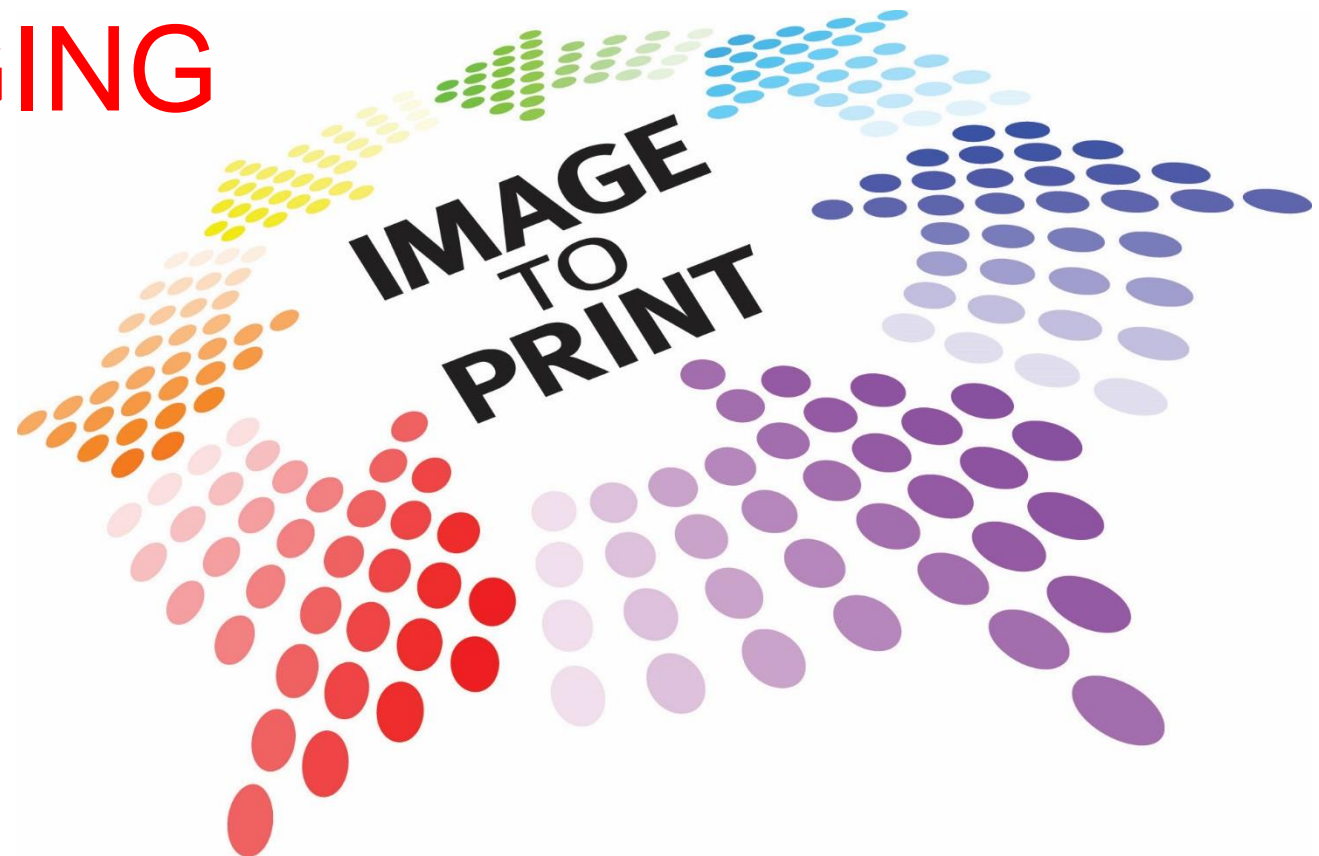


PRINTING TECHNOLOGY & INNOVATION DAYS FOR FLEXIBLE PACKAGING

Rajkot, Gujarat, India
19/20 September 2018



PRINTING TECHNOLOGY & INNOVATION DAYS FOR FLEXIBLE PACKAGING

HOSTED BY:

Janoschka



PRINTING TECHNOLOGY & INNOVATION DAYS FOR FLEXIBLE PACKAGING

HIGH QUALITY & EFFICIENT FLEXO PRINTING- Guidance and Support

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Agenda

- Flexo Process- Solution for Challenges
- HD flexo printing – what is it about?
- Changing requirements for printing inks
- Siegwerk's latest developments for flexo printing



