

WS 17 + WS 29 Prinect Automatic Paper Stretch Compensation: Use cases and measuring of spot colors

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Prinect APSC. Use cases and measuring of spot colors.

#### A new way of printing.

How to deal with paper stretching? How to measure register deviation of spot colors? How to learn paper behaviour to a software? How to save time and waste with simply calculating dots?

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#### WORKSHOP



Prinect APSC. Use cases and measuring of spot colors.

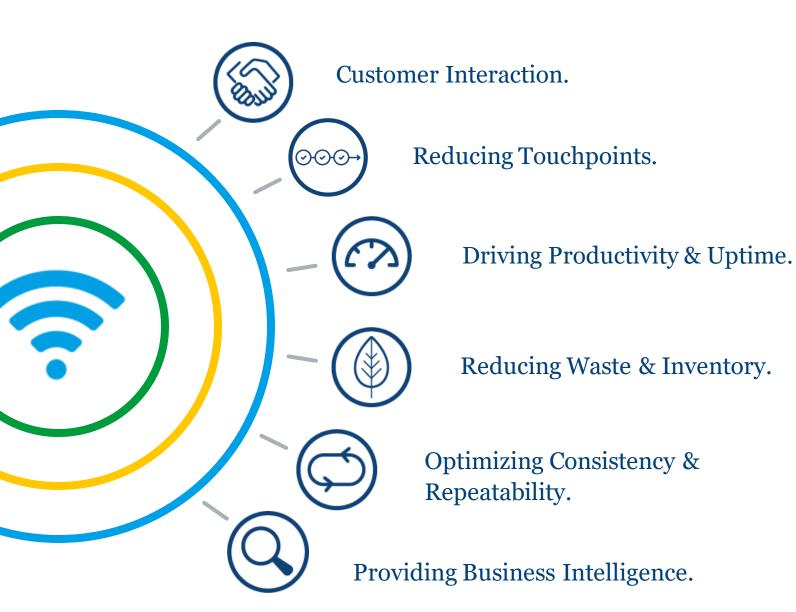
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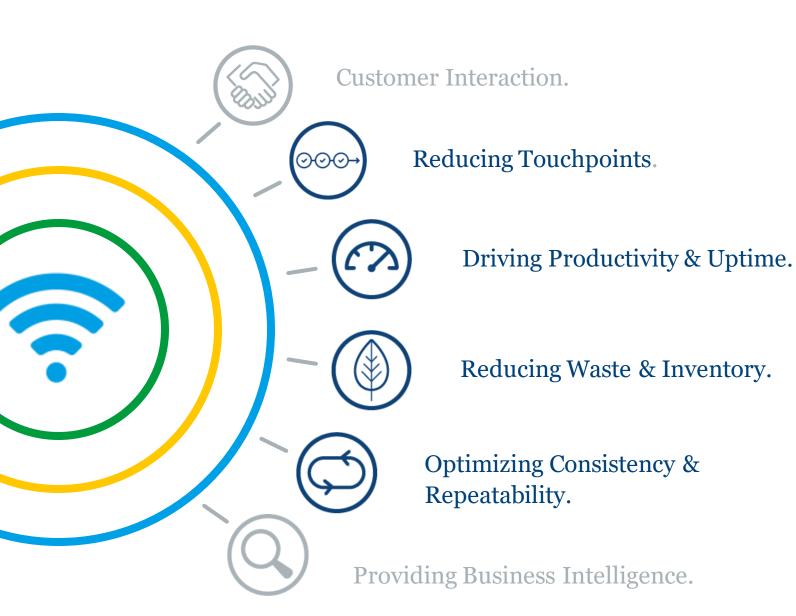
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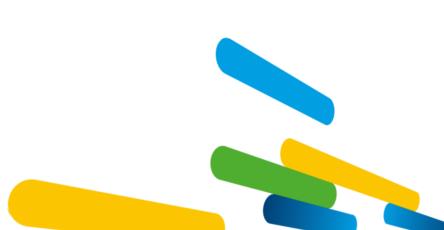












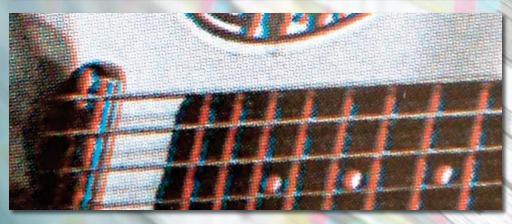


# Prinect APSC – what is it all about?



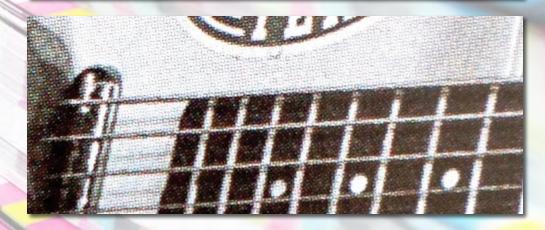
#### What is paper stretch compensation?





