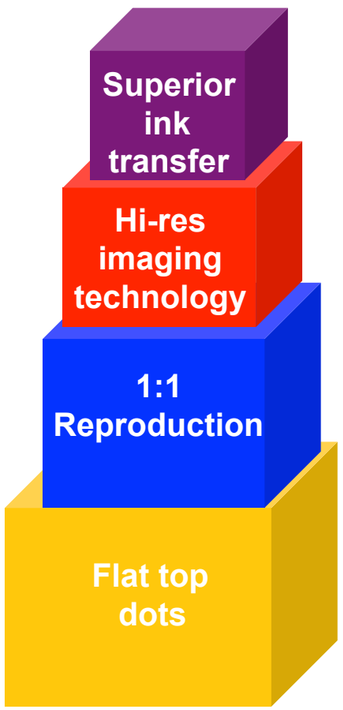
Flexcel NX System users can have it all

"Due to the advantages of the **Flexcel** NX Technology, Corniche is now moving into new market segments, driving business into retail, marketing and brand awareness."
Dave Ettie – Corniche Fine Arts Ltd..









Higher ink densities

Full tonal reproduction

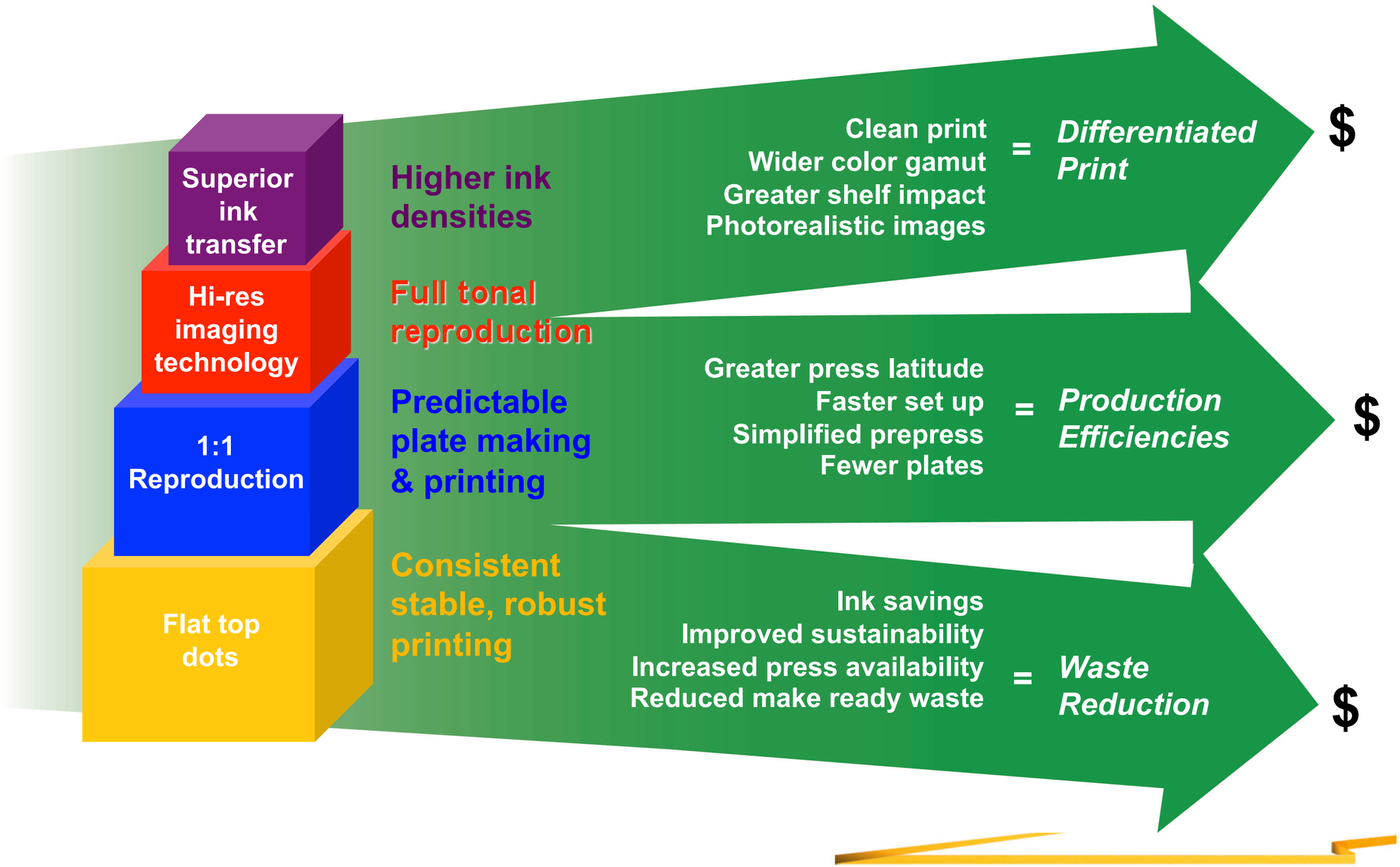
Predictable plate making & printing

Consistent stable, robust printing

"We at Primopost feel that the **Flexcel** NX System offers us the opportunity to match gravure quality contributing to our ability to offer innovative and cost effective packaging solutions."
Barry Bearman – Primopost Ltd

Kodak

The **Flexcel** NX System addresses ALL the key issues



Achieve better printing today



Increase line screens (up to 300 lpi AM)

Print fine detail

Achieve clean tones and vibrant colors

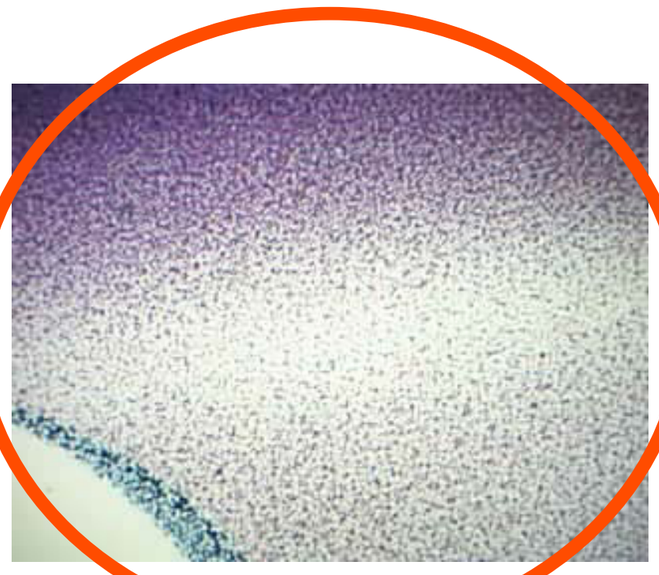
Implement stochastic (FM) screening in regular production

Deliver print with greater visual impact

Same print conditions:

- Higher densities
- Cleaner tones
- Finer detail
- Greater contrast







Kodak

