# BEST-IN-CLASS FLEXO

**The KODAK FLEXCEL NX System '16 promise:**

GOLD STANDARD PRINT QUALITY
and COMPELLING PRODUCTION EFFICIENCY

Delivered with the simplest plate portfolio in the industry
Fully integrated and differentiated plate making solution
Unparalleled consistency
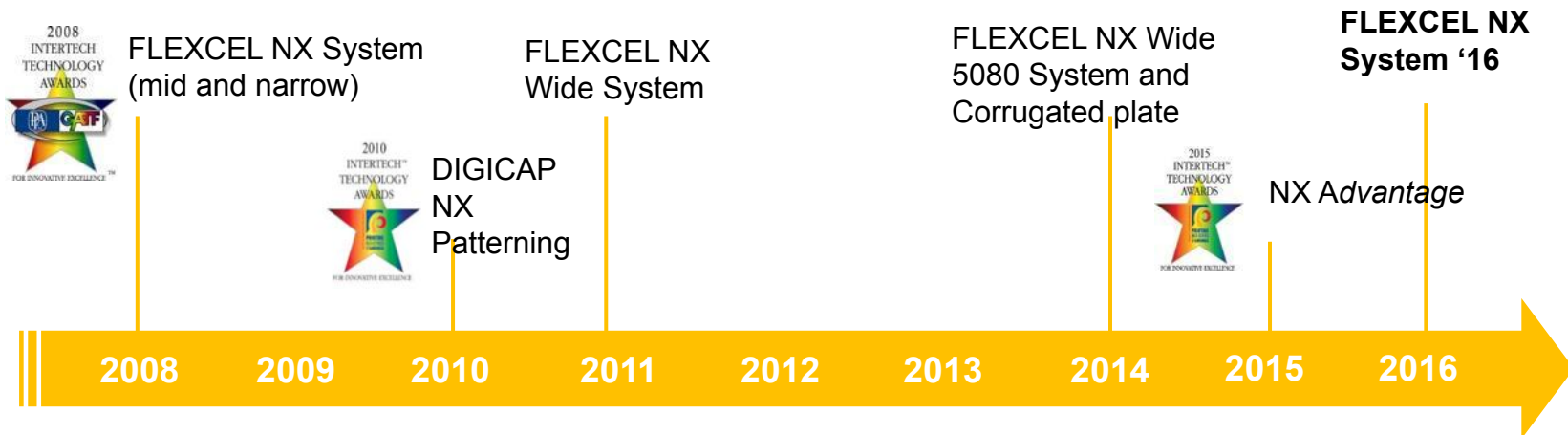Fastest imaging
Fully upgradeable platform

Across the broadest range of applications and print conditions:

Tag and Label **|** Flexible Packaging **|** Folding Carton **|** Corrugated Boxes **|** Security

# Success is proven and real

- **500** FLEXCEL NX Systems sold in over 70 countries
- Leading printers are switching to FLEXCEL NX Plates
- Track record of gravure/offset to flexo conversions
- FLEXCEL NX Plate sales growth rate = **4x** industry growth rates
- Continuous stream of technology innovation that fuels our customers' competitive advantage and efficiency

FLEXCEL NX System (mid and narrow)

DIGICAP NX Patterning

FLEXCEL NX Wide System

FLEXCEL NX Wide 5080 System and Corrugated plate

NX *Advantage*

**FLEXCEL NX System '16**

2008  2009  2010  2011  2012  2013  2014  2015  2016

# **FLEXCEL NX System '16**
## Benefits

# Gold standard print quality
## with compelling production efficiency

**FLEXCEL NX** has set the benchmark for exceptional process printing:

Greatest color consistency

Widest color gamut

Best highlight performance

Greater use of process printing

**FLEXCEL NX System '16** delivers innovation that expands performance:

Best ink laydown across all print conditions

Broadest contrast range

Cleanest and smallest reverses

Cleanest and brightest print

For all flexo applications and print conditions

# Best ink laydown

- FLEXCEL NX: Already proven to deliver best performance for process printing
- LATEST Advanced DIGICAP NX Patterning expands capability
- NOW a plate can be optimized for **all** ink types @ **all** anilox volumes for **all** applications
- ACHIEVE target ink density, pinhole-free with lower coated ink weights

FLEXCEL NX System '16

Other flexo
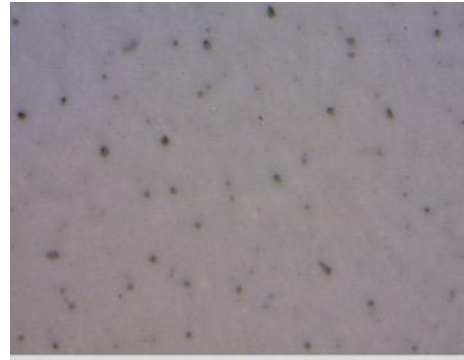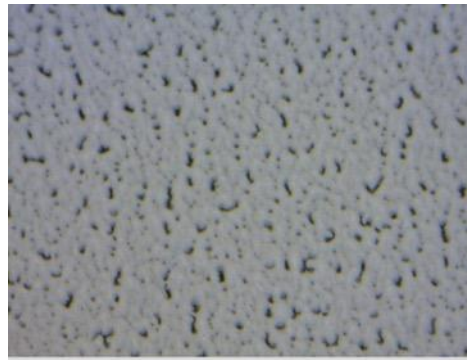


