ABB Web Imaging System helps nonwoven producers tackle quality problems

The rising demands for defect-free products and the necessity of faultless runnability of production machinery has driven also nonwoven producers to utilize the latest developments in online defect detection. More and more lines are nowadays equipped with an automatic web inspection system which detects, analyzes and reports all defect based quality deviations with sub-millimeter accuracy. The modern tools and equipment help the producers to track and tackle problems as they occur, thus reducing downtime and optimizing the yield of the mill. Desired customer quality can be achieved with the presence of full production defect maps locating each single defect in the material. Optimal cutting and customer roll selection enable to reduce unnecessary complaints and also unnecessary downgrading. To achieve the full utility of a web inspection system, each defect needs not only to be detected but classified as well, in order to take correct counter-measures. Whereas traditional web inspection systems "only" detect the defects, modern equipment are able to recognize all different defect types based on their appearance. This enables the system to classify critical, non-critical and harmless defects correctly and also to follow up trends of certain production related defect types. For example, a single drop of oil might not be a show-stopper, but it certainly is beneficial to catch a sudden increase in the numbers. Given the cross-directional position and whereabouts of machine location of the dripping, the problem is quickly solved. A web inspection system can also perform formation analysis for the product as well as analyzeclassify the quality of repeating patterns like embossing marks. When quality deviations are caught on the fly, rapid corrective actions can be taken to minimize the losses.

The ABB Web Imaging System (WIS) offers state-of-the-art detection technology with in-house built special purpose digital line-scan cameras. These cameras not only produce crystal clear images of all web defects, but also inspect the whole material with the same tireless sensitivity. The line-shaped illumination and continuous line-based imaging avoids the pitfalls of a matrix camera system, where the sensitivity and signal quality tend to reduce towards the corners of the camera viewing area. The line-based operation mode together with controllable light source intensity ensures reliable detection on every grade and in all conditions. To complete the package the ABB WIS is equipped with a visually trainable classifier. The accompanying tools provide a nice auto-sorting function that automatically clusters similar looking defects into groups that the user can then identify and label. Based on the defects in the training material the classifier learns to analyze and classify all incoming defects. It is automatically tailored for the purpose of each process line giving maximal classification accuracy and reliability. The classifier can handle any variety of different defect types and can be easily retrained with new unseen defect types.

The user interface of a web inspection system is just as important as the detection algorithms and technology behind them. The user must have easy and instant access to history data, trends and profiles and - of course - any current event in the machine. The ABB WIS has evolved over thirty years together with most demanding paper and nonwoven producers. The user-interfaces have been field-tested and proven round the clock in hundreds of production locations all over the world. All the information is available on demand, but as it often turns out, the simpler the better. Having only the relevant information available on the screen in an intuitive layout serves the users best. The ABB Web Imaging System has a real-time defect map showing all recent defects and their type with an attached image. Trends and profiles can be used to visually track and locate evolving quality problems and the history maps come out real handy when customer re-rolls need to be shipped with ever increasing quality demands.

In today's economy quality is not a luxury - it's a necessity. A modern Web Imaging System not only finds and classifies the defects - but also constantly analyzes the quality of produced material. All this can be reported down to the customer roll level. Therefore, the Web Imaging System not only ensures customer quality, but improves the overall process efficiency.

Find out about individual solutions which are made possible by the numerous model variants.

The quickest way you can make your production safe is to contact us straight away.

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