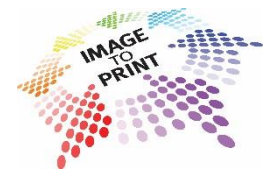
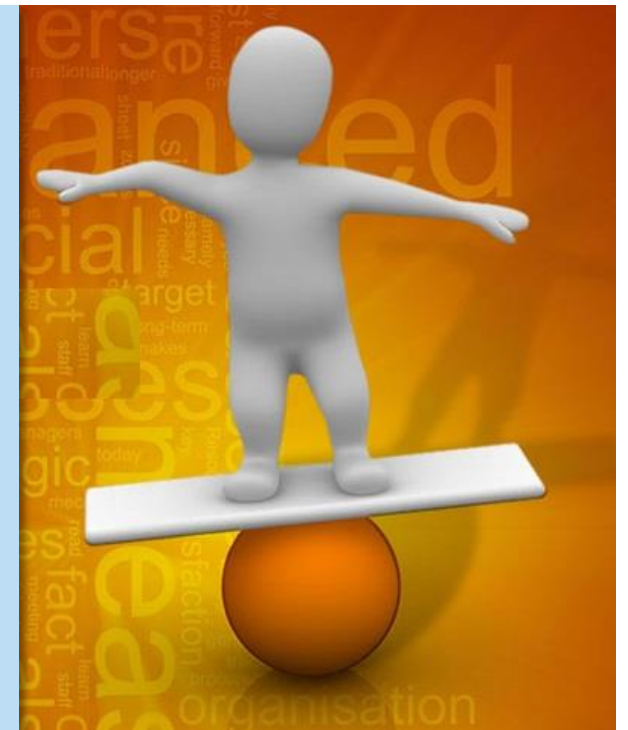
Flexo Process- Solution for Challenges

Challenges faced by Flexible Packaging Converters:

- Print run lengths are getting shorter
- Frequent graphic changes
- Cost: Upward trends in the costs of films and resins
- Sustainability: Environmental pressures on Packaging Value Chain

What this means to converters?

- Smaller printing runs
- Frequent job/design changes
- Productivity improvements
- Pressures on reducing packaging cost
- Use of thin extensible films for printing
- Environmentally friendly solutions



Comparison of flexo printing vs gravure printing

+ Positive characteristics Flexo

- Fast changeover, less set up time
- Plate making is fast
- Less plate storage area
- Can handle thin/stretchable films better- PE/ BOPA etc
- Inks are toluene free, less solvent/ VOCs emission
- Lower power consumption- dryer length is shorter

- Limitations & challenges Flexo

- Solids and process may need to be separated
- Limited options for 2K & metallic inks printing
- Print at higher viscosity, higher cost solvents
- Lower ink transfer, requires higher pigmentation inks
- Larger differences in print quality are seen in vignettes and high strength solids print