**Med Volume anilox**

**High Volume anilox**

**ENABLING…**

- **Superior white ink printing on film**

- **Improved spot colors**

- **Better coverage for varnishes, metallics & specialty inks**

- **Exceptional ink transfer on corrugated board**

*Full range of capabilities with just two plate types*

# Broadest tonal range & contrast



Typical High Definition Flexo

| 100% | 90% | 70% | 50% | 30% | 10% |

FLEXCEL NX System '16
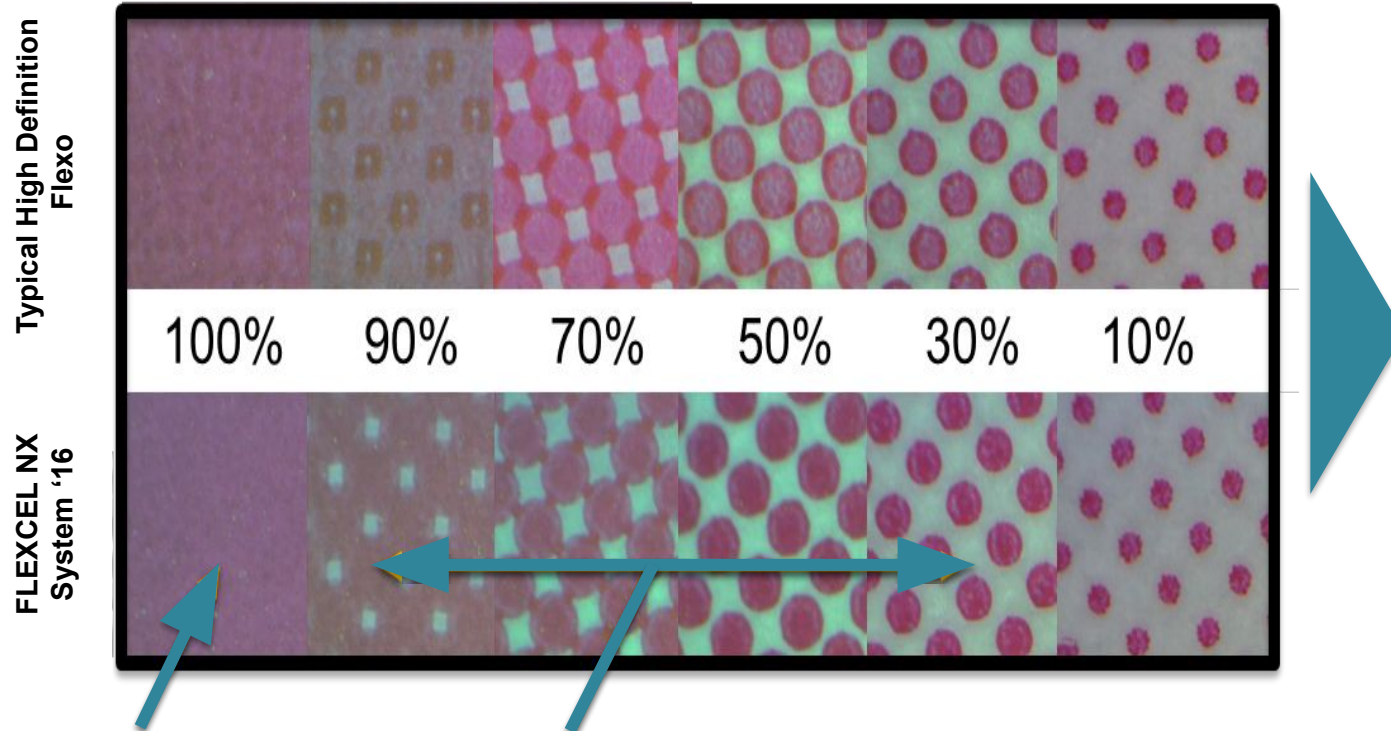
**RESULTS IN …**

**More color range**
**More contrast**
**More shadow details**
**More shelf appeal**

**Improved solid ink laydown**

**More open shadow to mid tonal range**
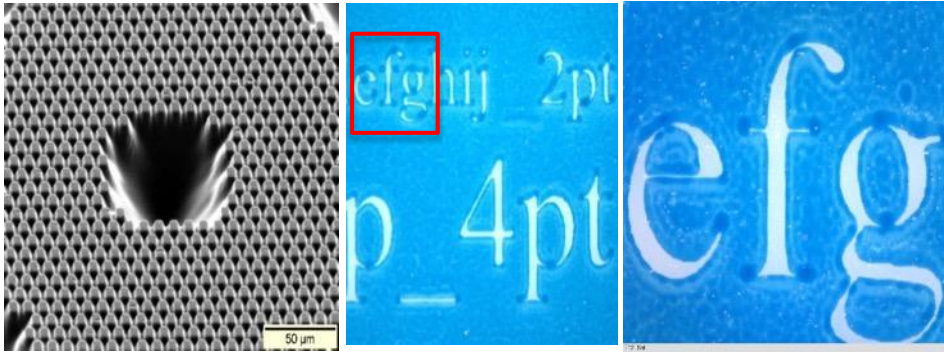**Increased contrast and color gamut**

CONTRAST
CONTRAST
CONTRAST
**CONTRAST**
**CONTRAST**

# Cleanest and smallest reverses

Enables reduced font size spec, improved legibility…
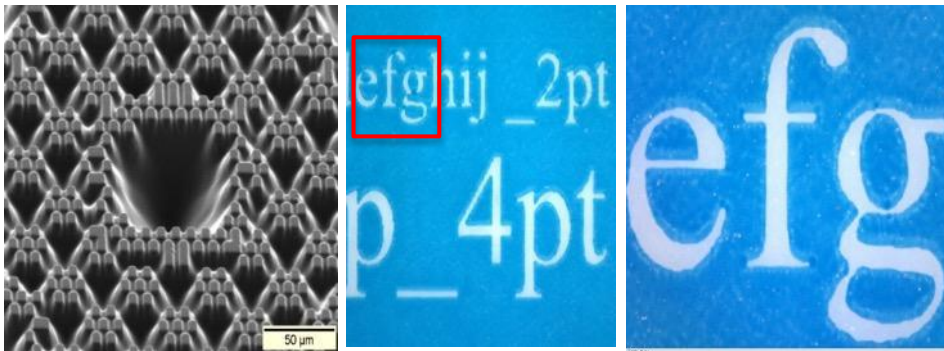opens door for reduced nutritional box size / increase selling space



**Selling space**

Branding, graphics, messaging

**Nutritional Box**

Government required information, limited sales value



**Selling space**

Branding, graphics, messaging

**Nutritional Box**

Government required information, limited sales value

**CLEANER REVERSE TEXT** → **MORE SELLING SPACE**

# Cleanest, brightest printed colors

- Reduces the graying effect for metalized laminates used in flexible packaging

- Improves shelf impact on Kraft liners for shelf-ready packaging

- Brighter colors for off-white papers



Simulated

# Gold standard print quality
## with compelling production efficiency

**FLEXCEL NX** proven to deliver:

- Faster startup
- Reduced ink and substrate
- Longer plate life
- Fewer plates
- Increased press speed

**FLEXCEL NX System '16** delivers even more:

- Ink savings: White/spot colors/more
- Fewer press stops for cleaning
- More efficient lamination
- Better performance on lower grade paper/boards

Across the full range of flexo applications and print conditions

# FLEXCEL NX System '16 for wide web flexibles

## Gold Standard Print Quality and Compelling Production Efficiency

Be at the leading-edge with:

- Cleaner print, fewer press stops, increased efficiency

- Gravure quality achievable in daily production

- Major image contrast improvements

- Smaller, more readable text

- Outstanding performance with solvent and water-based inks

- Improved lamination performance

# FLEXCEL NX System '16 for corrugated post-print
## Gold Standard Print Quality and Compelling Production Efficiency

Be at the leading edge with:

- Improved solid ink laydown – higher densities with lower ink volumes

- Brighter, cleaner brand colors

- Improved results on lower grade liners – cost saving opportunities

- Lower highlight dot gain dramatically improves image reproduction

- Cleaner reverses and open shadows for greater contrast

- Higher line screens possible

# FLEXCEL NX System '16 for narrow web labels
## Gold Standard Print Quality and Compelling Production Efficiency

Be at the leading edge with

- Best flexo match to digital printing

- Offset quality process printing

- Improved solid ink laydown for spot colors, metallics and varnishes

- Cleaner reverses and open shadows for spot colors

- Excellent performance with lower grade substrates

- Excellent swell resistance

# FLEXCEL NX System '16 for paperboard
## Gold Standard Print Quality and Compelling Production Efficiency

Be at the leading edge with:

