

Inspection for labelling area profiles

Eleonora Bordini* discusses how Marposs has widened the range of gauging capabilities of its VisiQuick machine with a new measuring system for the inspection of the labelling area profile.

The label is important for the brand identity of a product. It differentiates the brand from others.

The presence of local defects on the container, such as sinks or bulges, can cause unevenness, like wrinkles or bubbles, when the label is applied, which reduces the perceived quality of the product. This is particularly evident with 'no-label look' labels.

'No-label look' labels, produced with thin transparent plastic films, have become popular because they optically blend with the container, simulating a direct printing, at a lower cost and with more decorating possibilities compared to printing techniques.

The high speed of labelling machines can also affect the correct application of the label. In case of claims regarding the label, the responsibility immediately falls to the presence of defects in the glass container. In such cases, the glass container manufacturer has the burden of proving the quality of its product.

Label application is the last operation performed on the container. Defects in the label are detected when the container has been filled and sealed, leading to large compensation costs for non-compliant products. But the main damage for glass container manufacturers is in its reputation.

Glass containers manufacturers could have an enormous advantage from a gauging system that is able to accurately measure containers for defects in the labelling area, to help keep the manufacturing process under control and prove their quality to customers. The same gauging system is also useful to end users for glass containers' incoming inspection.

Until now, no industrial system has been able to quickly and accurately measure the labelling area profile and detect the presence of bulges and sinks.

Traditional optical gauging systems, based on shadow casting technology, include one or more cameras that acquire

the external shape of the container, i.e. its shadow with respect to an appropriate illuminated background, cannot detect negative shape deviations (sinks), because they remain hidden.

Marposs has designed and filed a patent application for an optical measuring system able to detect and accurately measure positive and negative deviations with respect to the straight profile, in the labelling area.

This system includes a proper coherent light source, projecting a light line on the container surface, and a camera, placed at a defined angular position with respect to the illumination plane, acquiring images of the tracks obtained from the intersection between the light line and the container's external surface.

The images acquired by the camera during a complete rotation of the container are elaborated to provide a coloured topographic map of the container's labelling area, reporting positive and negative deviations with respect to the nominal profile.

In a single rotation the system can scan

an area as high as 200mm.

The system is available for the inspection of the labelling area profile on symmetry rotation containers, but can also be applied for the inspection of flat label panels on square/rectangular containers. In this case, the container rotating plate is mounted on a precision linear stage to translate the container's faces in front of the optical system.

Marposs's VisiQuick machine has a modular structure and includes additional measuring stations. These include stations to measure external dimensions and geometry, mouth internal diameter and internal profile, weight, push-up and wall thickness.

Marposs is a specialist in precision equipment for measurement and quality control in the production environment.

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www.marposs.com/eng/product/flexible-measuring-system-for-glass-containers-inspection