Bridging the gap with HD Flexo

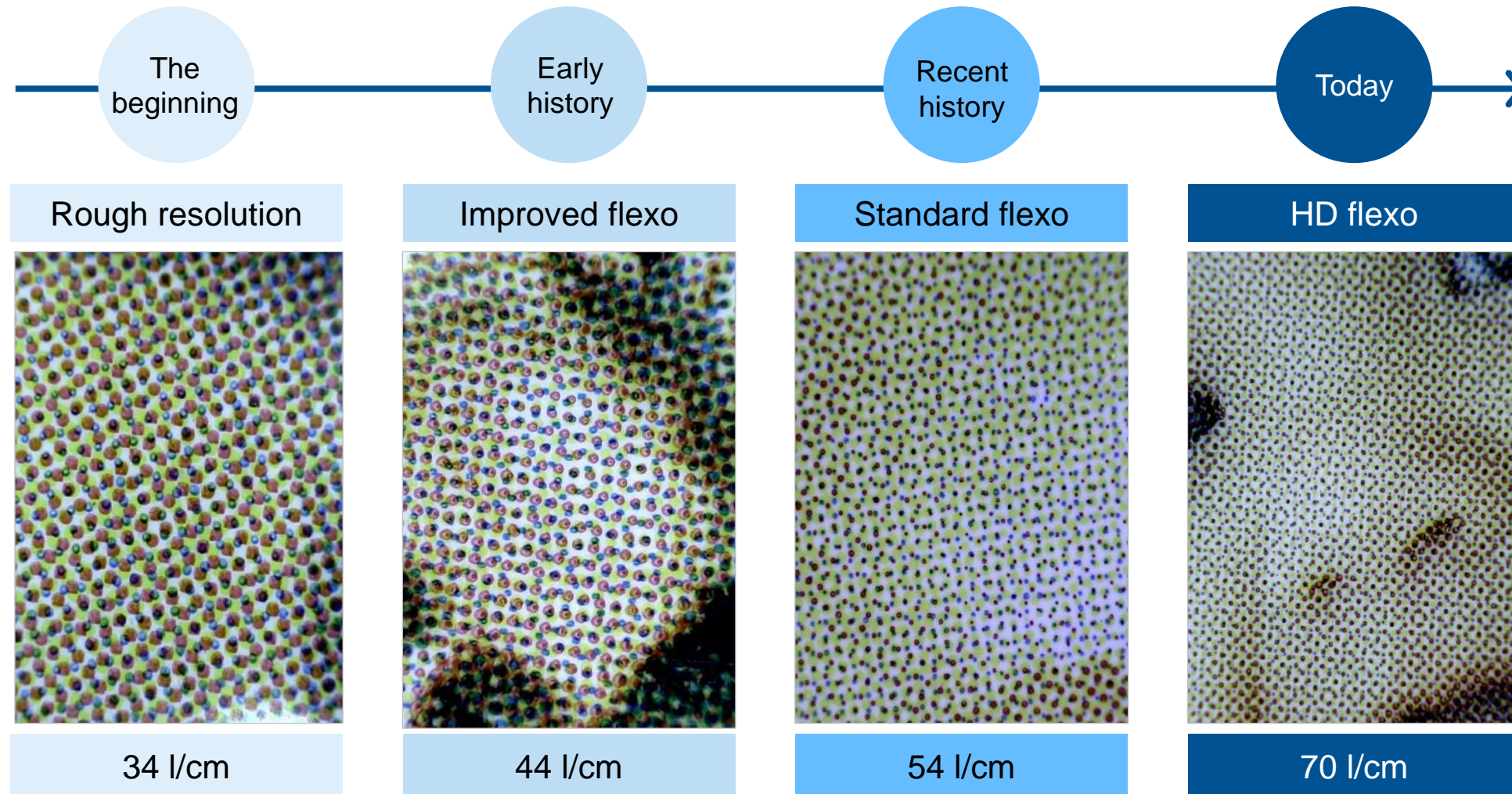


Agenda

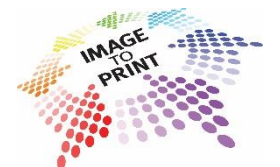
- Flexo Process- Solution for Challenges
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Over the last decades flexo printing evolved in quality SIEGWERK