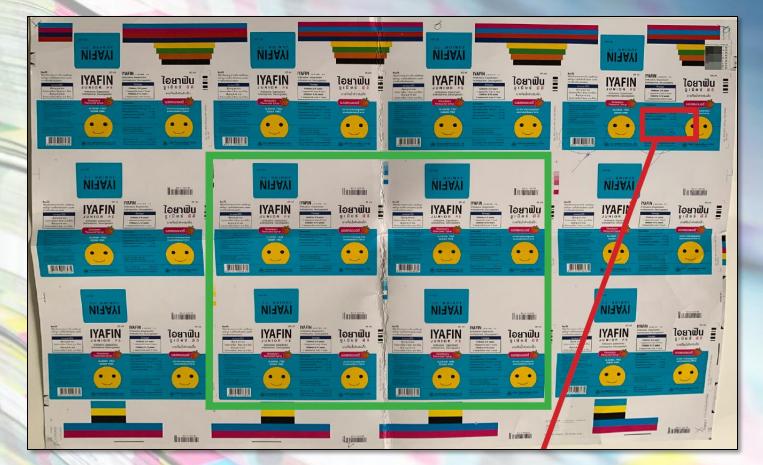
Misregistering due to paper stretching

# cal arrangement als recorded at IC



With Automatic Paper Stretch Compensation Effect of paper stretching on packaging job

 $\rightarrow$  Only 4 of 12 one-ups can be sold



#### Substrate: heavy cardboard





Live demonstration. What influences paper stretching?

- → Paper type, grain, grammage
- → Position of printing unit in printing press
- → Room temperature and humidity







#### How to measure register deviation?

#### **USB-microscope camera**

 → Camera resolution: 1280 x 1024 pixel
→ With polarizing filter
→ USB connectable
→ Rack or mount for the microscope is recommended





How to measure register deviation? New register marks → For up to 8 colors → Reference color 2x → Size: 6,4 mm





#### Measuring and transferring results.

- → Register marks are measured
- → Results are automatically transferred to Prinect APSC

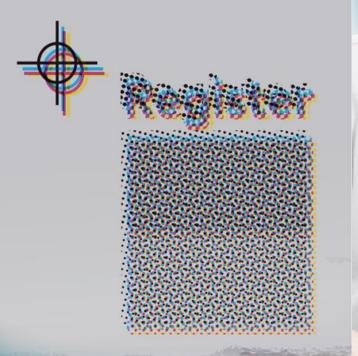


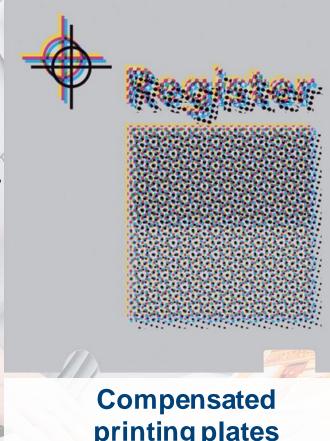




Live demonstration.

#### How compensation is calculated.







#### **Bad register due to paper** stretching

printing plates

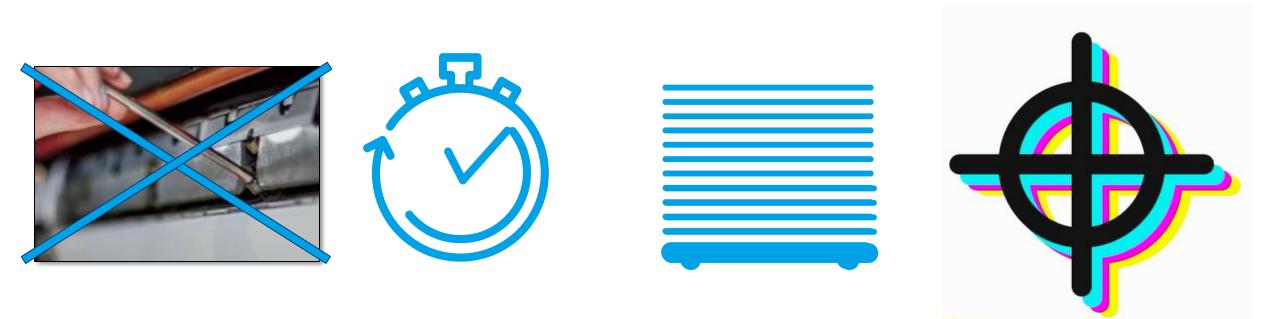
#### **Perfect dots and rosettes** in print

