

Plastics in Packaging

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STEPPING OUT OF THE SHADOWS

Meet the man helping to put blow moulding back in touch with its history

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TEST AND INSPECTION

Greater amounts of recycled content, a greater variety of materials, and a greater need for accuracy mean that test and inspection systems have never been more necessary. As such, upgrades and innovations on the system side continue to emerge.

Sacmi in the Driva seat?

Italian packaging equipment manufacturer Sacmi has made two recent technical improvements to its preform vision systems. The PVS10L machine now comes equipped with DRIVA (Drive and Recognition with Intelligent Vision Algorithms), which is a system for automatic preform recognition and size changeover.

The technology has been designed for the off-line inspection of potentially faulty preform lots. According to Sacmi, it can combine polarised light inspection technology with AI algorithms to imitate tasks done by workers, identifying defects invisible to the naked eye using polarimeters.

It is claimed that the technology can also reduce size changeover times to less than one minute. The PVS10L identifies the preform type in real time (diameters, length and colour) and automatically calls up the matching inspection recipe.

A key element to the system is the linear preform transfer. Gripped laterally, the preform undergoes checks on the mouth, finish and bottom before being transferred using vacuum technology and undergoing body inspection.

Rising to the preform challenge

PreMon is the latest in a range of preform monitoring equipment from German firm Intravis.

While it has always been important to keep preforms free of defects, this is becoming more challenging with the variations that may occur as the ratio of rPET and other recycled materials continues to rise.

Designed to occupy a footprint of just 1.5 sqm and capable of checking up to 72,000 parts an hour, PreMon can be integrated into a production line immediately after the injection moulder, offering instant feedback on preform quality at commercial speeds.

The unit identifies the most common problems that occur during preform production, such as contamination, burn marks, bubbles and colour deviation. It also uses dedicated cameras to inspect the top of the preform for ovality, short/long shots and for scratches and notches that might affect the sealing surface.

Using the latest AI algorithms, the monitoring results are presented for each octabin and may be displayed visually. In this way, potential problems can be identified at an early stage, allowing operators to avoid unnecessary delay when making decisions, and to change production settings if required.

Quality line up

What's the latest in inspection systems? **Steven Pacitti** and **Printz Holman** report

The optional PreMon Plus integrates a bad part ejector to identify and remove preforms that are faulty. These preforms can then be inspected by the operator or in greater detail in a lab.

PreMon may also be operated in combination with the IntraVisualizer, to send real-time warning messages to the devices of relevant staff, ensuring that everything is acted upon as quickly as possible, further reducing downtime and waste.

The IntraVisualizer is a software tool that can process data in a central SQL database from monitoring equipment throughout a plant, presenting it clearly and visually. It creates trend statistics and long-term data analysis over predetermined periods of time, allowing potential defects to be highlighted before they become a problem.

Another recent addition to the company's portfolio is the CapWatcher Q-Line, an inline inspection system for checking the sealing elements, threads and temperature of up to 60 beverage closures/second.

Inspection art from Germany

Carry on down the production line from preforms to bottles and you might find one of German company Miho's David 2 empty bottle inspectors. David 2 conducts full inspection of the empty and cleaned bottle between washing machine and filler, at speeds of up to 72,000 bottles an hour.

The basic machine concept is base inspection with foil detection and Variofocus automatic focus adjustment for bottles of different heights. It can also inspect sealing surfaces along with the detection of residual caustic soda and other liquids.

The analysis software Miho Vidios has been improved to allow for a base inspection even on non-circular bottles, without hidden zones.

The David 2 will detect typical faults in PET returnable bottles such as scuffing, stress cracks, damaged or dirty vent slots and segment threads,

faulty support rings, deformed bottle bases and stress crack patterns.

As a company that claims to completely monitor the filling process, Miho has a number of reject systems for different requirements, including the Leonardo M system. This is a magneto-mechanical reject system that transfers faulty containers to a parallel conveyor by slide segments. Leonardo M has approximately 100 reject slides, each connected to their own guide elements, which are permanently driven parallel to the conveyor by a rotating chain and synchronously with the belt speed. If a bottle is rejected, the central switching unit electromagnetically moves two or three of the guide elements vertically to the running direction of the conveyor. Thus, the bottle is pushed gently and securely standing onto the reject conveyor.

All for one, and one for all

Isra Vision's All-in-one inline inspection system is used across the full spectrum of plastics film and packaging production in applications such as food and pharmaceuticals.

Isra recently upgraded the embedded camera in its now established product to offer greater reliability, simpler handling and an optimised detection rate. Intelligent automated detection together with an innovative lighting concept allows point defects, inclusions and other flaws to be detected in any position. Even small, poor-contrast errors, scratches and irregularities can be identified at high-speed.

The new sensor technology used within the camera is said to improve the detection of colour defects, having proved to be reliable even in low-contrast situations. Reliability and quality are enhanced by the system's ability to identify false positives.

Isra's proprietary COP (Control of Optical Properties) is used to monitor different material properties, such as gloss, cloudiness, or evenness of the coating, throughout the production process and across the entire width of the web. These measurements are an important way of identifying the quality of film coatings and assessing the grade of the product.

In addition to detecting and classifying material defects, Isra has introduced a number of modules to complement and enhance the system's performance. One of these is the Offline Recipe Manager (ORM) software that allows users to edit recipes on any computer. Instead of working with live camera images, the ORM uses data that was saved as graphic files during production. **P**

More information from:
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