

So many Parameters to control: Which one should I tackle first?

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Die FlexoKompetenz.

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Central Impression Cylinder Press



- Sleeve press, direct drive, 8 colours, 1285 mm working width, max. 500 m/min press speed
- For scientific press experiments (on behalf of our clients)

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Flexo Plate Making

- Latest generation available with full platemaking processing system that allows both thermal and solvent-based plate processing



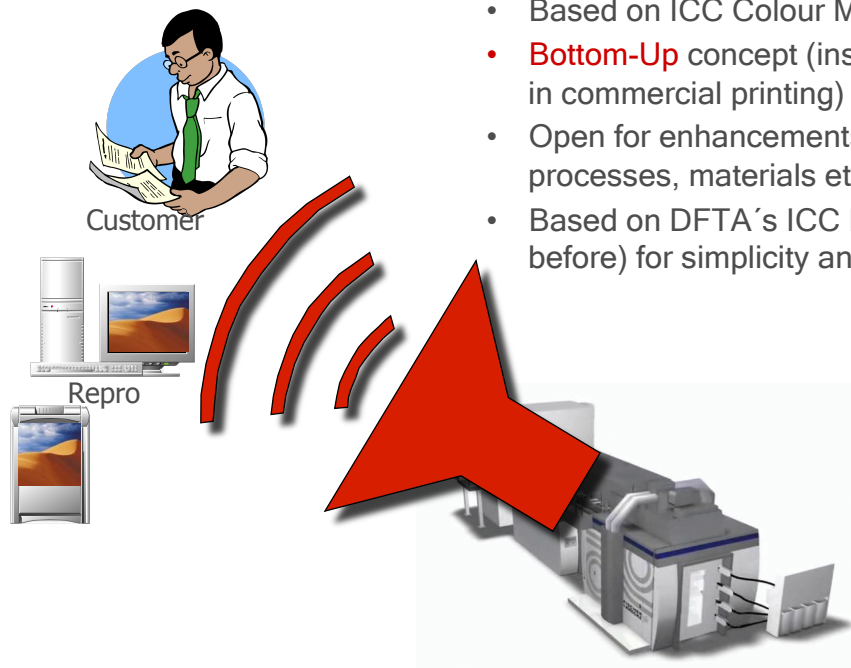
Seminars, Workshops & Training Courses



- (Basics of Flexography)
- Advanced Flexography
- Flexo Corrugated Printing
- Tailored Courses for Flexo companies
- Dedicated special courses to be established in due course



Open Packaging Printing Process Standard



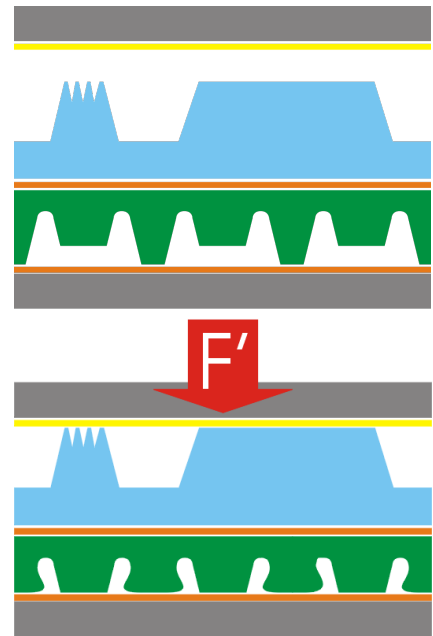
- Based on ICC Colour Management profiles
- **Bottom-Up** concept (instead of Top-Down as in commercial printing)
- Open for enhancements of printing processes, materials etc.
- Based on DFTA's ICC Profile Generator (see before) for simplicity and ease-of-use

So many Parameters to control:

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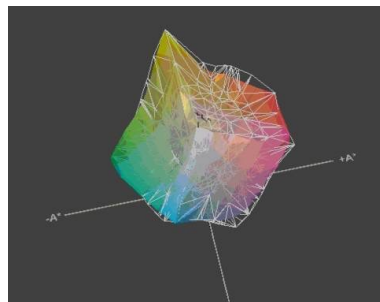
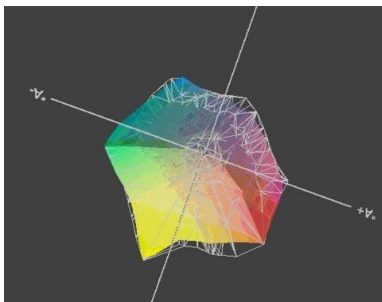
Enhancement of Flexographic Printing