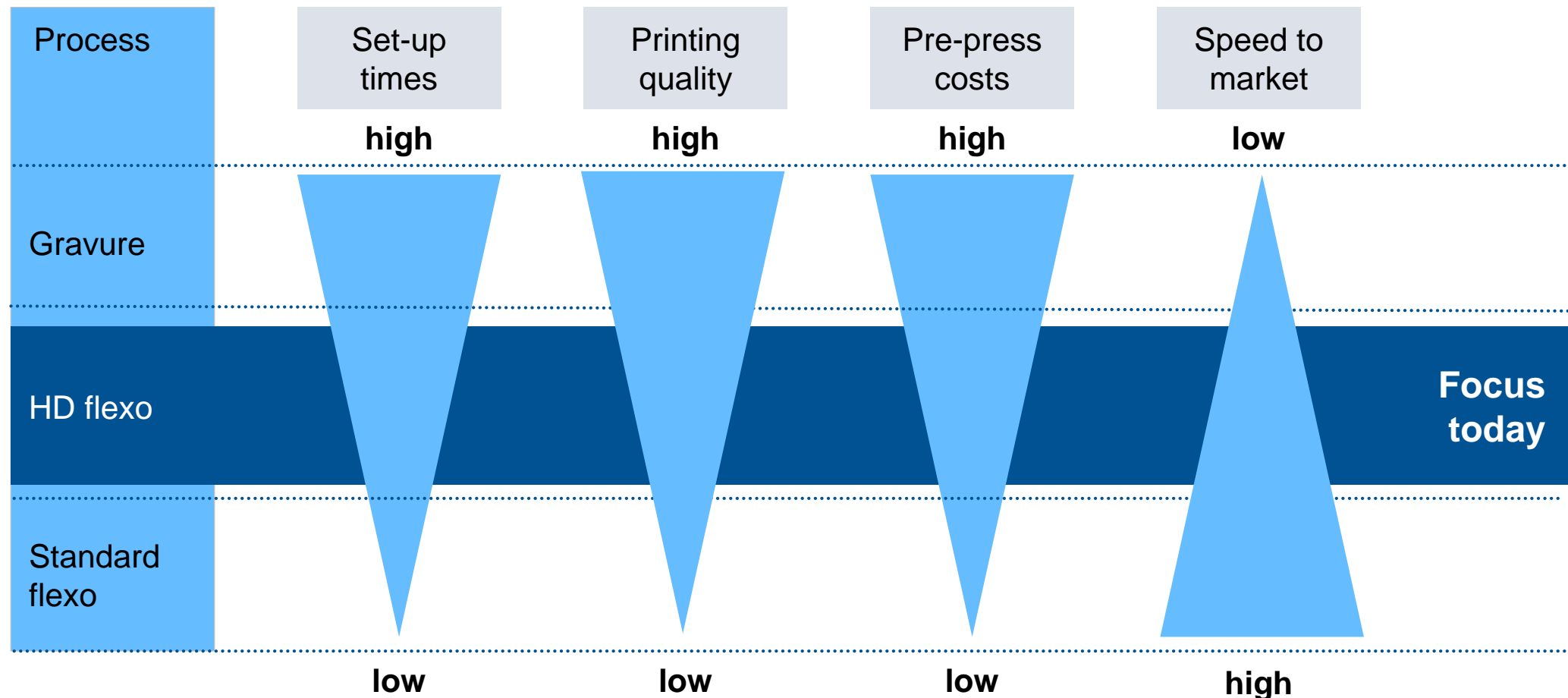


Today, HD flexo printing can reach qualities equal or similar as gravure technology



Why is the flexible packaging market looking for modern HD flexo printing technology?

Comparison of printing technologies



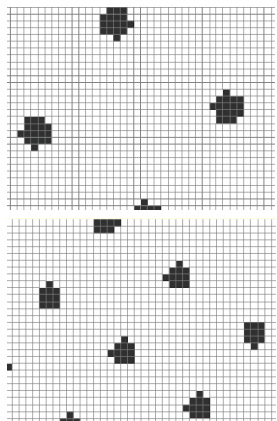
HD flexo printing requires the printer to balance several machine, material and process elements

When going high-definition flexo printing ...

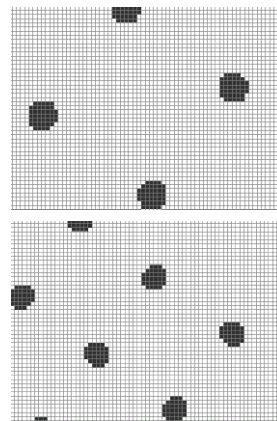
Common technical description:

- Line screen of 320 to 600 l/cm in anilox roller
- High resolutions up to 4000 dpi on printing plate
- Plate technology either round-top or flat-top dot
- Micro-celling in solid areas

