The Next Generation of High Speed Folding Technologies

Jörg W. Dähnhardt
VP Postpress
Heidelberg USA, Inc.

Agenda

- The Impact of Next Generation of High-Speed Folding Technologies
  - Current feeding challenges
  - Typical Solutions
  - PFX Feeder
  - Additional Components
  - Economic Evaluation

Current Feeding Challenges

- Reliable feeding and folding typical up to 210 m/min;
- Net output can’t be increased beyond that at the same rate as gross output
- Speed Restrictions due to
  - Paper curl
  - Paper waviness
  - Paper weight
  - …

Current Feeding Challenges

Conventional Feeder

Optimization potential:
50 - 65 % of the error messages at folders are double sheets and pick-up problems at the feeder (even more with competitor machines)
The PFX Feeder

- PFX = Pallet Feeder eXtended
- Feed from the Press Pallet
- Change feeding concept:
  - Single sheet vs Shingled sheets
- Optimize the width
- Automate the set-up

The PFX Feeder

- Idea: use offset press concepts

The PFX Feeder

- Sheet Separation via pulsed air and lifting suckers
- 1st acceleration via suction head with asymmetrical suction roller – 65 m/min
Sheet Separation via pulsed air and lifting suckers

1st acceleration via suction head with asymmetrical suction roller

2nd acceleration via suction roller from bottom

Feed sheets like on a press – portrait vs. landscape

30-40% more sheets/min can be conveyed

2nd station with „frog“ system

Spreading of single sheet stream into two parallel sheet streams in the second station

Reduced speed of units after the first folding unit

Gain 30% by going to landscape feeding

Gain additional 25% to 33% by shingling

Additional Benefits:
- Minimize WIP by balancing the press output with the folder productivity -> impact on working capital
- Optimize floor space:
  - Less space for WIP
  - Less space because less equipment
- Palletized Feeder
  - Better ergonomics for operator
  - Less work to prepare piles / signatures
- Folding with two units, automated set-up; no conversion of folder necessary
The PFX Feeder – Economic Impact

- Gain additional 11% by optimized lay-outs
- 144 pages, circulation of 48,000 copies
- 9 x 18p./printed sheets = 432,000 printed sheets
- 16 page example – brochure format 8.5 x 11.5” (A6), 144 pages volume, circulation 48,000 cp.

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<th>Press</th>
<th>Signatures</th>
<th>Pages per Number of</th>
<th>Sheets</th>
<th>Run Speed</th>
<th>Hours</th>
<th>Savings</th>
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- Additional press time & folder time to run additional jobs.
- One less signature to run on a perfect binder.

Additional press time & folder time to run additional jobs...

- Total Time conventional: 90 hours
- Total Time with Frog and PFX: 64 hours
- One less signature to run on a perfect binder.
- Additional press time & folder time to run additional jobs.

Gain additional 11% by optimized lay-outs...
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