Three advancements in paper quality detection, analysis and management
- Reduces unscheduled downtime due to paper quality issues
- Drives higher profit potential
- Decreases rejects due to quality issues
For papermakers looking to optimize product quality, ABB Web Imaging System provides the most advanced sheet detection capability on the market. As an industry leader, ABB is constantly innovating ways to help customers improve performance, such as the newly developed features:
- Full Sheet Formation Analysis
- Real-Time Wrinkle Count
- Web Imaging Dirt Count
You can’t overlook the hidden costs of poor quality

The perennial challenge for pulp and paper mill management is identifying web defects and correcting them promptly—minimizing unscheduled downtime or margin losses. Relying on incomplete quality information and ineffectively managing web defects is too risky and costly.

Web defects produce a number of challenges:

- **Roll set quality**
  How to determine roll-specific quality values to automatically classify rolls before they reach the winder.

- **Root cause analysis**
  How to detect and connect quality issues back to their root cause so remedial action can be taken.

- **Unscheduled downtime**
  How to reduce or eliminate downtime caused by web breaks and defects.

- **Maintain margins**
  How to avoid losing value and decreasing profit potential due to quality issues and reprocessing.

The common denominator of these challenges is lack of early detection. Papermakers who effectively identify web defects and correct them promptly, before these defects impact performance and cause profit margin losses, gain a competitive edge over papermakers who don’t.
The pioneer in full-width web imaging

ABB helped make full-width web imaging a reality more than 40 years ago. In fact, our historical brand-name offering, ULMA, soon became synonymous with web imaging. Today, pulp and paper mills continue to rely on ABB’s Web Imaging System because of its unparalleled ability to reduce costs, improve product quality, increase productivity and enhance customer satisfaction.

Our commitment to investing in research and development to create advanced and reliable technology is a key reason ABB has delivered imaging solutions to more paper machines than any other supplier.

The industry leader for a reason
ABB’s Web Imaging System provides the most advanced sheet detection capability on the market. While others may attempt to offer similar features, they struggle to achieve our results. After all, ABB pioneered the online measurement approach and today continues to offer superior capabilities:

- **Industry’s fastest and smartest** fully integrated line-scan sensors
- **Industry’s smallest** hardware footprint
- **Seamlessly integrates** with ABB’s QCS / DCS systems to provide **deeper** intelligence
- **Industry’s brightest** LED source and full line of traditional halogen sources
- **Industry’s easiest** advanced classification tools
- **Total Web Monitoring System (WMS)** Integration – **Faster** root cause analysis
Three new reasons to choose ABB’s Web Imaging System

Innovations that add further value to your ABB Web Imaging System investment.

Full Sheet Formation Analysis
The only measurement solution that delivers conclusive measurement of paper uniformity for the full web

Features
- Real-time, online formation analysis
- Provides 100% sheet coverage
- Analyzes and categorizes by 16 floc and void sizes
- Formation Analysis can be combined with dirt count, defect imaging and advanced classification within the Web Imaging System
- Delivers complete measurement of paper uniformity (alternative methods are non-conclusive because they don’t measure everything)

Benefits
- Prevents misleading results
- Reduces unscheduled downtime
- Enables better and faster decisions by providing more complete information
- Conducts deeper and more precise analysis of formation than competing systems
- Decreases the amount of rejects or downgrades

Real-Time Wrinkle Count
The only system that detects and counts high volumes of wrinkles in real-time without interruption

Features
- Real-time, online wrinkle count
- Captures up to 1,400,000 wrinkle defects/s per camera
- Automated classification based on user-defined data
- Assigns weighted values to categories and alerts when KPIs are outside thresholds
- Counts and classifies detected areas to five size categories
- Intuitive user interface
- Aligns defect maps to sample MD/CD location

Benefits
- Helps remediate issues with moisture retention
- Reveals impact of inefficient headboxes on product quality
- Handles high volumes of data without overloading the system
- Enables excellent laboratory correlation
- Improves process management
- Reduces the amount of rejects
Web Imaging Dirt Count

Features

- Real-time, online dirt detection
- Provides 100% sheet coverage
- Captures up to 1,400,000 dirt defects/s per camera
- Intuitive user interface
- Links to Automatic Braking System, so rolls can be earmarked and created where there are higher dirt counts
- Aligns defect maps to sample MD/CD location

Benefits

- More accurate than manual detection and measurement
- Handles high volumes of data without overloading the system
- Enables faster corrective action
- Improves process management
- Increases production and quality
- Drives higher profitability
- Provides highly consistent results, which conform to industry standard dirt particle size categories

Other inspection systems offer incomplete coverage and information

ABB Web Imaging System

ABB Web Imaging System measures and analyzes product properties and abnormalities during manufacturing.
Additional features of ABB Web Imaging System
Effectively measuring in real-time to avoid downtime

ABB Web Imaging System is unique as it’s the only solution on the market that continuously inspects one hundred percent of the moving web to immediately identify quality issues—in real time. It measures and analyzes product properties and abnormalities during manufacturing. The result? You effectively measure in real-time to avoid downtime. And stay ahead of your competitors.

<table>
<thead>
<tr>
<th>Features</th>
<th>ABB solution</th>
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<tbody>
<tr>
<td>Imaging technology</td>
<td>Line scan cameras for higher resolution, continuous imaging, stable low-angle measurements, and smaller HW footprint.</td>
</tr>
<tr>
<td>Advanced signal processing and detection algorithms</td>
<td>ABB patented embedded low-contrast defect detection algorithms (SDI) and streak measurement to ensure even the smallest defects are found reliably (figure 2).</td>
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<tr>
<td>Automatic gain control and pixel shading correction</td>
<td>Continuous gain correction for optimal signal level and defect detection sensitivity from edge-to-edge. Factory adjusted sensor pixel correction.</td>
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<tr>
<td>Quality and adaptability of the illumination</td>
<td>Intense and efficient white LED illumination with fully adaptable light level for optimal illumination. Enables perfect illumination with unique dual row configuration.</td>
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<tr>
<td>Correct imaging geometry and configuration</td>
<td>Camera and light angles optimized for each application. Dynamic sample testing ensures the expected results.</td>
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<tr>
<td>Smart classification</td>
<td>Leveraging the latest advancements in algorithm design, ABB Smart Classifier places defects into meaningful groups with unparalleled accuracy.</td>
</tr>
<tr>
<td>Automatic Braking System</td>
<td>Optimizes cutting plan for maximum quality and profit potential.</td>
</tr>
<tr>
<td>Automation integration</td>
<td>Delivers actionable information to ABB’s QCS and DCS systems, based on industry-leading ABB Ability™ System 800xA, enabling process alarms and quicker corrective actions to quality issues.</td>
</tr>
<tr>
<td>Deep configuration consultation expertise</td>
<td>ABB’s proven insight ensures you select the right configuration for your mill.</td>
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02 The ABB patented WIS SDI (Subtle Defect Imaging) method is targeted at the detection of wrinkles, streaks or other subtle defects like weak spots.

Original image Filtered image Detection results
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