## Outcome Savings with Prinect APSC

→ Saves make ready time of 5 minutes and more per compensated job

→ Saves waste
of 80 sheets and more
per compensated job

→ Improves productivity All parts of the sheet can be sold instead of only half of it



#### Prinect APSC – two modes of compensation

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#### Individual mode:

- For individual print sequences
- For jobs with spot colors instead of process colors
- For any kind of substrates

#### Use Cases:

- Spot color jobs
- Label and packaging print jobs

#### $\rightarrow$ Compensation by individual calculation

• Printed job is basis for compensation

#### Automatic mode:

- For jobs with fixed print sequence:
- $\rightarrow$  **B-CMY-** spot colors
- For multicolor jobs: B-V-C-G-M-O-Y
- For often used paper types

#### **Use Cases:**

- Commercial print jobs
- Optimization during print run
- $\rightarrow$  Compensation by calibration curves
- Paper behaviour is learned

Both modes can be used one after the other in one job!



#### Prinect APSC – Individual Compensation.



#### How Prinect APSC works: Individual mode for compensation.

**Step 1:** Individual job is printed.

#### Step 2:

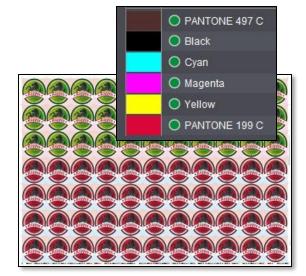
Register deviations are measured by USB microscope camera (also spot colors) and automatically transferred to Prinect APSC.

#### Step 3:

Prinect APSC calculates the individual compensation for this job. **Step 4:** Plates are imaged.





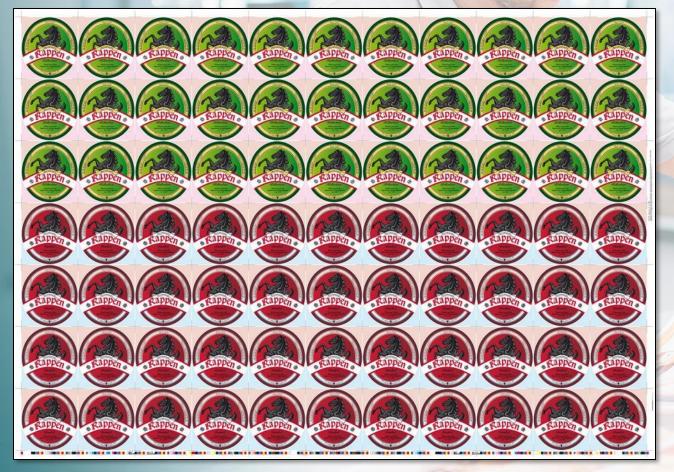


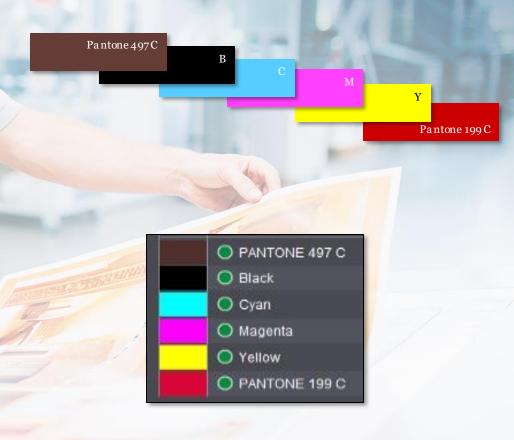




Live demonstration.

#### Individual compensation. Use Case: Jobs with spot colors / special print sequences.





#### Individual compensation. Use Case: Special print sequence as repeat job.



The stored compensation is reused without a 2nd set of plates.

