glass WORLDWIDE

Labelling area profile inspection for glass containers

Intended for the dimensional and geometric inspection of glass containers on a sample basis at the cold end, an innovative measuring system has been introduced for the inspection of labelling area profiles. Eleonora Bordini reports.

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The VisiQuick machine.

The label is very important for the brand identity of a product, providing immediate visual recognition. The presence of local defects in the container, for example sinks or bulges, can cause unevenness (eg wrinkles and bubbles) when the label is applied, reducing the product's perceived quality. This is particularly evident with 'no-label look' labels. Produced with very thin transparent plastic films, 'no-label look' labels are increasingly popular because they blend optically with the container, simulating direct printing, at a lower cost and with a wider range of decorative possibilities when compared to printing techniques.

The increasingly high speed of labelling machines can also affect the correct application of the label. In claims that relate to the label, in the first instance, responsibility immediately falls on the presence of defects in the glass container. In such cases, the glass container manufacturer will bear the burden of proving the quality of its product.

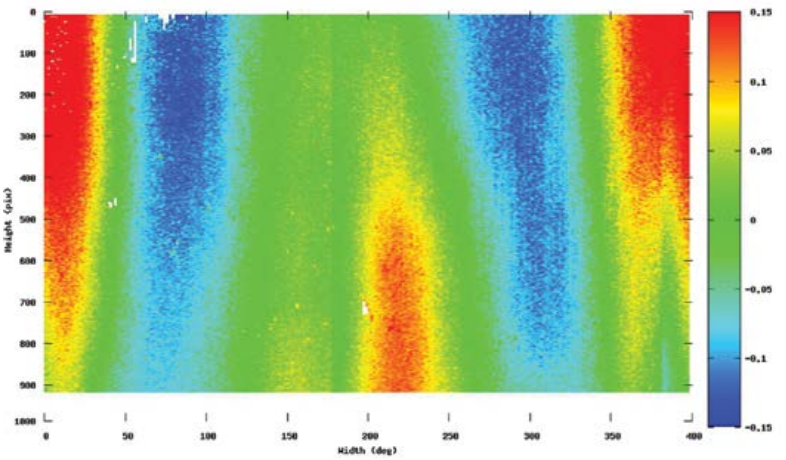
Label application is the last operation performed on the container and the presence of defects in the label is detected when the container is already filled and sealed, thus escalating compensation costs for non-compliant products. However, the main damage for a container manufacturer is the company's reputation.

Dedicated measurement system

Glassmakers can benefit greatly from a gauging system that is able to measure containers for defects in the labelling area accurately, helping them keep the manufacturing process under control and proving their quality to customers. The same gauging system is also useful for glass container customers, assisting their incoming inspection routines.

Until now, no industrial system has been available to measure, in a

Measuring system for the inspection of the labelling area profile, mounted on the VisiQuick machine.



As a result of labelling area profile measurement, a topoghaphic map is available, showing positive and negative deviations with respect to the nominal straight profile.

quick and accurate way, the labelling area profile and detect the presence of both bulges and sinks. Traditional optical gauging systems, based on shadow casting technology, including one or more cameras acquiring the external shape of the container, ie its shadow with respect to an appropriate illuminated background, cannot detect negative shape deviations (sinks), because they remain hidden.

Marposs has designed an innovative (patent applied) optical measuring system, able to detect and accurately measure both 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 round containers and can also be applied for the inspection of flat label panels on square/rectangular ware. In this case, the container rotating plate is mounted on a precision linear stage, in order to transfer the container's panels in front of the optical system.

The Marposs VisiQuick machine has a modular structure and includes additional measuring stations. This includes, for example, stations to measure external dimensions and geometry, mouth internal diameter and internal profile, weight, push-up and wall thickness.

A leader in precision equipment for measurement and quality control in the production environment, the company was founded in 1952 and subsequently, has achieved constant growth. Marposs is present in 34 countries, in most cases with its own organisation and currently employs 3300 people. Production is undertaken in Bentivoglio, Italy and also in such countries as China, France, Germany, Japan, Korea, Mexico and the USA. ●

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