- High-speed, stable printing

- Fewer press stops for cleaning

- Brighter, cleaner colors

- The cost benefits of web flexo with the quality of sheet fed offset

- Excellent performance with lower grade substrates
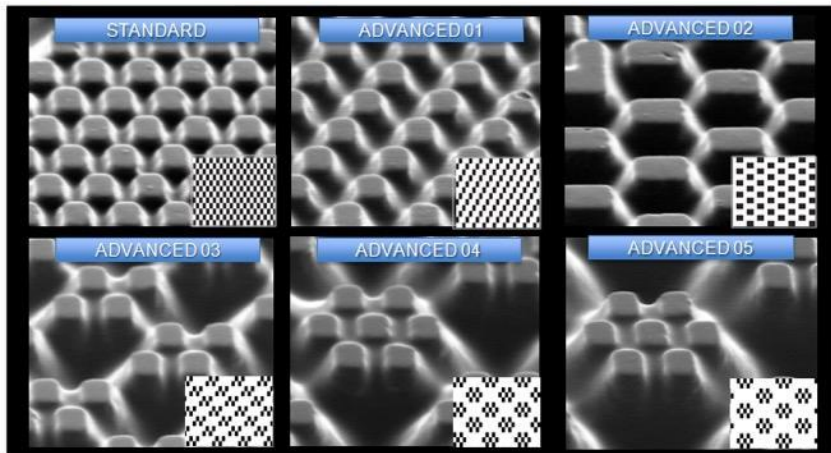
# FLEXCEL NX System '16
## Technology

# FLEXCEL NX System '16:
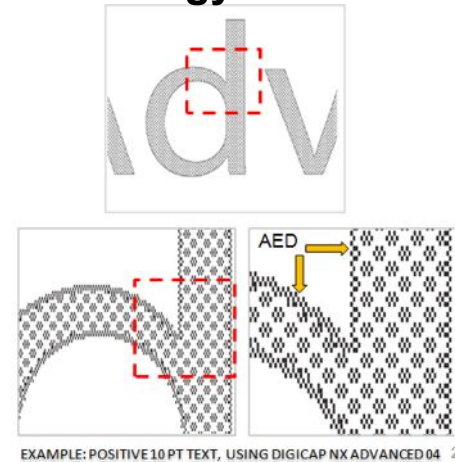## Built upon two powerful innovations

**Expertly-engineered Advanced DIGICAP NX Patterning**



Expands the range of applications by enabling a single plate to be optimized across a wide range of print conditions, all ink types and anilox volumes.

**Advanced Edge Definition Technology**



EXAMPLE: POSITIVE 10 PT TEXT, USING DIGICAP NX ADVANCED 04   27

A Kodak patented technology that controls ink flow at the edge of objects resulting in greater visual edge definition, especially in fine reverses, and cleaner print, dramatically improving tonal range and contrast for shadow detail.

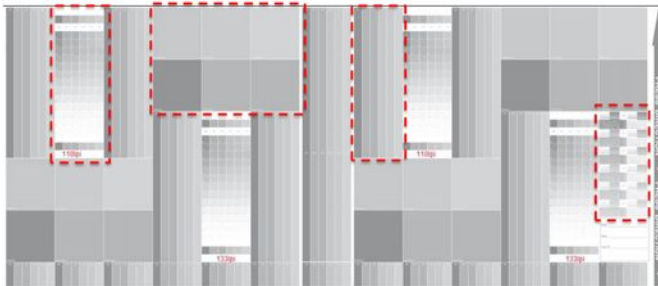# Expertly-engineered Advanced DIGICAP NX Patterning
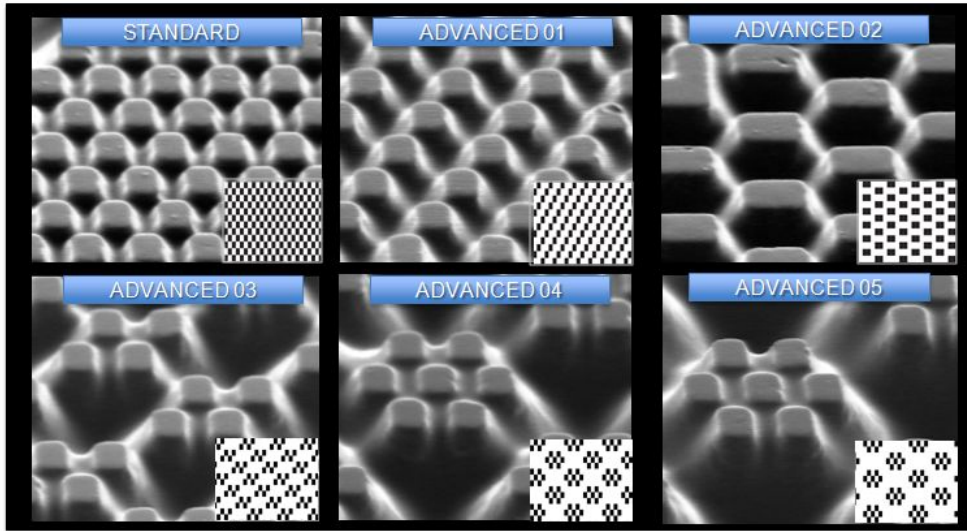


**Enables exceptional print performance**
- Outstanding ink transfer
- Higher density with lower ink weights
- Range of patterns for range of ink volumes

**Reduces inventory costs**
- Only Kodak enables a single plate to be optimized across a wide range of print conditions, all ink types and anilox volumes.

**Easy to select patterns** – Simple print test tool provides data on selection for anilox/tape/ink/DIGICAP NX combination

**Easy to apply patterns** – Applied in TAP. NX tags are used to enable single plate to be optimized across a wide range of print conditions, all ink types and anilox volumes.
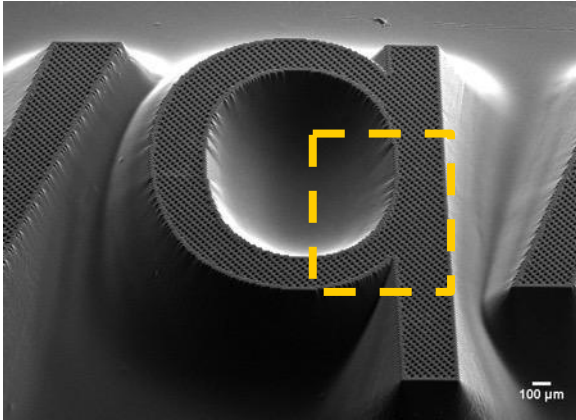
**A MAJOR INNOVATION**
**One pattern is not sufficient to cover all flexo needs.**