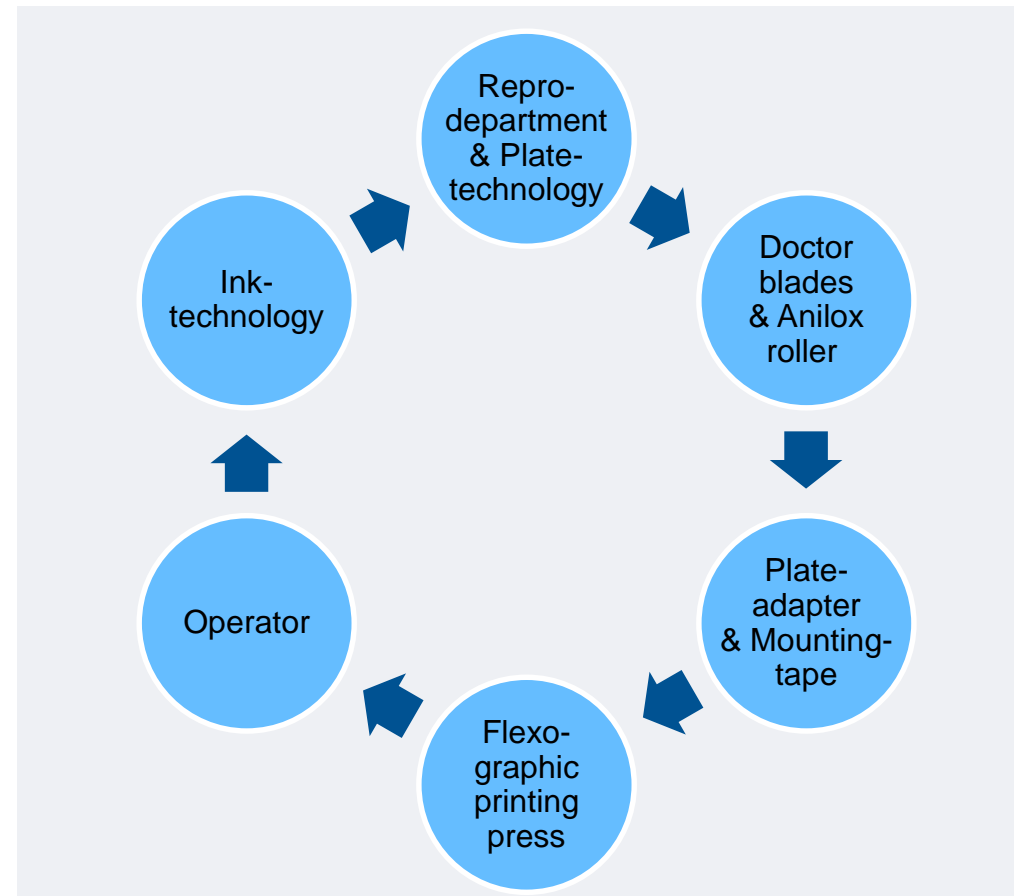
2540 dpi



4000 dpi



... many different set-up factors need to be well controlled



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The new HD flexo process changes expectations on appropriate printing inks

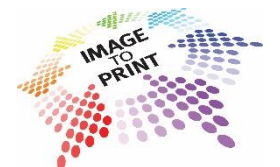


What drives ink adoption for HD flexo printing?

- Plate dots become very small in HD flexo
- Therefore, significantly smaller anilox cells required
- Leading to very small ink volume per cell ($< 3 \text{ ccm/m}^2$)
- Resulting in thinner ink film on substrates
- Still, equally high printing speed demanded







Ink formula needs change to achieve

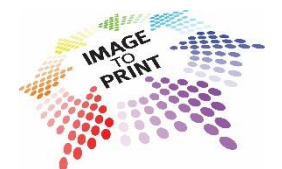
- Higher color strength
- Adjusted rheology
- Sufficient rub resistance
- Slower drying speed



