

## Costs under control – ZERO web breaks in tissue converting due to speed control of processing lines

### Tissue Converting Control System CCS and Layer Merger



Creeping Blade

Pressure Roll

Reel

### A new dimension in tissue quality control

Web breaks in tissue processing can be reliably avoided by reducing the speed of converting lines at critical points.

**Layer Merger** monitors the quality of each individual tissue layer prior to further processing. A complete defect map is then generated from the web inspection quality data.

**Tissue Converting Control System (CCS)** localizes the detected defects in the downstream processing and automatically adjusts the speed to the tissue quality to avoid web breaks. Tissue manufacturers thus achieve an optimum ratio of process stability and productivity.

Self-learning defect classification performance will be significantly improved by applying innovative Machine Learning, roll cleaning cycles optimized and processing costs clearly reduced.

### Application:

- **Layer Merger**  
Inspection of the individual tissue layers and merging of the collected quality data into one defect map
- **Multi-layer Converting Control System**  
Position synchronization for localization of defects and, if necessary, slowing down the converting machine

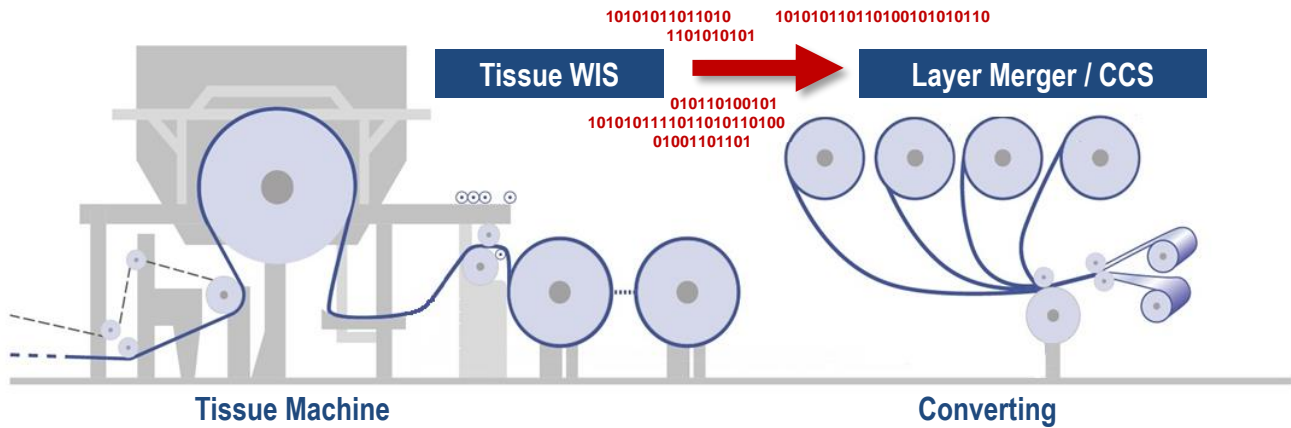
### Benefits:

- Machine Learning based speed control of converting lines, triggered by inspection of each individual tissue layer
- Minimization of web breaks by adjusting automatically processing speed in downstream processing
- Maximization of tissue process stability
- Extension option to the integrated tissue surface quality management system (EPROMI)

## Highest process stability and cost efficiency in tissue converting

With **Layer Merger** all individual tissue layers are monitored before further processing. Quality data of all individual layers are combined to a complete defect map. Quality deviations and defects of all layers are visualized stacked, making any defects' location, and thus a risk of consequent web break, clearly visible even after further processing.

**CCS** uses position synchronization to localize the detected quality fluctuations in downstream processing. Based on the data, the processing speed is reduced automatically at critical points if necessary. In this way, web breaks, which can lead to costly converting line downtimes, are avoided, achieving the highest possible speed and efficiency.



Quality overview of all tissue layers: Layer Merger overlays the data of all individual layers recorded by the WIS at the tissue machine and presents them in a complete defect map for the multilayer end product.

Maximized process stability: CCS identifies quality variations and reduces the processing speed at critical points.

### PAPER MASTER 4.0

#### Web Inspection WIS, Web Break Monitoring WBM und Converting Control System CCS

- Embedded image processing technology with high-end (color) defect detection and self-learning classification
- WBM: Smart, compact, all-in-one IntelliCam-based monitoring solution
- WIS-WBM synchronization: Fastest and most reliable root cause failure analysis
- CCS: Position synchronization in processing for unambiguous defect localization across multiple layers

### EPROMI

#### Tissue surface quality management system

- App-inspired, device-independent user interface.
- Machine Learning based synchronization between web inspection and monitoring data as well as independent production data enables correlations to be easily identified
- Efficient decision support
- Validated tissue quality

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