- We develop new ideas, tools and components!
- This example: new printing plate sub-structure for enhanced operating window and improvement of combination jobs (solids and halftone)



Colour Management Profiles

- Making of ICC Profiles for various print situations using VERY LIMITED colour data: Will be of interest for
 - Packaging printers using process inks that deviate from ISO standard hues (=true for most packaging printing inks) and/or
 - Packaging printers not wanting to print ICC Colour Management Charts for all of their many print situations



Print Control & Signal Elements

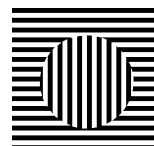


- AKE 1.0: Precision of unwinding of printing plate on substrate
- RWBK 1.0: Impression engagement indicator for Anilox-to-Printing Plate-Impression
- KE 1.0 & 2.0: Compact impression engagement indicator

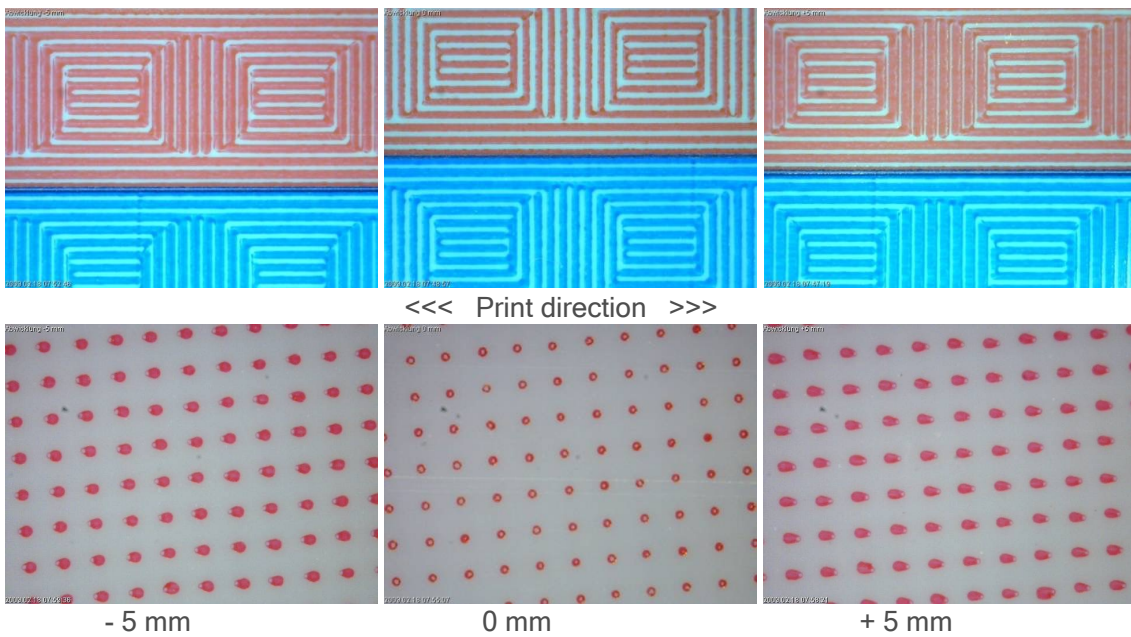
Signal Elements for the Printer

DFTA AKE 1.0

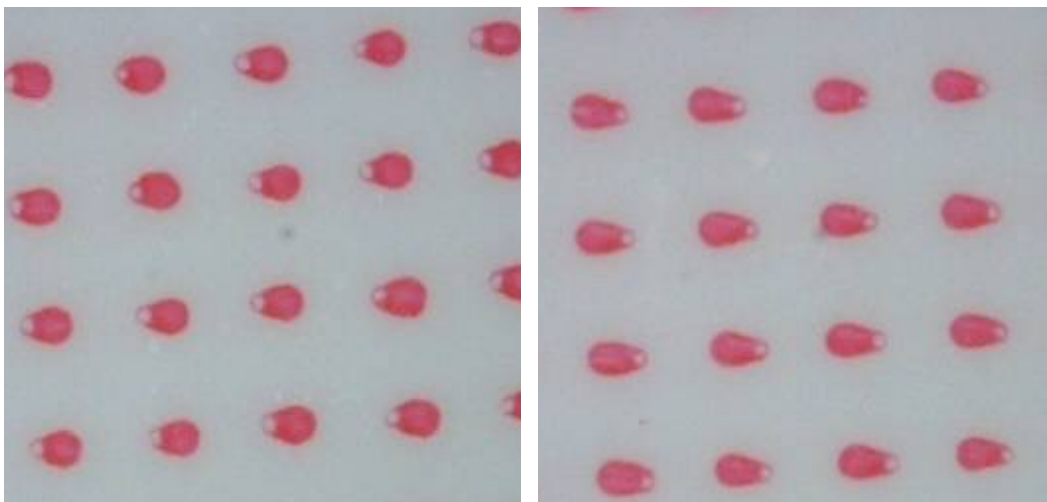
- Signal element for harmonic **cylinder unwinding (Slur)**
- Helps to improve on print quality and minimises printing plate wear
- Original size: 3 x 3 mm at standard resolution
- Thin lines show unwinding problems
