

What Flexo needs to become a truly industrial printing process combined with Flexo Novelties from the Market and from Drupa 2016

Much Food for Thought!

from
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Intro

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Part 1

What Flexo needs to become a truly industrial printing process

Flexography 4.0

What we need to be capable of in order to ensure Flexo's bright future!

Print even more targetable & reproducible



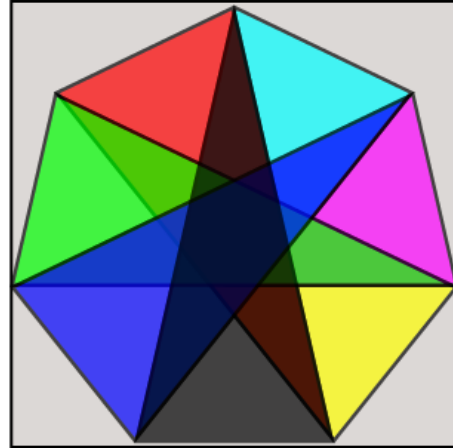
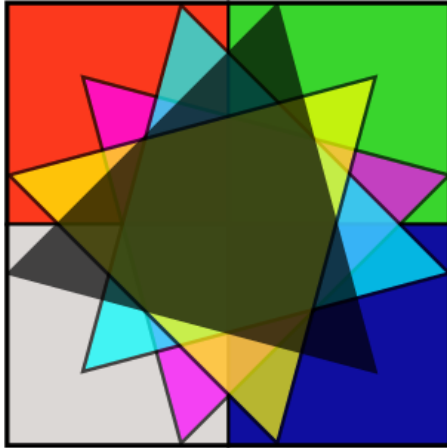
We are aiming the right way!

- New Fotopolymer printing plate materials stabilise plate making
- Knowledge and science around print parameter is much advanced
- Cross-linking between PrePress and Print Shop to be improved by upcoming proposal *

* Flexo Colour Standard

We need to master Multicolour Separations!

- 4C++++ vs. 7C+



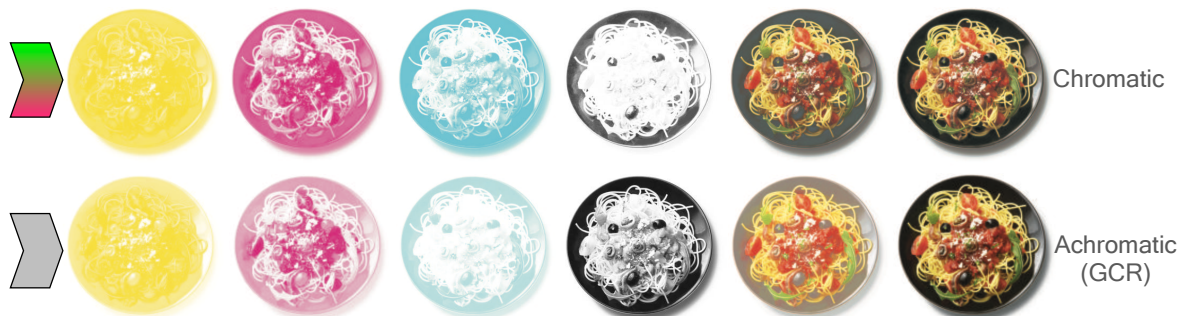
Which Type are you?

- „Simulator of ex-Special Colours“ or „Foto-Enhancer“?



Colour Separation: Achromatic (GCR)

- Higher demands for print shops:
 - High K density
 - Nonetheless good press characteristic with fade-out to 0
- ... Large benefits if successful:
 - Reduced consumption of chromatic inks
 - Print consistency stabilized
 - Better basis for Multicolour Separations

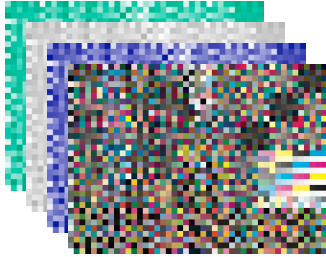


Colour Register

- Imperative for 7C+ printing!
- Automatic or semi-automatic plate mounting may help??
- Or else use continuous (rotary processed) print formes?

