Web Inspection For Paper Production Optimization
Fast, Reliable, Efficient

Leading the Way for Paper Improvement

BEYOND INSPECTION
Process Monitoring - All relevant data on hand
Latest state-of-the-art inspection systems are able to deliver quality data to support decisions that need to be made for subsequent processing steps. One invaluable feature for the analysis of critical events like web breaks is the Event Capturing (EC). Based on machine vision technology, all relevant process images and data is captured and analyzed on-line. Interlinking web inspection (WIS) with event capturing offers even more advantages: In addition to the defects detected by WIS, the system also displays the corresponding video sequences recorded by the EC cameras. The benefits:

- Synchronized monitoring of critical process steps
- Automatic alarming on pre-set advance settings
- Prevention of critical paper defects
- Root cause analysis for fast corrective action
- Increase of machine run-time and overall quality

Process Control - Reliable help at all processing steps
Differentiation between defects is in no case trivial. The web inspection system (WIS) helps the operator to differentiate process-relevant defects from irrelevant defects. It is crucial to make this distinction as early as possible in the production process. WIS employs defect classification as the most prominent tool for process control. Different defect classes also have different causes and must be treated differently. Automatic inspection results enable the system to act as an interface for processes, for example, by triggering visual or acoustic defect alarms, which in turn trigger the defect marking system, the event capturing or cleaning procedures.
Process Analysis

- Route cause analysis
- Defect trend viewing
- Formation analysis
- Waste analysis

Process Optimization

- Speed controlling
- Wire & blade cleaning
- Defect marking
- Defect alarming

Process Analysis - Trends and causes at a glance
State-of-the-art yield management software is able to support papermakers analyzing their production processes. By means of the root cause recognition, any data source can be synchronized:

- Web inspection data from the wet end to the rolls
- Event capturing along the paper machine
- Product and process data from any gauge

Process Optimization - Get the most out of your production
Web inspection enables process optimization in various ways along the paper production chain. Process optimization thus helps monitor the defect occurrence in order to increase the product quality.

- By analyzing each defect, 100% of critical defects can be identified
- By determining exact defect data such as position, size and appearance, the defect cause can be determined.

Finally, with improved produced quality, the customer claim rate decreases significantly. The overall production throughput will rise at minimized production costs – due to fewer material related web breaks and machine downtimes.

Conclusion: Production Optimization
Leading papermakers worldwide have determined that standard "add-on" inspection systems from integrated system vendors are insufficient and cannot provide them with a competitive advantage. Instead they now use the potential offered by the newest technology of the ISRA VISION group like web inspection, process optimization and event capturing. It is self explanatory that each option can be used as a stand-alone product, but used in combination, they provide the highest benefit.

Beyond Inspection!
Defining the future of paper inspection

Higher Productivity with Advanced Web Inspection Technology
The paper inspection systems are ready-to-use solutions with high resolution CCD-cameras (matrix or line-scan), combined with appropriate illumination technology for respective applications. The SMASH WEB PROCESSOR, is the heart of the systems. It allows the fastest pixel processing, resulting in the highest scan rate available on the market. It is built to handle the high speed cameras of today and those of tomorrow. This is why the ISRA systems scan the web surface faster than competitive systems, resulting in better defect images with exact symmetry. Defects of 0.1 mm can still be reliably recognized at web speeds of 2000 m/min – the basis for accurate defect classification, necessary for root cause analysis, defect reduction, and intelligent defect marking.

InstantClassifier™ - Get a running start on defect classification
By using the InstantClassifier™, the classification of defects starts as soon as the software is installed. On average, each of the InstantClassifiers™ uses a large number of trained defect images gained from the experiences made at numerous other installations. Those defects that are specific to a mill or process, which are not included in the standard InstantClassifier™ defects, can be added to the classification later, at any time.

The InstantClassifier™ is the start-up classifier that makes it possible to hand the system over to production much earlier, enabling the paper manufacturer to start the process optimization – instantly.

Customer Defect Collection - Easy to access solution data base
The online Customer Defect Collection feature enables operators to react immediately and to take the appropriate action, whenever specific web quality deviations arise, which have already been identified (and saved) in the past. It is a defect solution data base at one’s fingertips!

Classifier Build Environment (CBE) - Simple and intuitive defect classification management
The classifier build environment provides, if needed, easy adaptation to line-specific classification performance. The CBE is an integrated and intuitive tool for managing defect image collections and classifiers.

By means of a wizard, which guides the user through the process, classifier building has become as easy as a simple ‘drag and drop’. Defects can be classified or existing classifications can be quickly modified. Similar defects are found automatically by use of similarity functions.