- Evaluation strictly visual



Signal Elements for the Printer



At a closer look ...

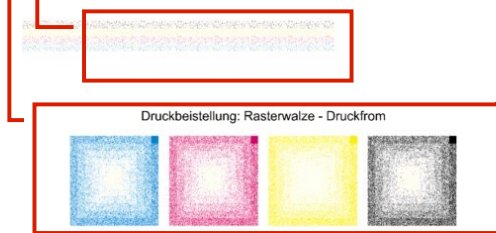


- „Halo“ points to opposite directions

Signal Elements for the Printer

DFTA RWBK 1.0

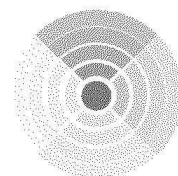
- Signal element for impression setting between **Anilox roller and printing plate**
- Shows established impression and visualizes bouncing >>> **helps to optimize the job setup**
- Microscopic structures
- 1. meant for pre-experiment (32mm x 32mm at standard resolution)
- 2. functional element: approx. 1x1 mm, or stepped as "support bar"



Signal Elements for the Printer

DFTA Kombi Element 1.0

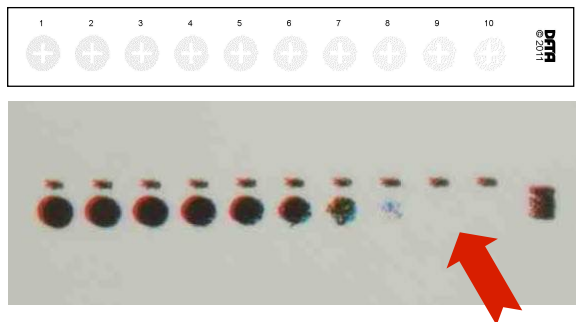
- Signals both **Anilox-to-Plate** and **Plate-to-Substrate** impression settings at once
- Original size (without DFTA Logo): 2.5 mm in diameter at standard resolution



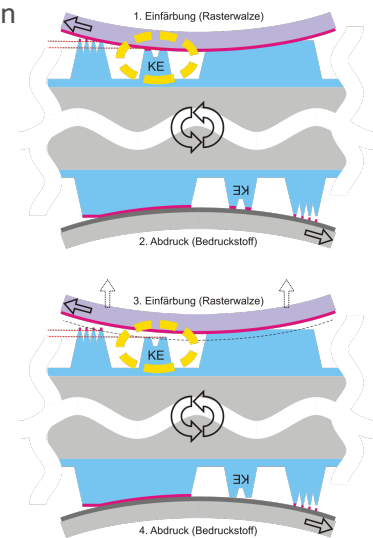
Signal Elements for the Printer

DFTA Kombi Element 2.0

- Signals both **Anilox-to-Plate** and **Plate-to-Substrate** impression settings at once
- To be used instead of microdots for mounting
- If used correctly it **disappears** from the printed picture