**Only the FLEXCEL NX System has the imaging and plate reproduction capability to consistently reproduce this unique range of patterns.**
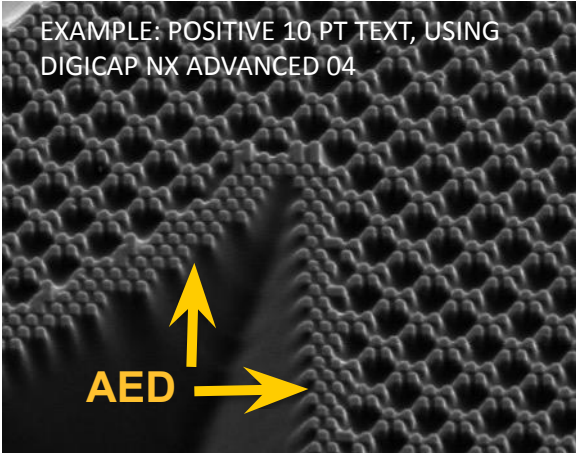
**A 'built-in' textured plate can never do this.**

POWERED BY
**NX** ADVANTAGE

# Advanced Edge Definition – Exclusive Patented Technology



EXAMPLE: POSITIVE 10 PT TEXT, USING DIGICAP NX ADVANCED 04

**AED**

100 µm

**A MAJOR INNOVATION**
**Only the FLEXCEL NX System has the imaging and plate reproduction capability to consistently reproduce and apply this unique range of patterns at the object level.**

**A 'built-in' textured plate will never be able to do this.**

## Benefits
- Better positive text and bar codes
- **Smaller reverse text** use
- Expanded **tonal range**
- Increased **contrast**
- Ensures **clean printing**
- Maximizes productivity

## How it works
- Automatically applied when using Advanced DIGICAP NX Patterns
- Controls ink flow to keep the print clean

POWERED BY
**NX** ADVANTAGE

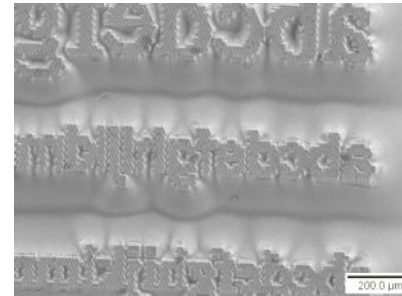# Additional tools for specific needs
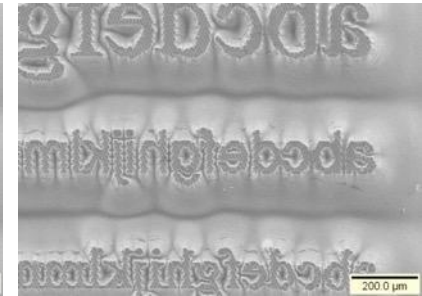
## NEW HYPERFLEX NX OPTIONS



Optimizes floor height for best highlight dot print stability, plate making latitude and widening the achieve range and contrast for highlights.

## NEW
## 4800 x 9600dpi imaging



| 2400 dpi | 4800 dpi |

Enhances the printing of micro-text and security features unique high resolution applications

# New HYPERFLEX NX Options

## Benefits

- Improved highlight dot stability, consistency and holding of isolated highlight dots

    – Holds 20 micron isolated dots

- Improved latitude for back exposure/relief, main exposure and impression

## How it works

- New HYPERFLEX NX options produce a smooth slope around dots without a shelf

- New settings change the number of light valves and their spacing influencing how much the localized floor is raised

- Consistent exposure and relief allows jobs with and without HYPERFLEX NX to be on the same plate



Without Hyperflex NX



New & improved Hyperflex NX
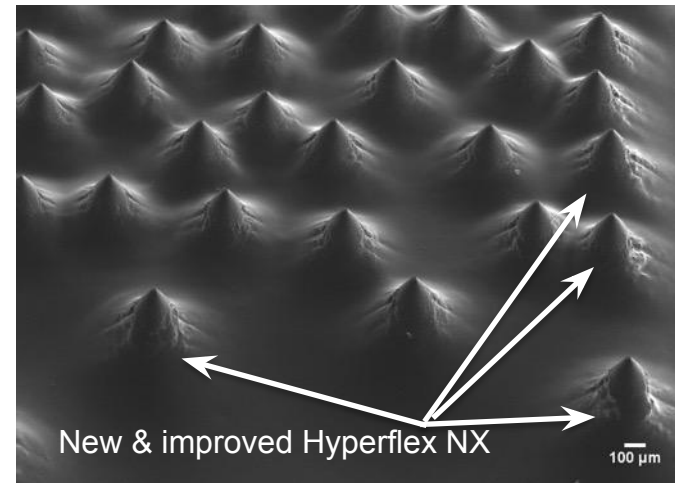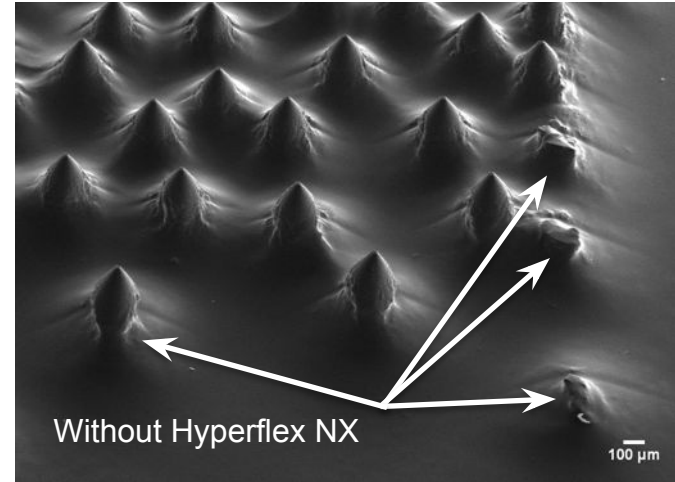
# High Resolution 9600x4800 dpi

(license sold separately)

## Benefits

- Enhances performance for micro text (<1pt) and security applications
  - Supports 4800x4800 dpi and 9600x4800dpi imaging modes
  - Available for FLEXCEL NX Mid/Narrow, WIDE 3547 and Wide-C Imagers
- Most packaging applications are not enhanced by high resolution
  - KODAK SQUARESPOT imaging technology enables excellent quality at 2400x2400

## How it works

- License sold separately
- Higher resolution results in larger file sizes
- Higher resolution requires longer imaging times, approximately double
- Easily switch between standard imaging and high resolution imaging from job to job

