Production monitoring solutions
Philippe Bierry discusses the latest solutions to monitor glass container production in real-time.

A glass manufacturer recently received a complaint from a customer because of one bird swing, found on a single bottle over three weeks of production. The glassmaker asked an essential question: “How can we be warned to react immediately when a critical defect is found, knowing that a defective bottle is sent directly to cullet?”

This question raises two issues: One involves the identification of the type of defect by inspection machines; the other is the alarm to be sent to the operators.

Vertech has been working on these issues in partnership with inspection equipment manufacturers and has developed the SILViewer, which displays images from the machines to users at the hot end, cold end and plant management. The first step is to visualise the defects seen by the machine. In the near future, an alarm will be sent when the machines are able to identify the critical level of defects detected. Several manufacturers are already developing this functionality to display an image of the defects. Tiama, for example, is already able to send the images of the defects and their classification.

IMPROVED HOT END REACTION TIME
The SIL is able to communicate with any inspection machine (as long as its protocol is known) from IS machine to palletisers, including laboratory devices and to display losses and output in real-time to operators and managers. Until now, data has been displayed in terms of values or percentages but Vertech is taking the latest SIL version to the next level, offering the possibility to see pictures of the defects in real-time and their location on the articles produced.

With Defect Viewer, SIL displays the images of the last bottles rejected using the connected video inspection machine. The user can choose to view per cavity or per defect, as well as viewing counts and curves by transparency.

SILViewer was first operated at an Italian plant and was developed in co-operation with Italian supplier Video Systems, a company manufacturing a wide range of hollow glass quality control systems. Thanks to the high quality of pictures sent from the Video Systems inspection machines connected to SIL, the hot end operator can visualise the image of the defect, be it of aspect or checks, zoom on the images and react instantly to the defect detected, without receiving the bottle itself and taking necessary corrective action.

This possibility to see instantly, in real-time, such critical defects as checks on the bottle thanks to pictures is a decisive step in the improvement of reactivity at all levels of the plant. In the future, Vertech hopes to develop this functionality in co-operation with all inspection machine manufacturers, many of whom have shown a genuine interest in providing the images to SIL.

PRODUCTION MONITORED IN REAL-TIME
The SIL solution is a monitoring system for production lines, quality management and mould use management, dedicated to the hollow glass industry. It enables users to acquire data automatically and follow the output rates on each production line in real-time, with the immediate benefit of reacting wisely, according to alarm levels or to the analysis of critical drifts. While still producing, the plant can immediately determine the priority corrective actions and improve the quality follow-up.

The glassmaker is able to measure the incidence of each setting modification on the running job and quickly adjust machines.

KEY SOLUTIONS
The modular architecture of the SIL and its flexibility enable Vertech to adapt to the technical particulars of each plant and to answer their needs precisely. Information collected from inspection machines and events can be stored in the SIL database.

SILC: Allows real-time performance follow-up along
the production lines.

- **SILQual:** Allows quality control management and follow-up on lines and in the laboratory, providing SPC analysis capabilities.
- **SIL Pallet Audit:** Allows final product control capabilities, as well as held ware management.
- **SILMould:** Allows the efficient management of mould set performance, usage, changes, defects or damages.
- **SILXchange:** Allows a personalised and secured access to general plant information, as well as performance indicators (KPIs) through web technology.
- **SIL Report:** Allows a complete production data analysis through a comprehensive reporting tool, providing reports and certificates exportable in several formats.

**PERFORMANCE PARTNER**

With more than 18 years’ experience and more than 500 lines equipped with SIL worldwide, Vertech’s main strengths are the company’s expertise in glass production process control, a thorough knowledge of the standard practices in glass plants and its experience in customer-tailored software applications.

The company's business features include:

- Four worldwide office locations in France, Italy, the USA and Mexico to support customers.
- Over 20 highly qualified engineers in charge of development, installations and support.
- Up-to-date IT platforms for Linux and Windows.
- A team of regional agents close to customers in developing regions (China, Egypt, Iran and Korea).
- Partnership with inspection equipment manufacturers.
- Constant emergency hotline support.

A comprehensive range of services is offered, involving IT consultancy, automation to quality procedures, commissioning of installation projects, training for managers and operators on site, technical support with a 24h/day hotline option and maintenance of the system and annual audit on site, with an upgrade option.

Over the years, Vertech has gained the confidence of major glassmakers worldwide, providing concrete answers to managers’ requirements concerning yield and quality improvement. This now includes pictures of defects rejected by inspection machines. SIL 2014 version will be released soon.

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