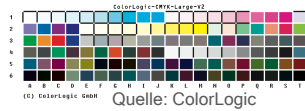


Multi-Channel Colour Management



- 7C Colour Management = (4C Colour Management)³?

Will NOT work!



- Clever simplification required
- Spectral profiling will help

Inline-Colour Measurement in the Printing Press



- Mostly for web printing
- Close connection with 100% Inspection system required

Automation and Shortening of Make-Ready

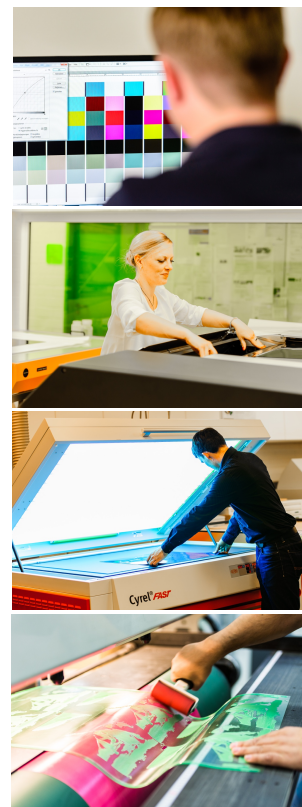
- Automatic Make-Ready or choice of settings?
 - Print formes
 - Anilox rollers
 - Printing inks ...
- Shorten Make-Ready
 - Perfect special colour recipes established outside the press!
 - Minimise ink changes
 - ... only change print formes!
 - ...



Fixed Colour Palette (Multi Colour Separations)

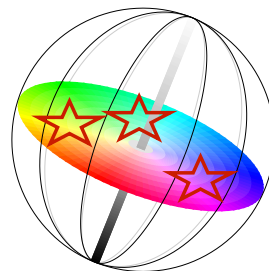
PrePress Cost

- **Repro: Image retouching**
 - Re-Separation of unsuitable photo files
 - Making design files „Flexo-ready“
 - (DFTA Planoflex and DFTA Screens *)
 - **Plate Making**
 - Raw materials
 - Processing
 - Imaging
 - Exposure
 - Wash-out & Drying
 - (DFTA Planoflex *)
 - Plate mounting
- * Enable savings



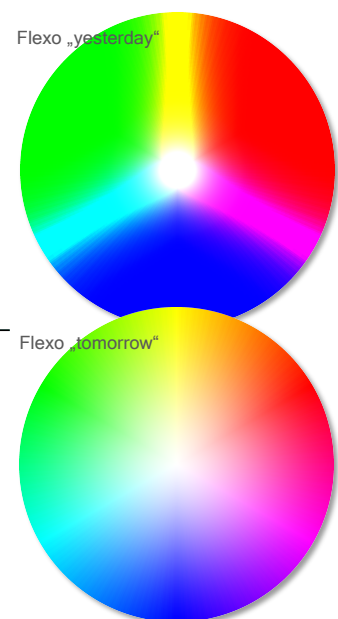
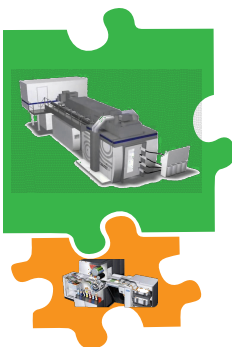
Print Quality like in Offset

- Flexo colour gamut \geq Offset! (larger!)
- But : the truly important “roadworks” is in the highlight tints!
- We need to print a true „1% tint“!