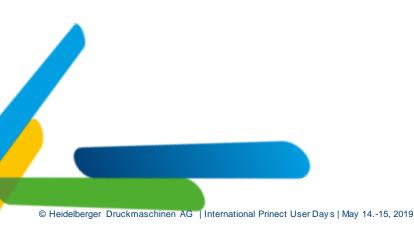


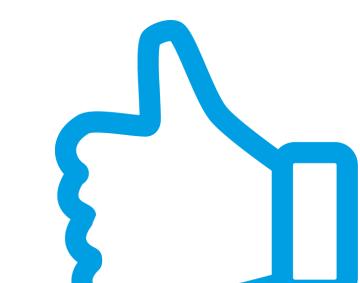
#### Your benefit of individual compensation:

- $\rightarrow$  100 % accurate register
- $\rightarrow$  Higher productivity
- $\rightarrow$  Spontaneous compensation possible

#### Conditions

 $\rightarrow$  2nd set of plates







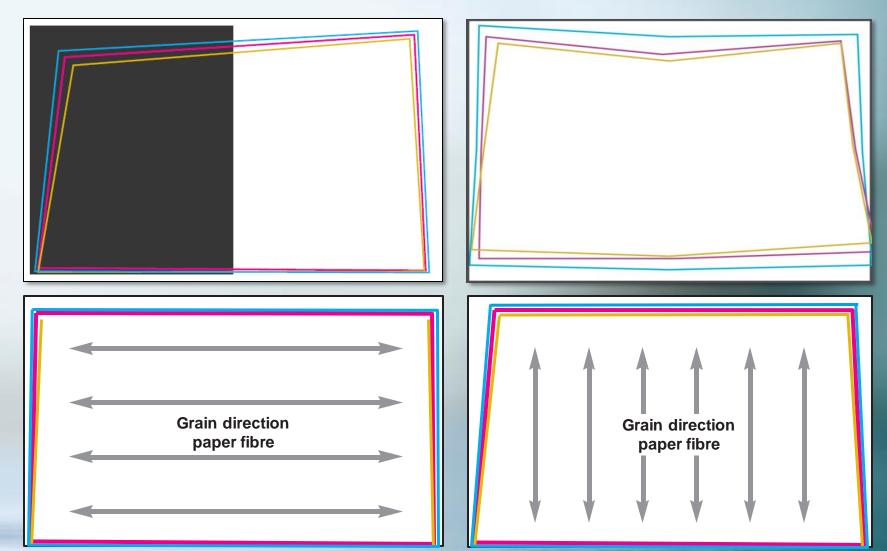
#### Prinect APSC – Automatic Compensation.



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→ Examples of deviations caused by paper stretching



#### Automatic compensation – Paper behaviour

#### Paper stretching is different for:

- $\rightarrow$  Grain direction
- $\rightarrow$  Surface
- $\rightarrow$  Grammage
- $\rightarrow$  Ink coverage
- $\rightarrow$  Position in press

# Different test forms 3.

Fixed print sequence **B-CMY-**...

#### Substrate's behavior needs to be learned

- $\rightarrow$  1 single compensation curve for one paper type
- $\rightarrow$  Ink coverage is considered automatically
- $\rightarrow$  Environmental conditions have to be stable

**Compensation curve generates a repeatable print result.** 

4.

5.





#### How Prinect APSC works: Automatic Compensation.



Step 1: Paper behaviour

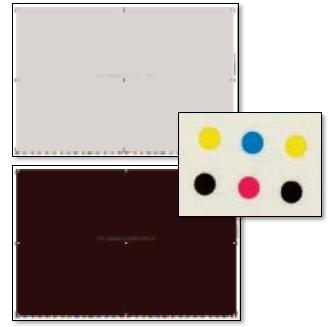
Test forms are printed at least for all grain directions and paper classes.

#### **Step 2: Basic preparation**

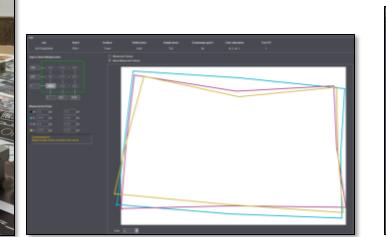
The register of the printed sheets is measured by a USB microscope camera and automatically transferred to Prinect APSC.

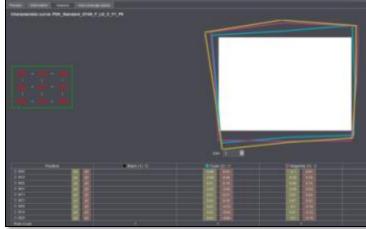
#### **Step 3: Standardization**

The characteristic curve for each defined paper type is created.









#### How Prinect APSC works: Serial production with automatic compensation.



#### **Step 4: Automatic compensation**

Paper stretch is forecasted by → combining the characteristic curve

#### $\rightarrow$ with the individual ink coverage of a job.



# During production the compensation is done fully automatically.

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Live demonstration.

#### Automatic compensation. Use Case: Commercial job with process colors.





#### Automatic compensation. Use Case: Label/ Packaging jobs with process colors & spot colors.



Automatic compensation. Use Case: Jobs with multicolor.





