

Flexible inspection on a sample basis

Eleonora Bordini discusses the success of Italy's Marposs in the development of sample dimensional and geometry inspection equipment for the glass container industry.

Marposs is a leader in precision equipment for measurement and control in the production environment. The company was established in 1952 and has subsequently experienced continuous growth.

Co-operation with the glass industry started more than 20 years ago and currently, solutions are provided for glass containers, automotive glass and flat glass. The glass container market was approached either with existing products, based on contact technology, or with flexible solutions (VisiQuick), based on cameras, specifically developed for this market.

EQUIPMENT EVOLUTION

Since glasstec 2008 exhibition, when the first manual loading/unloading VisiQuick machine was introduced to the market, this product has undergone significant evolution in terms of layout and features. VisiQuick is now a flexible machine for dimensional and geometry inspection on a sample basis. It can measure glass containers with

any shape, dimension or colour without retooling. This characteristic distinguishing the machine from others currently available.

When the part to be measured changes, even though its dimensions and shape are very different from the previous item, the operator simply needs to programme or select the relevant recipe on the PC, enter the mould number, load the container batch on the input conveyor and push the start cycle button.

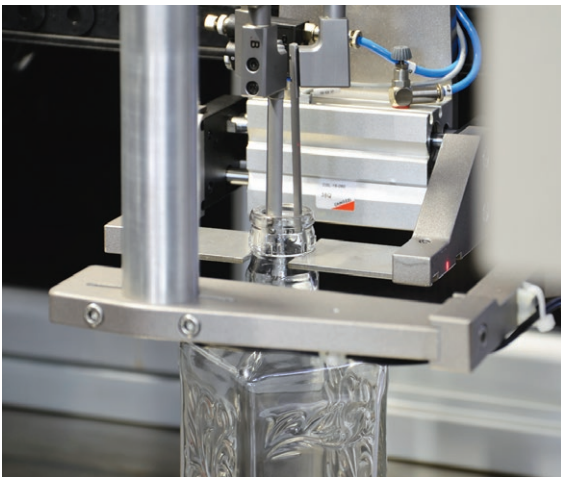
Containers are automatically loaded in the measuring stations and once measured, they are automatically placed on the output conveyor, where they can be removed manually.

The VisiQuick includes a measuring station with two high resolution cameras, dedicated to body and finish respectively, with telecentric lens and collimated illuminators to measure the external

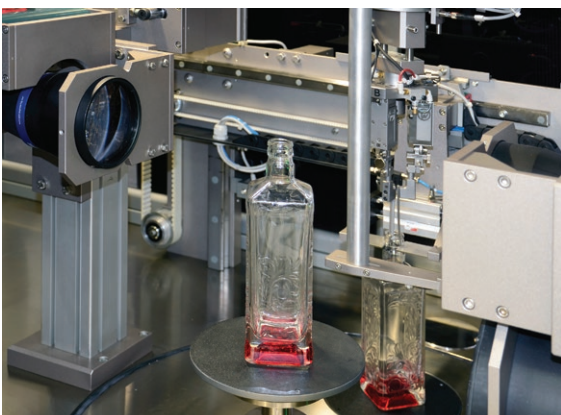
characteristics on finish neck and body, such as:

- Total height.
- Partial height.
- Verticality.
- Planarity and parallelism of the mouth.
- External diameters on body, neck and finish.
- Diagonals.
- Long and short sides of non-round containers.
- Thread diameter (interrupted threads and threads in depression are also managed).
- Angles.
- Radii.

The measurements database is growing continuously, based on customers' requirements. With an optional bore gauge, mouth internal diameter and ovality can also be measured at different depths from the top. The bore gauge does not need retooling. >



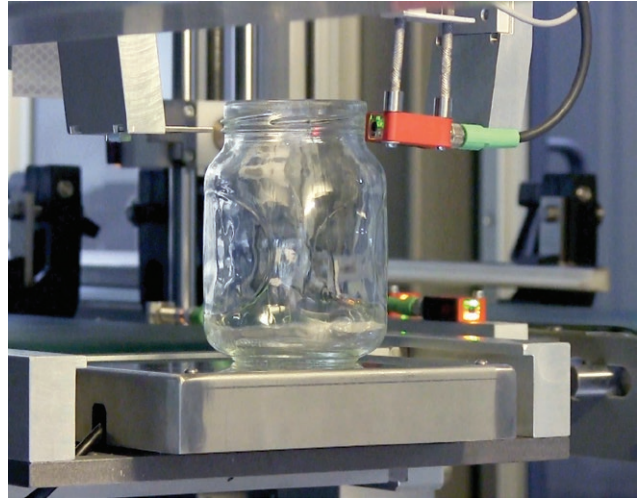
Bore gauge for internal diameter inspection.



Cameras and bore gauge.



Marposs VisiQuick machine.



Scale for weight inspection.

Sensors used in the bore gauge are designed and manufactured entirely by Marposs. They are very accurate but sturdy at the same time. In fact, they are also extensively applied for in-process measurements of metal parts during the machining (grinding) process.

Both camera measuring station and bore gauge are calibrated using a master, manufactured and certified by a Marposs-accredited metrology laboratory. The master can be manually loaded or it can be housed permanently inside the machine and automatically moved in the measuring stations when calibration is required.

Other optional measurements include weight, push-up and glass thickness.

SAMPLE INSPECTION BENEFITS

The VisiQuick equipment provides real-time, accurate information about geometry and dimensions of the containers, helping customers to monitor the manufacturing process, for example evaluate the status of the moulds and decide if they have to be replaced. On-line inspection machines are unable to provide such accurate information, so they cannot replace inspection on a sample basis.

The main reason for the VisiQuick machine's success is that it has been designed in close collaboration with glass container manufactures, listening to their needs and requirements and using Marposs knowhow and experience in metrology to find the best solutions to their gauging. The machine can provide measurement results compatible with Vertech's SIL system but interfaces to other proprietary production monitoring systems have also been developed. Another reason for the success achieved is the ongoing support provided to customers, from the definition of specifications to after sales service.

Among Marposs customers is the luxury container producer Saverglass, who recently received the 'Productivez' award, which is conferred on French companies that have invested to improve quality and competitiveness. The glassmaker has invested in two VisiQuick machines, contributing to it winning this prestigious accolade. ■

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