The CBE exponentially reduces the number of images that need to be looked at, saving time and effort!
Operator Display (ODIS) - All relevant information at a glance

Online web quality control has great economic effect on increasing the overall production and on the quality. The ODIS operator software displays web data including defect data, exact defect positions, as well as corresponding images.

For different tasks (e.g. line status, customer quality), the ODIS class fast-selection feature, offers multiple standard settings.

The ODIS quality statistics support material-specific thresholds for marking the defect counts in color.

Formation Analysis - Complex decisions made easy

The software module "Formation Analysis" enables the monitoring and assessment of the formation trend, by calculating a quantitative formation index based on algorithms. The analysis is based on the images of the WIS.

The formation index represents a standard for the formation quality evaluation and is, as such, the basis for decisions regarding process optimizations.

Leading the Way to Production Optimization

**Event Capturing (EC)**

**Web Inspection (WIS)**

**Paper Machine**

**Re-Reeler**

**Operator Display (ODIS)**

All relevant information at a glance

**Formation Analysis**

Complex decisions made easy
Customer Roll Defect Report (CRDR) - Optimized quality and claim management
If inspection is done before slitting, the defects which are detected and analyzed are reflected on the resulting reel map. This information is put to further use. By using the CRDR, the results of the original reel are projected onto subsequent rolls downstream in the paper producing process. The CRDR maps the defects of a previously inspected reel to customer rolls according to the slitting plan. The customer roll’s quality information can then be also documented with a specific roll report.

Unwind/Rewind Control System - Increase throughput
The unwind/rewind control system (UCS) is able to stop the reel at the exact position of severe defects, by using the drive link interface to control the winder drive. Being able to stop the line, enables the operator to examine the defect and to patch it, if necessary. By speeding up the evaluation of all relevant defects, the roll repair is optimized.

Optimization — Reduce Scrap, Save Money

Customer Roll Defect Report (CRDR) - Optimized quality and claim management

Unwind/Rewind Control System - Increase throughput
Focusing on MORE
than just inspection

WEB Access - Anytime, from Everywhere
Inspection results and quality data are published and accessible company-wide via the intranet or internet with a standard web browser (password protected). Two applications are available: the quality report and the reel report.

Challenging Market Conditions for Paper Makers
More and more papermakers worldwide rely on the ISRA VISION group to improve their process and maximize production. Leading papermakers have recognized the ISRA VISION group as their partner for technology that goes beyond inspection – technology that increases machine uptime and reduces defect occurrences.

"The web inspection system inspected and delivered quality information from the first reel. As a result, the paper was marketable in the first days." - SCA

"The technology is world class. Our customer claim percentage, referring to impurities, has already decreased." - UPM

"It is really unbelievable how much you can see with the software. The system has certainly exceeded our expectations." - Steinbeis Temming

"Break reduction of the whole machine decreased from 6 to 2 breaks per day." - Condat

"This excellent and reliable technology makes it one of our best investments. Without this solution, it would be impossible to ensure that we deliver defect free paper to our customers." - Norske Skog

"The web inspection system gives us the information to determine the source of our holes and streaks. This has allowed us to reduce defect occurrences. The Unwind Control System has totally eliminated bottlenecks at the re-winder." - Stora Enso

EXPERT 5i for Production Optimization
The efficient EXPERT5i modules quickly help find the right answers to many questions concerning yield and process optimization. By using the modules, the potential for increased productivity is reached – quality becomes plannable, processes and production are systematically optimized:

• Early warnings of approaching problems for corresponding intervention options
• Preventative maintenance (rather than reactive or scheduled)
• Visualization of changes and trends, from local site to other off-site locations
• Access and analysis of all relevant production data anywhere across the globe
• Economic decision support

Enhanced Process Efficiency
The benefits of EXPERT5i are reflected in optimized process efficiency and product quality. Furthermore, the throughput will be maximized while the costs are minimized. The number of web breaks can be reduced drastically leading to savings with respect to material and time. A frictionless production and an increase regarding the reduced accrual of scrap material indicate enhanced product quality. The produced material can actually be processed since the dealing with rejects has become redundant. This is reflected in an reduced number of customer claims, which in turn makes our customer’s reputation as a high-quality manufacturer even more attractive.

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A business relationship with the ISRA VISION group is the beginning of a long term partnership.

Our clients benefit from the experience of our highly qualified team of experts, who work with them to design and implement solutions for the quality inspection applications of the future.

The ISRA VISION group is a global enterprise that guarantees its customers excellence in every aspect: from consulting, service, and confidentiality, to complete solutions and worldwide support.

- We can make your business more competitive and productive
- We view ourselves as a partner and supplier of application oriented standard systems for selected industrial sectors

Challenge us.