2400 dpi

200.0 µm

4800 dpi

200.0 µm

POWERED BY
NX ADVANTAGE
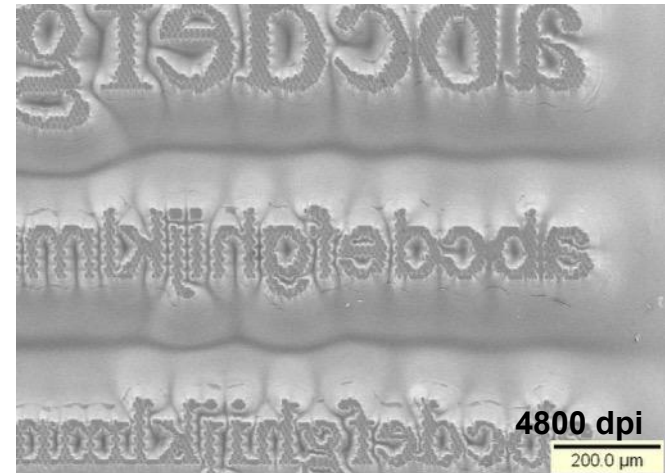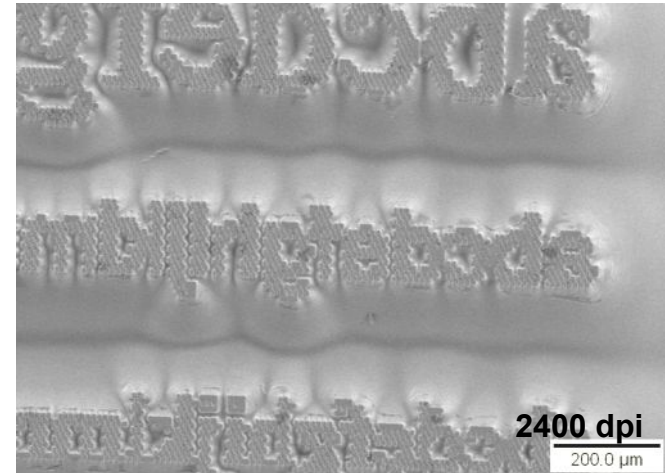
# Powerful plate-making productivity tools
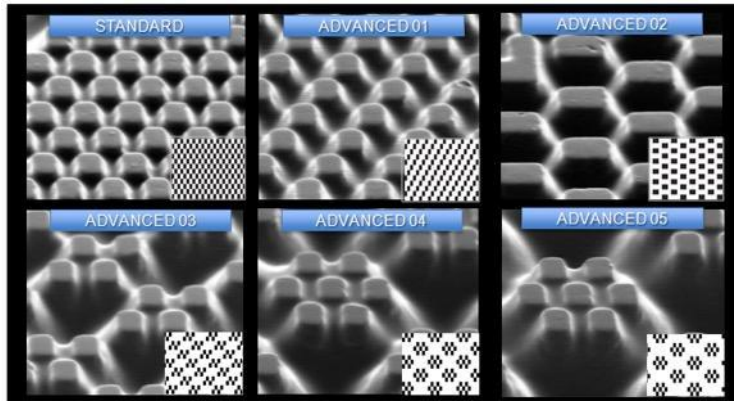




**NX Tags** – a powerful feature that enables multiple surface patterns to be applied by prepress operators to a single plate layout – enabling, with the use of a single plate type, the efficient imaging of plates customized by print condition for maximum on-press cost savings.
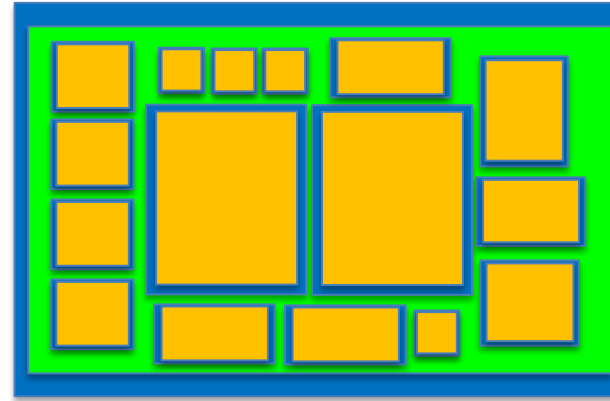
**Solvent Saving Invert Waste Feature** – software features that help drive efficiencies with 20-40% reduction in washout solution usage. TAP user can selectively invert trim waste on a layout preset basis and specify a border around the TIFF file that is not inverted.

**Cutting Table Support – COMING SOON**

Integrated support for Zünd and Kongsberg cutting tables further improving plate-making productivity.
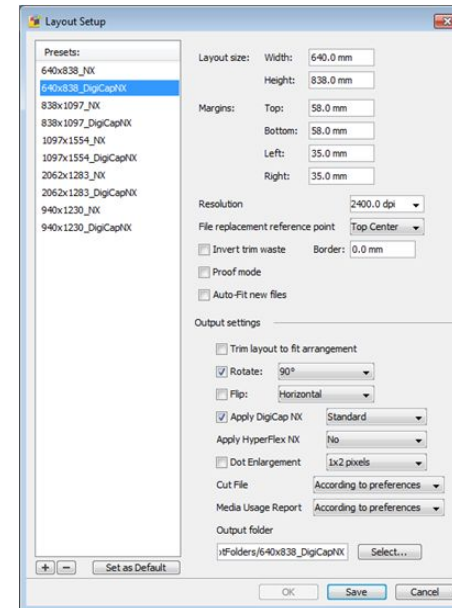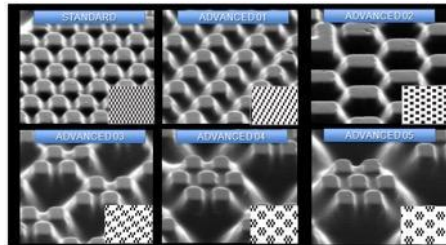
# NX Tags

## Benefits

- Pre-press remains in control of usage
  - NX tag instructions are automatically executed when layout is output

## How it works

- Individual screened 1 bit TIFF files can be tagged with instructions for
  - DIGICAP NX patterns
  - HYPERFLEX NX for light valve pixels in highlights
  - Dot Enlargement to enable highlight cleanup feature and threshold for dot size

- NX tags allow different files in a layout to have different DIGICAP NX patterns, HYPERFLEX NX and Dot Enlargement settings

*Easy Controls* –
*TAP Software includes easy controls for defining and using NX tags*



| Original File Name | DigiCap NX tag | HyperFlex NX tag | Dot Enlargement tag | Saved file name |
|---|---|---|---|---|
| test.file.C.tif | Standard | No | 1x2 | test.file.0SN12.C.tif |
| test.page.K.tif | Advanced01 | Yes | 2x3 | test.page.01Y23.K.tif |
| flood.page.W.tif | Advanced04 | No | No | flood.page.04N00.W.tif |
| demo.file.M.tif | None | No | No | demo.file.00N00.M.tif |

*Preferences* – *job settings can be saved as preferences in TAP software to improve productivity*

POWERED BY
**NX** ADVANTAGE

# Invert trim waste

## Benefits

- Reduces solvent usage by 20-40%
- Environmental benefit
- Cost savings

## How it works

- The area of the layout not occupied by TIFF files is inverted when the layout is output.
- This results in the unused area being exposed on the Thermal Imaging Layer and the plate material being crosslinked.
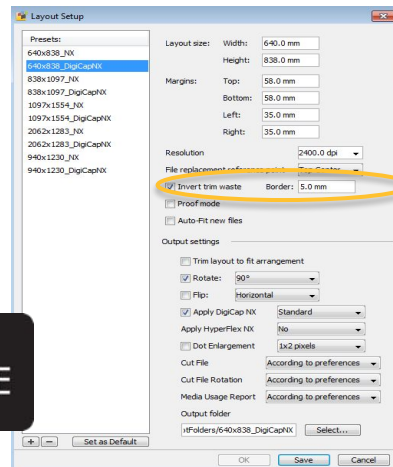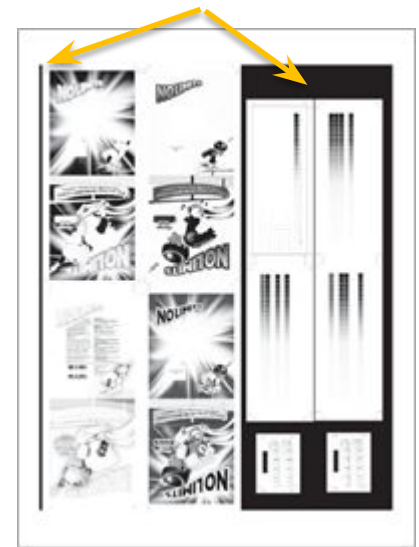- Therefore, the unused area won't be washed out when the plate is processed.