Seamless docking of Digital Packing Printing

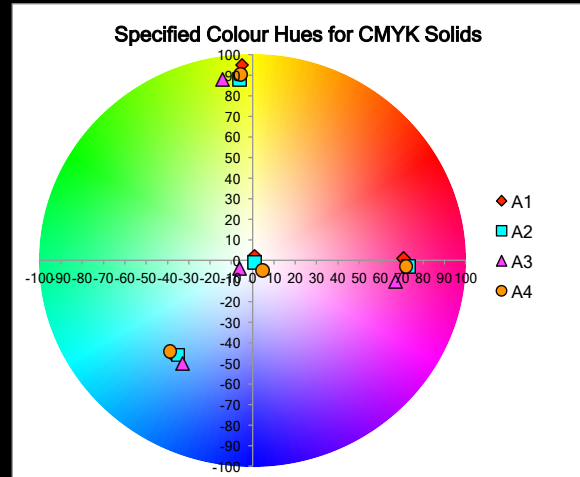
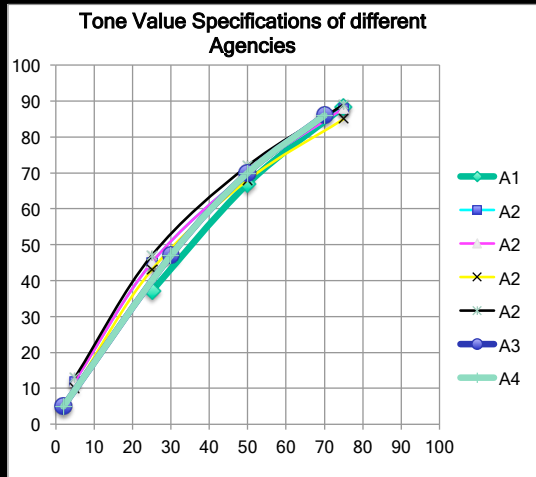
- Direct use of digital design files
 - NO extra colour separation
 - NO time consuming retouching
 - Colour separations like in Digital Printing: CMYKRGB(WL)
 - ...
- Colour builds with faint process colour tints -> need true „1%“ tint



This is what happens if there are no rules!

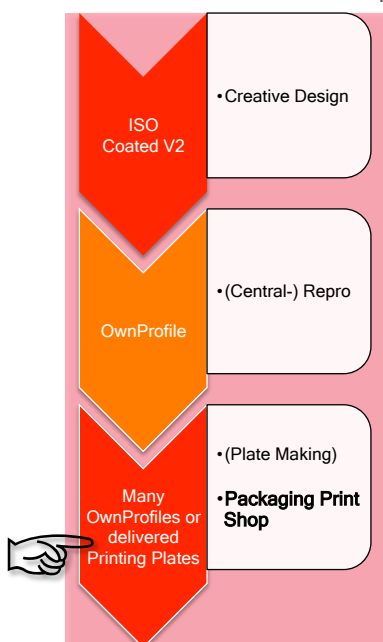


- Different directives / specifications (!) of Agencies / Central Repro Houses to Flexo Print Shops:



Colour (Communication) Standard?

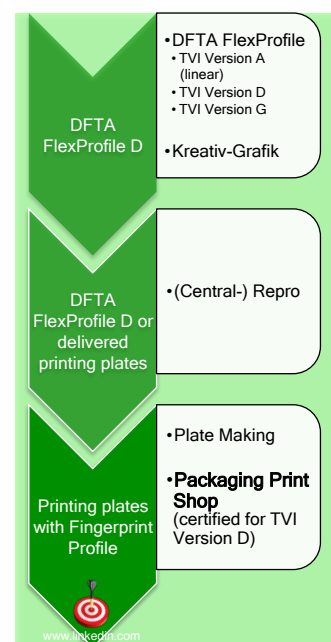
Current Dilemma for Print Shops



👉 NOT this, but THIS way 👉

- Print shop does not have to adopt several print standards dictated by different Central Repro houses!
- Even if Central Repro house enforces delivery of printing plates, they will be made more Flexo adapted than today
- Print shop retains possibility to work with own/preferred plate making house

Potential DFTA Flexo Standard



Part 2

Flexo Novelties from the Market and from Drupa 2016

This is what the market demands and / or what Drupa 2016 has shown us

Drupa: Digital Presses, Digital Presses ...