Low ink transfer impacts color strength and rub resistance

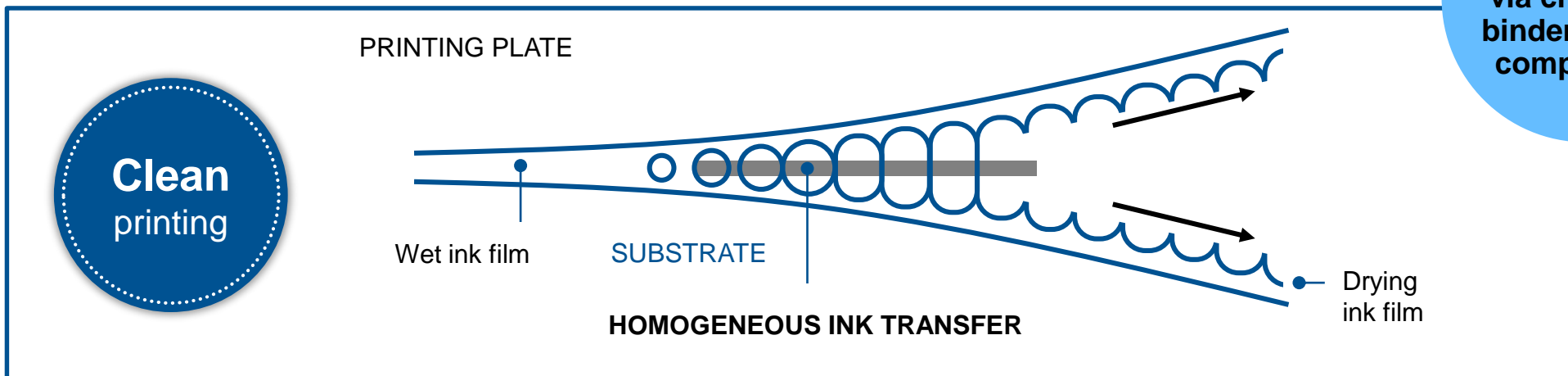
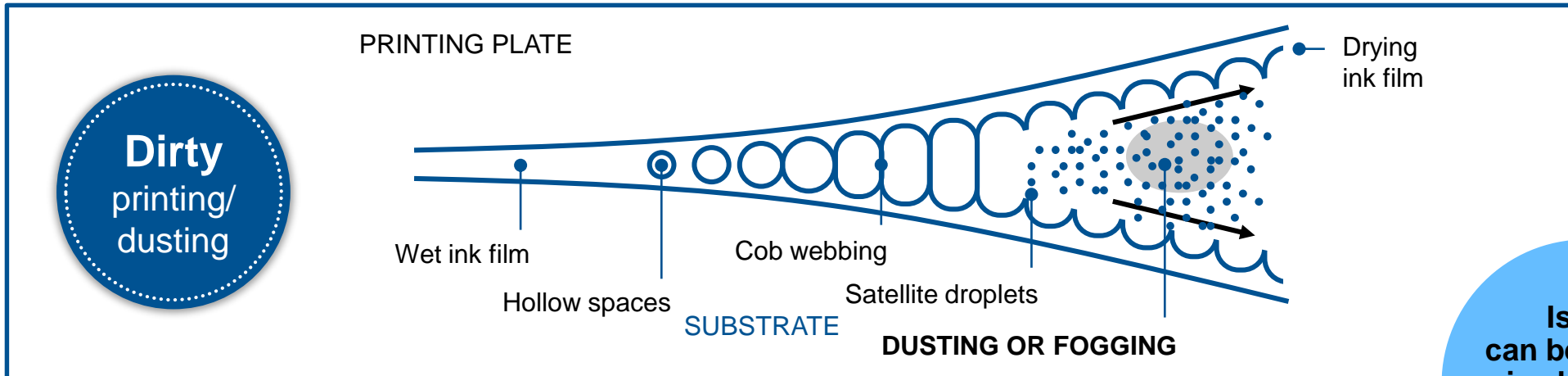
Printing results by ink volume transfer

Dry ink film on substrate [g/m ²]	1.2	0.9	0.7	0.5	0.3	1.2
Printed Example						
Process	Rough/ solid colors		Standard flexo		HD flexo	Gravure (to compare)

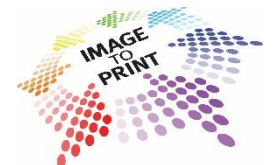


As ink formulations have to be adjusted, ink splitting at elevated speed needs to be controlled

Ink split mechanisms



Issue can be solved via change in binder/solvent composition



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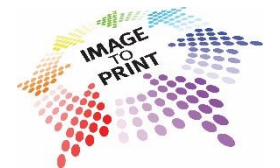
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Siegwerk offering high performance solutions for HD flexo printing



- ✓ Siegwerk HD flexo solutions with
 - High color strength
 - Good half-tone printability
 - Excellent drying speed
 - Clean printing performance
 - Low dot gain
- ✓ Broad range of fit-for-purpose solutions available
- ✓ Dedicated product toolbox developed for HD flexo printing



Why work with Siegwerk in HD flexo printing?



EXPERTISE

Long-lasting experience in flexo printing for packaging and dedicated expert teams



SOLUTIONS

Broad range of performance solutions for your applications



INK TECHNOLOGY

Market-proven solutions and products for many years



MARKET PARTNERSHIPS

Excellent collaboration with market partners: machines, plates, anilox, etc.



PRODUCT SAFETY

Outstanding solution in all ink technologies for flexo printing: SB, WB, and UV