Explore new opportunities tomorrow



Match offset and gravure class quality

Enjoy a consistent color match across substrates

Explore microtext capabilities for brand security applications

Consider lenticular effects for eye-catching packaging

Discover new applications for flexo

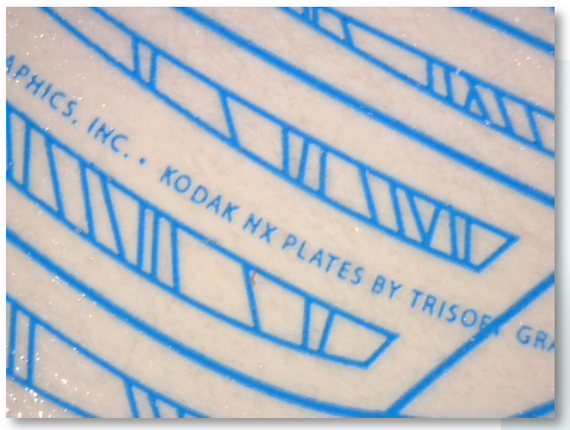
Do more with process color printing

Make co-printed designs a reality

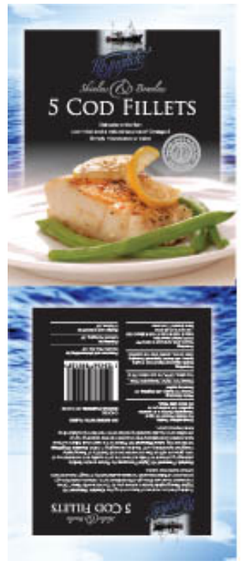
Open the door for gravure class quality

- Optimize the press
- Print up to 175 lpi in regular production

Give brand owners greater design freedom











Kodak

Take a close look at costs

Category	Current costs as % of gross sales	Annual cost based on $10M sales revenue
Administration	9.0%	$900,000
Sales	4.0%	$400,000
CSR, ESTIM	4.0%	$400,000
Prepress Labor	2.0%	$200,000
Prepress Materials	1.5%	$150,000
Outside Prep Costs	0.1%	$10,000
Press Makeready	13.0%	$1,300,000
Press Run Time	29.0%	$2,900,000
Press Run Paper/Ink	29.0%	$2,900,000
Other Outside	1.0%	$100,000
Bindery	2.5%	$250,000
Interest Expense	2.0%	$200,000
Profit	2.9%	$290,000

Prepress vs Press – where does it make sense to focus?