**Original Layout**
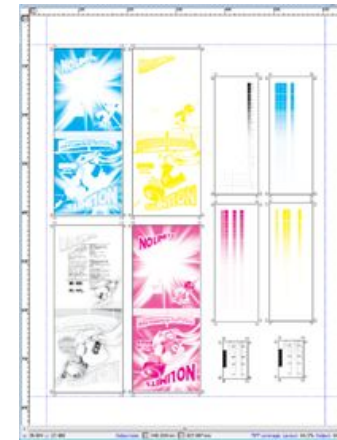


**Invert Waste OFF**



**Invert Waste ON**





POWERED BY
NX ADVANTAGE

# FLEXCEL NX System '16
## Support

# Kodak is here to help

## Service and support to maximize your business

### A full range of Implementation Services

- Program is implemented by our team of flexo experts
- Includes optimization of your NX system and training on FLEXCEL NX best practices – prepress, plate making and printing.

  – We help you take advantage of the latest NX upgrades and features and optimize them for your environment and your needs

  – Designed to increase your productivity and efficiency

  – Proactively monitor your system and practices to identify process drift and get you back on track

### Certification Programs

- Plate making

  – Ensure the customer process is within specification and operating correctly

  – Train the operators on the latest procedures and troubleshooting techniques

- Press

  – Help the customer to gain full benefit of NX Advantage

# A full range of services

**Helping customers make the most of FLEXCEL NX System '16**

- **Start up Assistance**
- **FLEXCEL NX Print Certification**
- **FLEXCEL NX Plate Certification**
- *Implementation Services*
- **Peak Performance Check-up**
- **Plate Making Process Review**
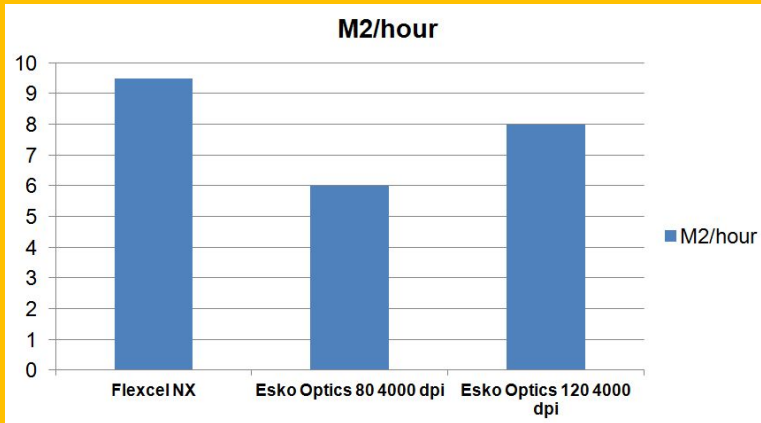- **NX ADVANTAGE Optimization**
- **Press Optimization Support**

**In platemaking**
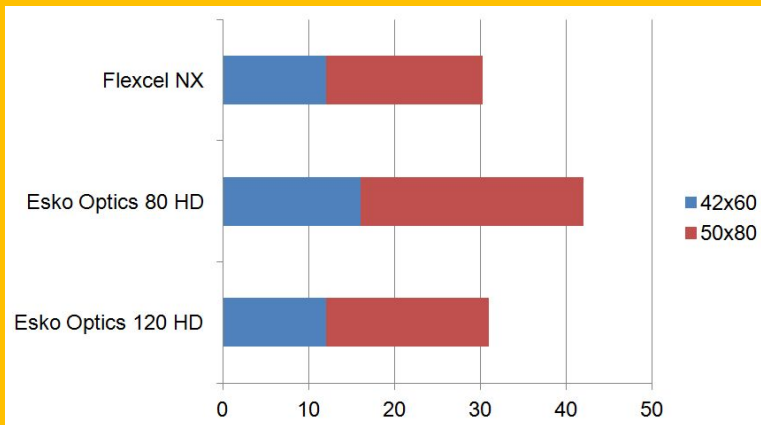**At the press**

# The competition

# FLEXCEL NX – Fastest High Definition Imaging



FLEXCEL NX is the fastest imaging time in the industry and always high definition



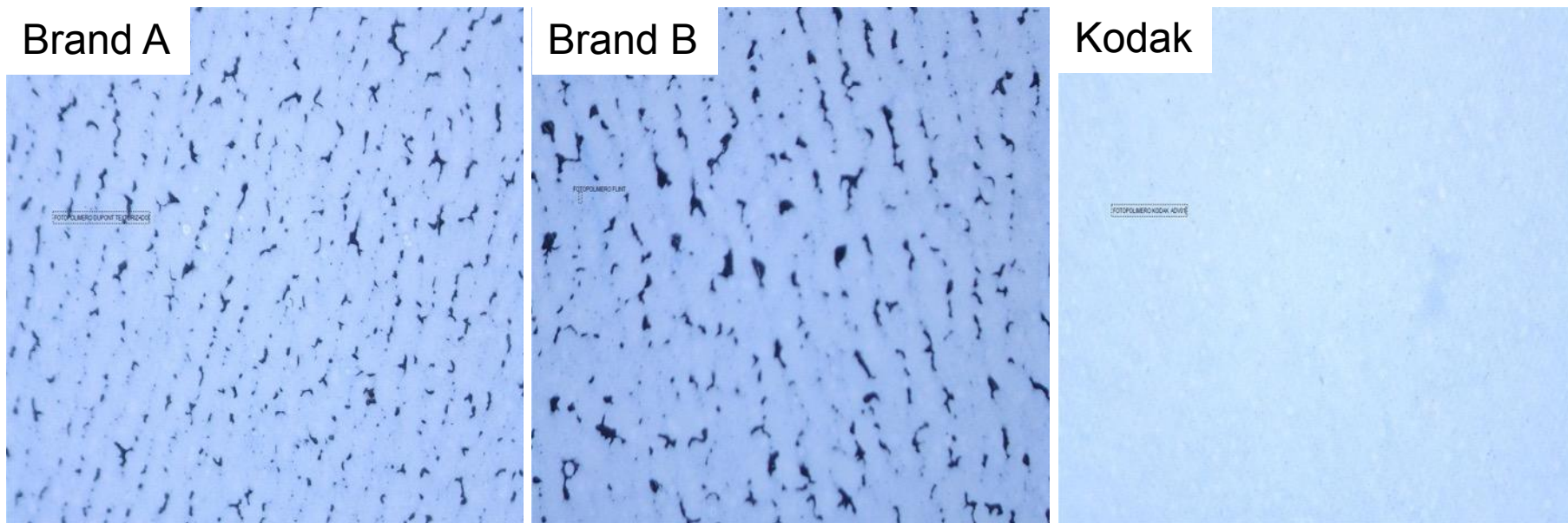Even with lamination time, NX is still the fastest system