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New Signal Elements for the Printer



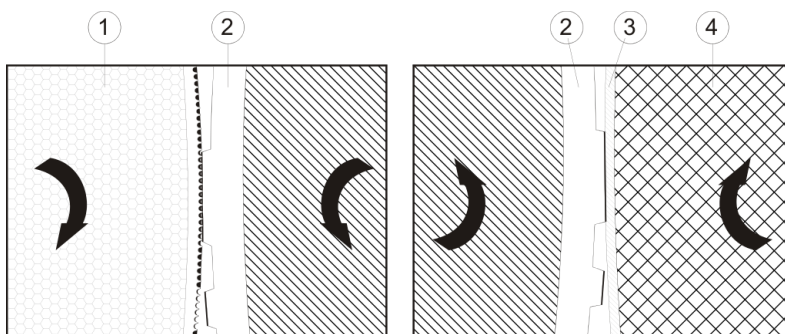
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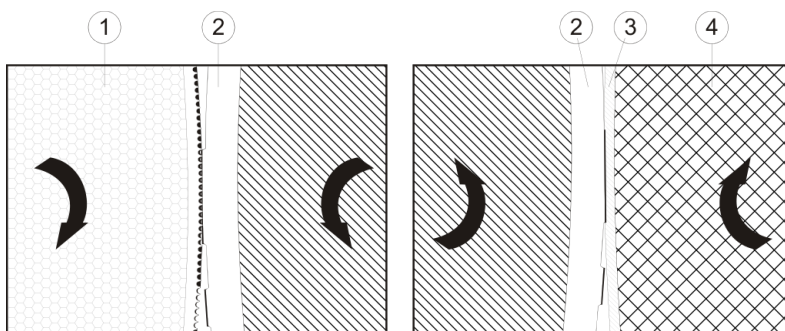
„DFTA-Planoflex“

- New Flexographic Application with a radical change!
 - **Very shallow relief**: approx. 120µm instead of >500µm, very precisely guided through particular variation in plate making
 - Differentiation of printing vs. Non-printing parts happens during inking
 - Particular impression engagement settings secure long-term stability and consistency of printing with **no filling-in of reverses**
 - Impression engagement between printing plate and substrate to be established for full contact (like in **Offset Lithography**)
- Undergoes final stages of development, further practical applications to follow

„DFTA-Planoflex“ in Cross-Section



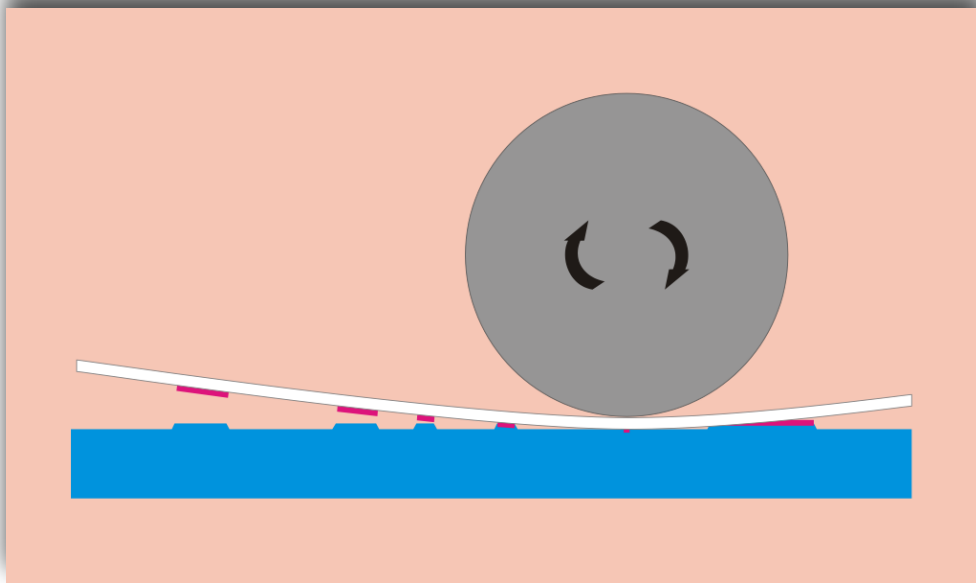
Pic. 1: State of the art (Flexography without Planoflex)