Production Efficiencies

What would a 10% reduction in makeready time mean to your operation?

If you could run your presses faster, would you bill more jobs?

How could a 20% reduction in substrate waste impact your bottom line?

Would a reduction in ink purchases make you more competitive?

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Production Efficiencies

Savings in your pocket today

- Save time and money with plates that last longer
  - Customers are consistently reporting 2x to 5x longer
  - Huge savings in plates and downtime for plate changeovers
  - Re-use plates again and again
- Save time and money with plates that come to color faster
  - 20% ink and substrate make ready savings on average
  - Improve turnaround time and profitability for short runs



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Production Efficiencies

Greater efficiencies tomorrow

- Gain billable hours with plates that run faster
  - Print stability can allow press to run 10-20% faster
- Do more with process color printing
  - Fewer special inks, fewer plates, faster set up
  - Unprecedented flexibility
- Simplify pre-press
  - Predictable platemaking
  - Offset based separations



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Waste Reduction

A true cost saving environmental impact

While others debate solvent vs. thermal for plate processing
Kodak asks the 'big picture' question:

"How can your flexo plate choice
have the maximum impact
on your overall sustainability goals?"

The **Flexcel** NX System delivers maximum impact on sustainability by:

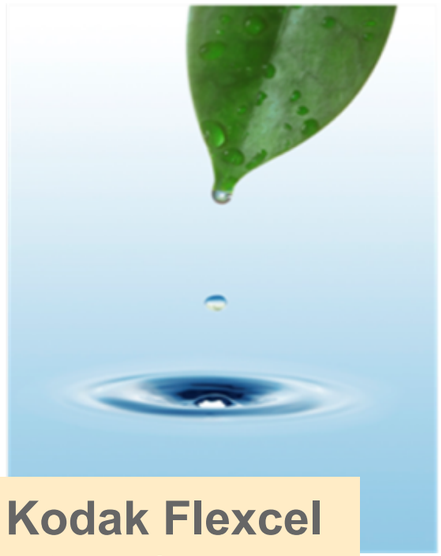
- Reducing the total number of plates made
- Reducing printing substrate waste on press

Delivering a positive impact to your bottom line:

- Time and money savings

And with no compromises:

- Unparalleled image quality
- Outstanding performance and durability



"I do find that the **Kodak Flexcel** NX Plates allow us to reduce our carbon footprint by the simple fact that we make less plates now."
Mike Isaacs, Prepress Manager - Packstar Flexible Packaging

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The industry has recognized the **Flexcel** NX System

Awarded the **Must See 'ems! Award at Graph Expo 2008**

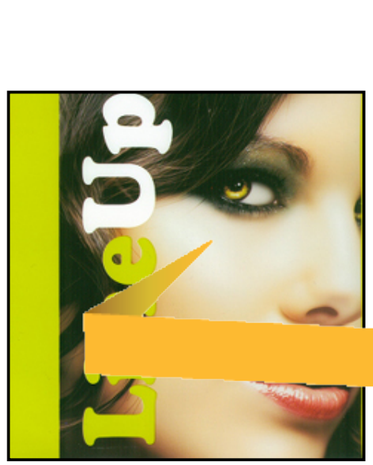
The sole recipient of the **Flexographic Technical Association's 2009 Technical Innovation Award**

Awarded the 2008 **Technical Innovator of the Year Award** by the **Flexographic Pre-Press Platemakers Association**

Awarded the prestigious **PIA/ GATF InterTech Technology Award in 2008**

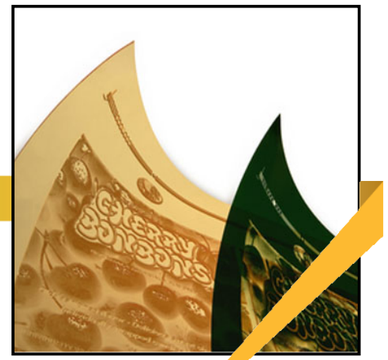
It’s time to discover what it can do for YOU…

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Do More With Flexo

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