Vital competitive advantages in cold seal application with ISRA technology

Improved quality and process control in real-time for flexible packaging solutions

ISRA VISION, the world’s leading provider of surface inspection systems, now offers cutting-edge technology for continuous quality and process control of printed images, lamination, and coatings with its 100% inline inspection solution PrintSTAR. A medium-sized packaging producer is now using 100% verified and inspected quality, powered by ISRA, for applying cold seal adhesives to flexible packaging. The expertise gained from the inspection is then used to further improve printing processes.

Today’s packaging industry is increasingly focused on sustainability – protecting the environment, using energy and resources sparingly, and recycling. Sustainable production also means that defect rates and waste need to be reduced to a minimum. A medium-sized producer of cold-sealed flexible packaging films for the food and cosmetics industry faces a challenge here. The packaging it produces has to be completely impermeable to high moisture levels, oxygen, and aromas. The films are also printed according to customer needs.
High demands on inspection

The company has been using various print inspection systems for many years while paying close attention to the latest trends in vision technology. In this case, the packaging specialist was on the lookout for an efficient inspection system to be used in a combined laminator for adhesives with aqueous solvents. Until now, printed symbols were used in cold seal applications to align the cold seal pattern to the print. However, this process increased the complexity of many production steps. The main goal was inspection of the applied cold seal as well as its registration to front side prints resulting in a sharp increase in process quality.

The application places high demands on inspection. The cold seal is applied to a metalized substrate on the reverse of the printed film. Metalized surfaces are particularly challenging to inspect due to their strong reflective properties. In addition, the inspection of print registration proves particularly difficult given that the film is opaque.

Based on ISRA VISION’s high level of competence and expertise in vision systems for coating applications across an extensive range of substrates and markets, the customer opted for the 100% inline inspection system PrintSTAR. ISRA, with its extensive experience, including in metalized surfaces, is the only company on the market to offer inspection of colorless coatings in the high quality that is required.

All defects detected, all processes monitored

The process works as follows: After printing, the flexible film is moved to the laminator, where a patterned adhesive is applied to the reverse side of the film. The application must then be aligned with the print on the front in the precise position in the register at a speed of up to 1,000
feet per minute. Another challenge is that the various films are typically finished with reflective surfaces.

The 100% inspection system detects all defects in the cold seal and monitors the process to ensure that the coating is even, free from voids, and aligns with the repeating print. Using high-resolution LCCD cameras combined with ultrabright LED lighting, the PrintSTAR system detects both individual and recurrent cold seal defects in real-time. Both sides of the film are checked with the same system platform. Furthermore, the inspection system allows users to set acoustic alerts to warn them if the cold seal application is in misalignment to the print – thereby freeing up operators to turn their attention to other tasks in the coating process, even while the inspection is running. ISRA technicians actively supported managers at the packaging producer in finding the ideal location for installing the cameras in the existing machine set-up. The inspection system was ready to use immediately after installation, offering fully reliable inspection results just a view weeks later.
Extensive benefits for the customer

The inspection system offers extensive benefits for the flexible packaging producer, including increased process reliability and reducing production waste. The new inspection system saves material by making it possible to reduce the printed film width. There is no longer the need for registration marks in the trim area. Thanks to the ISRA system, the set-up time was also significantly reduced. In addition, the customer was very pleased with the intuitive use of the software, which makes it easy for operators to get acquainted with the system. The graphical user interface offers immediate quality information currently achieved in the production.

The quality department can use the data collected by the inspection system to improve standards in upstream processes. Review and analysis of production defect trends not only reduces waste but lowers production cost.

Fast ROI for the inspection system

The system offers a fast ROI by reducing waste, improving quality and saving time and effort in several departments. Going forward, the system’s features and benefits will be used for additional process improvements and to expand the product range. Even at present, 100% verified and inspected quality is an unbeatable sales argument.
Applications for flexible packaging that are printed on the front and sealed on the backside demand the highest possible register accuracy.
The PrintSTAR 100% inline print inspection system can inspect both the front and back simultaneously, highlighting defects in both the print and the adhesive layer.
Whether deviations in the register or missing seals, the PrintSTAR system detects both individual and recurrent cold seal defects in real-time using high-resolution LCCD cameras combined with ultrabright LED lighting.