- Manifold digital presses, but only very few suitable for Packaging!
- **Corrugated printing** perhaps most advanced
- No adequate/broad offering for film printing
- Inkjet takes the lead
 - Bobst
 - EFI
 - Durst, etc.



- **Fixed colour palettes!**
- **90+ % of Pantone colours**

Drupa: Bobst M6 & others

- **Automation!**
- Very quick job change-over through
 - Automatic change of printing plate cylinders
 - Automatic register correction
 - Automatic impression setting



- Optional inspection system verifies complete curing of UV-Inks
- **Fixed Colour Palette:** no special colours (target)
- Counters **Digital Printing!**

www.bobst.com

Drupa: Flexo Plate Making

- CtF: Inkjet system for film imaging
- Thermal plate development
 - DuPont: new FAST processor
 - MacDermid
 - Flint
- Automated processing
 - Esko



www.dantex.com



www.dupont.com



www.esko.com

Drupa: Flexo Plate Materials

- (Auto) Flat-Top photopolymer plates for better process control

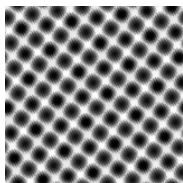
- Kodak
- DuPont
- Flint
- MacDermid



www.flintgrp.com

- High print quality with easier plate making
 - Minimal dot sharpening in plate making
 - Less or no “reverse effects” in highlight tonal range
 - Very good print quality even with “ordinary” halftone screens
- Engineered (structured) surfaces improve ink transfer

Market: PrePress



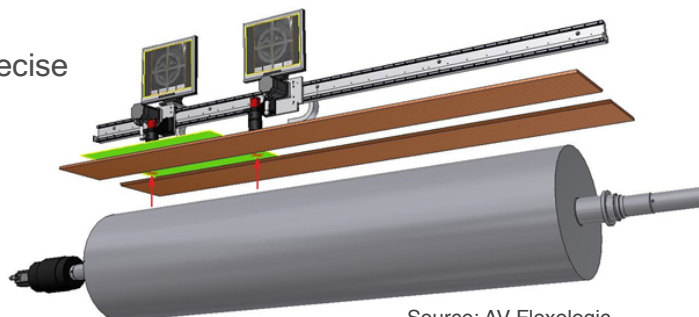
- **DFTA Screens** soon part of a professional PrePress system?
 - Automation ++
 - Performance +
 - Further development ++
- Almost linear print gradation => key to Offset-like print quality
- Versions
 - ✓ V4.2: Round-Top
 - ✓ V5.x: (Auto-) Flat-Top
 - V6.x: very innovative dot placement policy (under development)
 - V7.x: probably FM

Market: Flexo Plate Making

- Ever **shallower relief** depth in the market
 - **Quicker and more cost effective** processing of printing plates
 - Slightly shorter Main Exposure
 - Quicker wash-out, less solvent consumption, less swelling
 - Significantly shortened drying time
 - Better anchoring of halftone dots
 - Less risk of breaking off
 - Less dot gain
 - Better long-term stability of print result
 - Better print quality
- Thinner printing plates
 - See above, but with extra bonus

Market & Drupa: Plate Mounting

- Cushion mounting tapes: **Snap-On-Technology**
 - Tesa
 - Lohmann
- Semi- or fully **automatic mounting machines**
 - Vendors: AV Flexologic, Biessse, Heaford
 - Less operator dependent
 - Quicker
 - More precise



