Detecting defects, optimizing processes, increasing yield – optical inspection is the key to an efficient production

Optimized yield with 100% production monitoring: Automatic optical inspection for film production and further processing

Web widths of ten meters and production speeds of more than 1600 m/min: Film production conditions are changing. At the same time, new material applications and the competitive pressure of the global market are pushing manufacturers and customers to expect even higher quality. Automated optical inspection technology is meeting these trends and provides safe and reliable processes for even the toughest requirements, for consistently high quality in films and coatings.

Scratches, creases, holes, blisters, etc. – the wide range of defect types in modern plastic films is nothing new, and film coating manufacturers face similar challenges. The importance of the individual defect type varies with the way the film will ultimately be used: A small scratch may be irrelevant for the cover of a diaper, but it will always be visible on an optical film between two glass panels e.g. in a TV-Screen or a windscreen within a car. The steady stream of new applications demands more and more stringent requirements for material and production quality. The flexible use of inspection technology is more important than ever. Systems must adapt to new requirements quickly and efficiently – and ideally help eventually transform products with low quality but precisely-defined quality standards into profit.
Precise inspection, reliable classification, efficient analytics

Using inspection systems to monitor product quality early in the process enables resource and cost efficient production. They supply system and machine operators with information on process and product quality and highlight potential for optimization. This reduces the scrap rate. With their high-end components, the proven inspection systems from ISRA VISION can be quickly adapted to any customer requirement, be it velocity, width or other installation parameters. Even harsh production conditions do not impact the inspection results of the system. Detection results are displayed in real time as images on the operator display. Thanks to its high classification performance, the system presents the defect position and the relevant defect type, providing a full picture of the defects found and their causes. The root causes of defects can be found and eliminated quickly, ensuring high process efficiency. Data reports and statistical evaluation tools support effective defect prevention. Analyzing the comprehensive production and quality data actively helps to lower costs. All data is stored for future analysis and evaluation, so that manufacturers can automatically document the quality produced for their customers and for the next process step.

These fully-automated systems offer 100% inspection for the detection of all defect types. Switchable, extremely bright LED lighting finds even small, low-contrast defects using various lighting modes; the system outputs a visual and acoustic alarm for the machine operator as soon as a defect is detected.
Quality grading: The efficient way to increase yield

Powerful inspection technology detects defects and helps to prevent them – but repairing the material defects detected is another story. Manufacturers have to decide what to do with products of impaired quality. Precise information on the position of a defect delivers the information they need to remove the damaged part. SMASH provides all the information required to make the right cut – increasing the quantity of sellable products and reducing waste. Efficient quality grading by ISRA also offers the option of comparing individual customer requirements with the quality status of a produced roll, so that customers receive products precisely fitting their specification. This improves total yield and enables resources to be used sustainably throughout the value chain.

Ready for the future of surface inspection

As requirements increase, ISRA’s inspection solution is developing more and more into an absolutely all-in-one solution. Inspection is not restricted to material defects – ISRA now also reliably inspects the coating thickness and even the optical properties of films, such as reflectivity and haze. The inspection package also includes additional “beyond inspection” options like the Rewind Manager for repairing individual webs and the Real Time Viewer for monitoring the web in real time at several workplaces simultaneously. The system offers data analysis for meaningful reports and an interface for the higher-level software architecture®PROMI (Enterprise PROduction Management Intelligence).®PROMI enables data from individual lines or even complete plants to be compared across the company. Thanks to this vertical and horizontal data integration, the information from production generates added value at every level of the company.
Beyond that, the pioneering Touch & Inspect inspection and system architecture also guarantees the ideal flow of information by integrating all the systems in an inspection system into a collaborative data network via Wi-Fi. Users can receive the information they need at any time on mobile communication tools like tablet PCs. The individual production component modules can be triggered directly – film inspection is becoming more flexible than ever before.

Images

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Wide webs and high velocities – but even the smallest defects are reliably detected and classified.

658_2.jpg
Standard components that can be easily integrated into any line thanks to their small size.
The robust design allows error-free use of the sensitive optical components in any environment.

The user-friendly operator screen displays all relevant information for classifying defects and rejecting defective material or parts of materials.