**No expensive hardware upgrades and no extra plate types**

# Kodak Micro Engineered Surface Patterns
# better ink laydown, lower ink weight

**Wide Web Flexible Customer**
**White Ink Print Test @ 200X**
**Competitive "built-in" Flat Top Dot Plates versus Flexcel NX System '16**

Test: April 2016

Brand A

Brand B

Kodak

**Customer printed plates simultaneously side-by-side**

| Brand A | Brand B | Kodak |
|---------|---------|-------|
| 0.83 Gm$^2$ | 0.79 Gm$^2$ | 0.67 Gm$^2$ |
| | | 20% less |

# Kodak Micro Engineered Surface Patterns better ink laydown, brighter colors

**Wide Web Flexible Customer
Cyan and White Ink Print Test @ 50X
Competitive "built-in" Flat Top Dot Plates versus Flexcel NX System '16**



Brand A

Brand B

Kodak
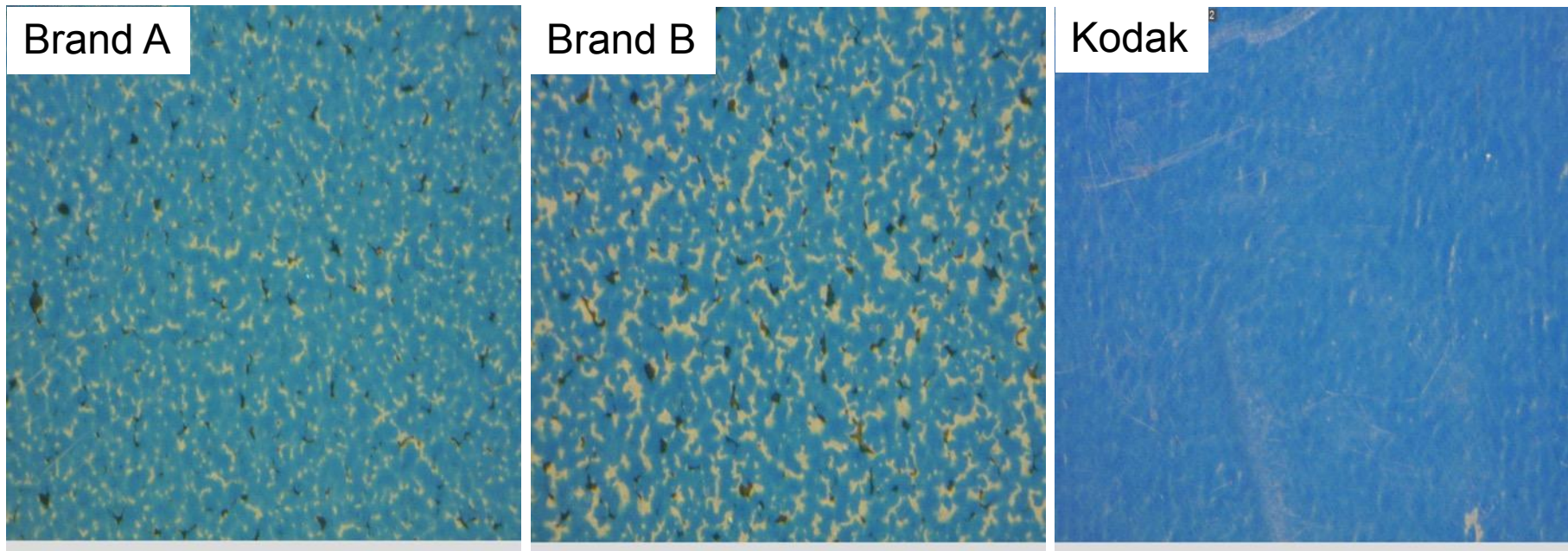
**Customer printed plates simultaneously side-by-side**

When you see **BLACK** it is holes in the **WHITE**
When you see **WHITE** it is holes in the **CYAN**
When you overprint another color it will be a dirty color
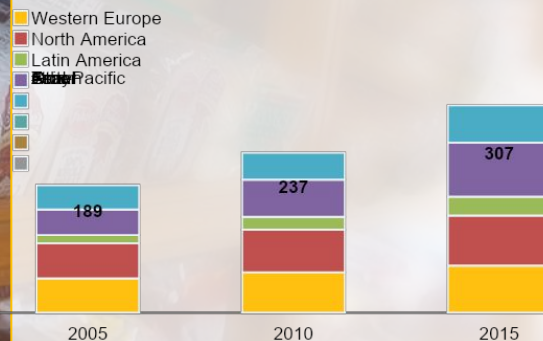
Questions?

# Appendix

# Packaging growth: opportunity for flexo
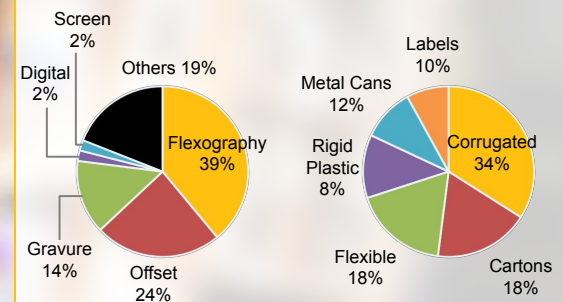
## Packaging Industry - $250b

- Fastest growing and sustainable print market

- Highly fragmented value chain

- Ripe for technology substitution

- Kodak well positioned to lead digitization and drive integration

## Packaging Market Growth ($bn)

Primary Addressed Market: $1.1B

Legend:
- Western Europe
- North America
- Latin America
- Asia Pacific

| Year | Value |
|------|-------|
| 2005 | 189 |
| 2010 | 237 |
| 2015 | 307 |

## Packaging Market Breakdown

Pie chart 1:
- Flexography 39%
- Offset 24%
- Others 19%
- Gravure 14%
- Digital 2%
- Screen 2%

Pie chart 2:
- Corrugated 34%
- Cartons 18%
- Flexible 18%
- Metal Cans 12%
- Labels 10%
- Rigid Plastic 8%