Source: AV Flexologic

Market: Make-Ready of Printing Presses

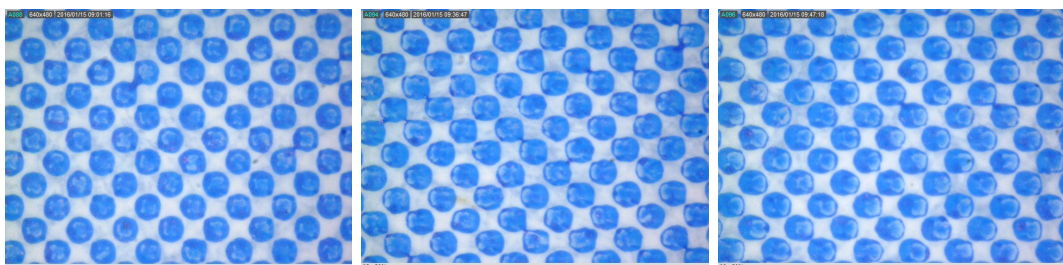
- Need for more immediate match between special colour target and printed colour in make-ready
- RK Proofer
 - DFTA-TZ tries to use gravure version with photopolymer plate
 - Target: better match of Flexo characteristics
 - Trials still going on



Source: RK

Market & Science: Harmonic Cylinder Rolling?

- Proven to be VERY contemporary!
- Please also read my original article (NOT the Version in Flexo- & Tiefdruck 4-2016!)
- Faulty cylinder rolling often difficult to pick up but VERY quality effective!
- Dependence on durometer and photopolymer type confirmed



Market & Science: Colour Measurement

- Evaluation of different measurement geometries conducted at the DFTA-TZ

- **Spherical** geometry very hard to use (though advantageous with very glossy substrates)



- **45°/0°** geometry is usually the winner

- But ... (use of sphere-device in CM?)



Source: X-Rite

Market & Drupa: Printing Press & Components

- New ink supply system introduced by W&H at Drupa 2016



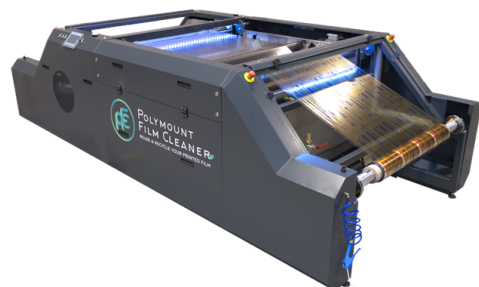
- Anilox Rollers
 - New “metallic” rollers TeroLux by TLS, promising ...
 - Better ink release
 - Print longer more consistently
 - Easier cleaning
 - First positive results achieved at DFTA-TZ

Market & Drupa: Printing Inks

- Low migration
- Pure PU system advertised by Huber Printing Inks
 - To be used for lamination
- **N-Propanol** instead of Ethanol?
 - Almost no retarder necessary (?)
 - Less ink consumption (?)
 - Less residual solvent in package (?)
 - Better print quality! (?)
 - Still needs to be verified by DFTA-TZ

Drupa: Film Recycling

- Wash-off printing ink from scrapped films, re-use for make-ready
 - Cleaning machine by Polymount
 - Cleans printed films
 - Cost
Approx. 200.000€ cost of ownership
+ approx. 20.000€ consumption p.a.
- Clean film scrap and make new pellets: Cadel Deinking



Summary: Trends, Needs, Novelties

- PrePress
 - ✔ DFTA Screens commercial?
 - ✔ Print Quality like in Offset
 - ✔ Seamless docking of digital Packaging Printing
- Plate Making
 - Even flatter reliefs
 - Thinner printing plates
 - ✔ “Auto-Flat-Top” printing plates
 - ✔ Automated plate processing
- Mounting of printing plates
 - ✔ Improved cushion mounting
 - ✔ Automatic or semiautomatic mounting machines
- Press Make-Ready and Handling
 - Proof prints with RK-Proofer
 - (Harmonic) Rolling of press cylinders
 - ❓ Colour measurement
 - ❓ Colour standard for Flexo?
- Printing Presses & Printing Inks
 - ✔ W&H: new ink supply technology with lesser demand
 - ✔ New Anilox rollers e.g. TLS
 - ✔ PU-based printing inks
 - ❓ N-Propanol to replace Ethanol?
 - ✔ Automation of printing presses
- Cost Savings
 - ✔ New cleaning machine for used films



And my Last Point is ...

DFTA AWARD 2017

- Open for Entries!



Winners of the DFTA AWARD 2015

Thank you for listening!

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