Pic. 2: "Planoflex" Principle

- Legend
- 1: Anilox roller
- 2: elastic print forme
- 3: substrate
- 4: impression cylinder

„DFTA-Planoflex“ in Principle



Grey Balance Evaluation

- Grey balance
 - is extremely important corner stone in multicolour printing
 - has been neglected too much with colour management
 - 4/7-Patch-System enables
 - Visualisation of faults in the balance (visual)
 - Extremely precise calculation of corrective action
 - Adhering to grey balance enables/eases the use of design files across various printing processes - a demand by print buyers!
- © CyFOS von DuPont Cyrel*



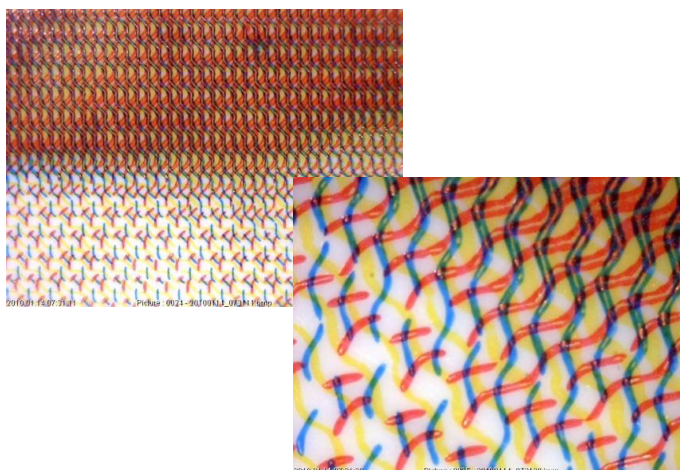
All-in-One Concept



- 1 moderately sized test target (160 patches) produces all the information we need!
- Evaluation with scanning Spectrophotometer (iOne)
- Delivers all relevant pieces of information
 - Dot Gain and compensation
 - Total Area Coverage (TOC)
 - Gray Balance
 - Colour Profile Data (ICC)

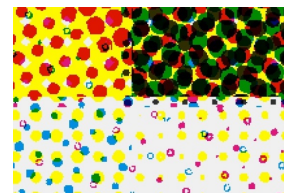
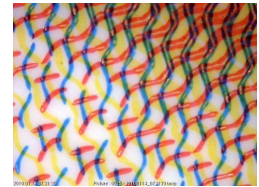
DFTA Halftone Screens

- Is meant to evaluate further potential for improvements in this arena
- Has been used for Proflex 2009 and further projects with extraordinary success



Alternative Halftone Screens

- Were originally meant to discover further quality potentials
- Have been used in many customer projects
- Are being used in our reference target for evaluation of consistency and reproducibility
 - Sheet-to-Sheet ~, Start-to-Finish ~ and Job-to-Job ~
- **V1.0: Line Screen**
 - Mechanically particularly robust
 - Does not need high screen Anilox rollers to work
- **V2.0: Ring Screen**
 - Superb highlight and quarter tone gradation
- **V3.0: Circular Screen**
 - Most detailed highlights and linear gradation
- **V4.0 & 4.2: Circular Screens**
 - Even better highlight differentiation and smoothest vignettes
- All versions come with:
 - 63 L/cm @ 2540 dpi
 - No Bump-Up required (built in)



Practical Examples



Summary

- Training courses for Flexo by DFTA: Repro, Plate Making, Printing
- Press Trials @ DFTA Technology Center (DFTA-TZ)
- Center of Excellence in Flexo **Plate Making & Flexo Printing**
- Developments for Flexo:
 - Compressible **substructure**: better quality @ greater latitude
 - **Colour Profile** from **Control Strip**
 - Control & Signal Elements
 - Harmonic unwinding (AKE)
 - Impression engagement of Anilox (RWBK)
 - Combination impression engagement (**KE 1.0 and KE 2.0**)
 - DFTA **Planoflex**: shallow relief - like Lithography
 - **Grey Balance** evaluation for better Colour Profiles
 - **All-in-One**: delivers all important information
 - DFTA Halftone Screens optimize quality & cost: **DFTA Screen V4.2**

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