# Industry needs

**Brand owners**



**Brand consistency**

**Purchasing flexibility**

**Design fidelity**
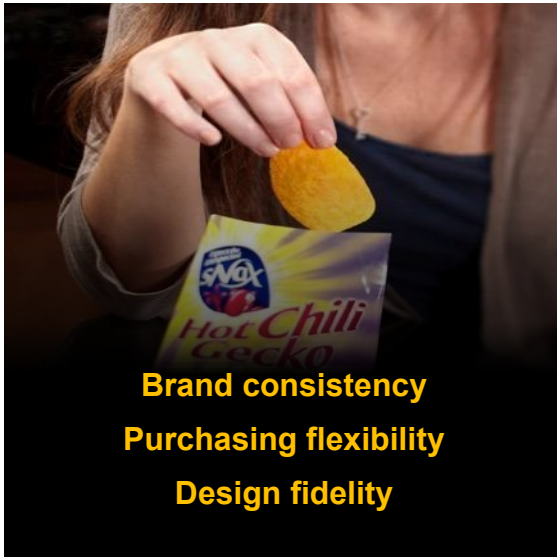
**Prepress service providers**



**Simplified Color Control**

**Printer/Converters**



**Productivity**

**Efficiency**
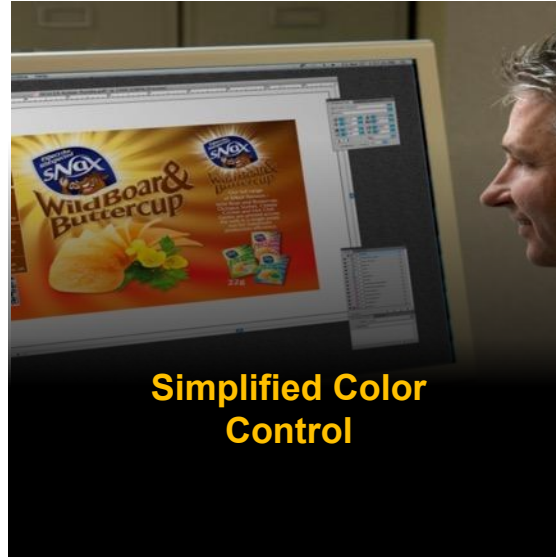
# Kodak's Flexo Packaging Portfolio

## Differentiated technology and solutions

**FLEXCEL** NX
System

**FLEXCEL** Direct
System

Media
Digital and Analog Flexo
plates, films and sleeves

**APPROVAL**
Media

**Miraclon
Letterpress**
Plates

**Production
Workflow**

**Backed by World Class Service and Support**

Packaging Printing - Corrugated, Folding carton, Flexible,
Labels

*JIT production, shelf-appealing decoration*

# **Flexcel** NX System

## Addressing needs of core value chain

| Efficiency |
| --- |
| Productivity |
| Consistency |
| Fidelity |
| Flexibility |
| Complexity |

- Increased yields for printers; reduced waste, greater efficiency

- Consistent plate making and printing; predictable on-press performance

- Print with fewer colors

- Image reproduction to rival offset and gravure

- Maximize on-shelf impact for consumers

- Simplify prepress

# Value in the pressroom

### Average cost model for a $10M flexo printer

| 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 Make-ready | 13.0% | $1,300,000 |
| Press Run Time | 29.0% | $2,900,000 |
| Press Run Substrate / Ink | 29.0% | $2,900,000 |
| Other Outside | 1.0% | $100,000 |
| Finishing | 2.5% | $250,000 |
| Interest Expense | 2.0% | $200,000 |
| Profit | 2.9% | $290,000 |

70%

*Jim Aust – Industry Consultant*

Press room savings are so substantial that they mitigate plate spend.

Up to 20% savings in make-ready waste

Up to 10% increase in press utilization

Up to 10% savings in ink usage

*Actual cost savings depend on application, substrate and production operation*

# **Flexcel** NX System: Simple integrated solution

**Choice of five output sizes**

**Flexcel** NX Wide 5080
System

**Flexcel** NX Wide
System (4260)

**Flexcel** NX Wide
3547 System

**Flexcel NX** Mid
System

**Flexcel NX** Narrow
System

**Versatile media portfolio**
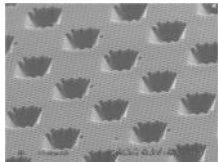
**Flexcel** NXH Plate

**Flexcel** NX Thermal Imaging Layer

**Flexcel** NXC Plate

**Added-value print application software**

Advanced **DigiCap** NX Patterning with Advanced Edge Definition
**Hyperflex** NX

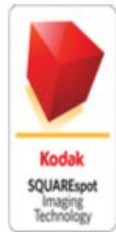**4800 x 9600** High-Resolution Imaging capability (when required)
**Spotless** Printing Solution
**Maxtone** SX Screening

# **Flexcel** NX System
# Differentiated technology delivers customer value



**Disruptive technology platform**

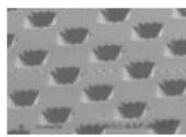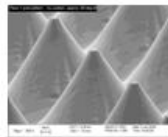Kodak SQUAREspot Imaging Technology **+** High resolution materials **+** Unique lamination process **+** Differentiated software solutions

- High resolution thermal imaging
- Specialized coating
- 20+ years and $300m investment
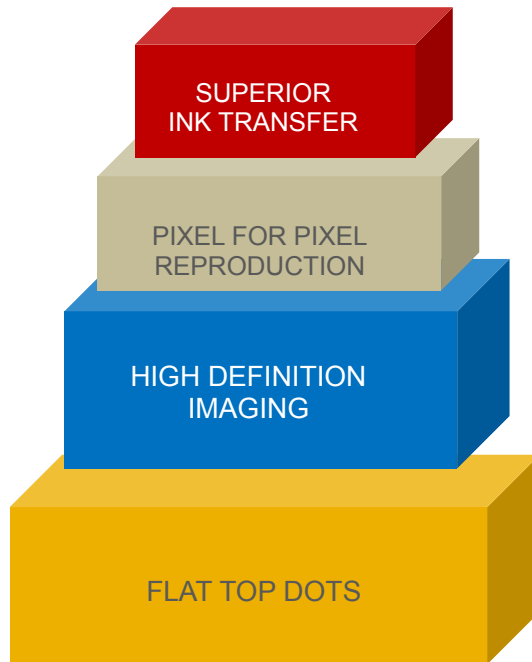- Highest resolution flexographic plate making process

**Customer value**

- Stability
- Consistency
- Image reproduction
- Ink transfer

Reduced total cost of ownership

# Industry-changing technology

**Kodak Flexcel** NX System



SUPERIOR INK TRANSFER

PIXEL FOR PIXEL REPRODUCTION

HIGH DEFINITION IMAGING

FLAT TOP DOTS

**Results:**

- ✓ Up to 10% reduction in ink usage
- ✓ Image reproduction that rivals offset and gravure
- ✓ Consistency and predictability never experienced before in flexo
- ✓ Up to 20% reduction in press setup time and waste
- ✓ Up to 10% increase in press utilization

# A full Portfolio for Corrugated Printing
## Differentiated solutions for pre-print and post-print applications

**DIGITAL IMAGING SYSTEMS**

FLEXCEL NX Wide and
FLEXCEL NX Wide 5080 Systems

**DIGITAL SHEET PHOTOPOLYMER**
FLEXCEL NXH Plates
FLEXCEL NXC Plates

**ANALOG SHEET PHOTOPOLYMER**
FLEXCEL SRH, SRM, SRC / SRC-K Plates
DITR Film

**LIQUIID PHOTOPOLYMER**
DITR Film