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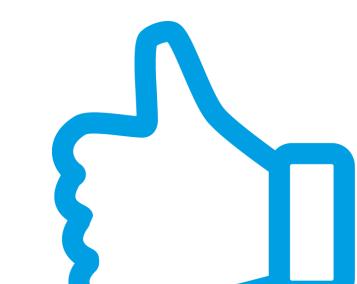
#### Your benefit of automatic compensation:

- $\rightarrow$  No touch points during production
- $\rightarrow$  Standardization

#### Conditions

- $\rightarrow$  For frequently used paper types
- $\rightarrow$  Given print sequence
- $\rightarrow$  Stable print conditions







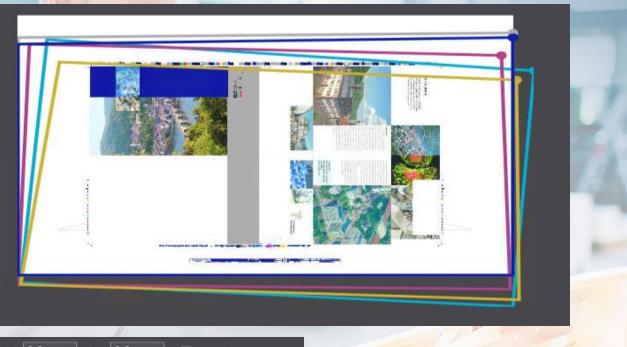
#### Prinect APSC – Combination of Automatic and Individual Compensation.



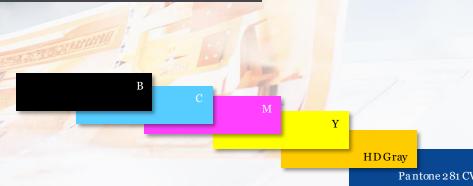


Use Case: Job with process and spot colors.

- →Automatic compensation as first step
- → Individual compensation for spot colors in order to get 100% register accuracy



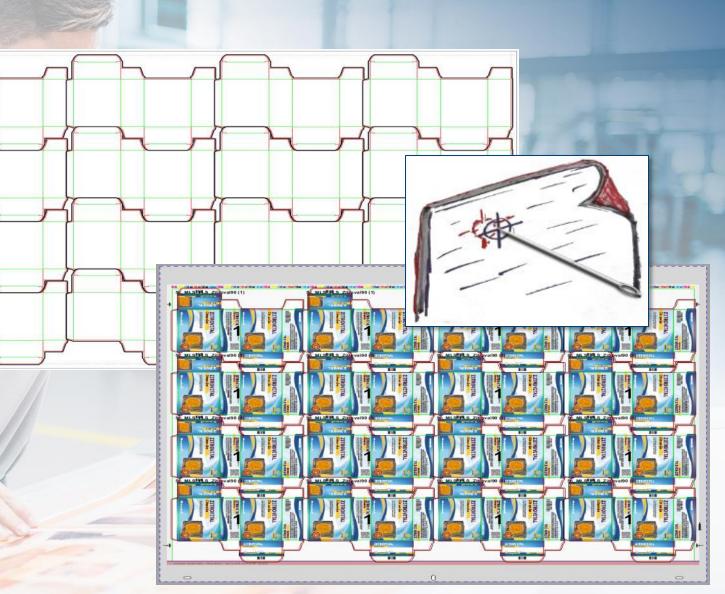






Use Case: Correct register by puncture and pre-distortion.

- $\rightarrow$ Individual compensation
- → Correct registering between back and front page of printed image
- → Correct registering of printed image to cutting die (or similar)





#### Prinect APSC – How to increase your productivity.



Checklist: How can you use Prinect APSC in your print shop?

□ Prepress workflow

□ Plate imager

□ Print shop environment

□ Substrate

🛛 Ink

□ Print sequence

Check your job's compensation potential with us!

- See the effect of Prinect APSC on your production job at home!
- How to use see a live demonstration at our Print Media Center.
- Get certainty about your prepress capabilities by checking your 3rd party prepress TIFF files with us.

# Prinect APSC for highest productivity

How can you increase your productivity with Prinect APSC?

☐ Potential in quality of register.





Prinect APSC – Success story.

#### Mr. Groth – Managing Director of Druckhaus Becker:

Prinect APSC works perfectly. Our printers are fascinated.



### Workflow solutions for Business and Production. **Prinect. Driving the Smart Print Shop.**

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Thank you very much for your attention. We are happy to answer your questions.