

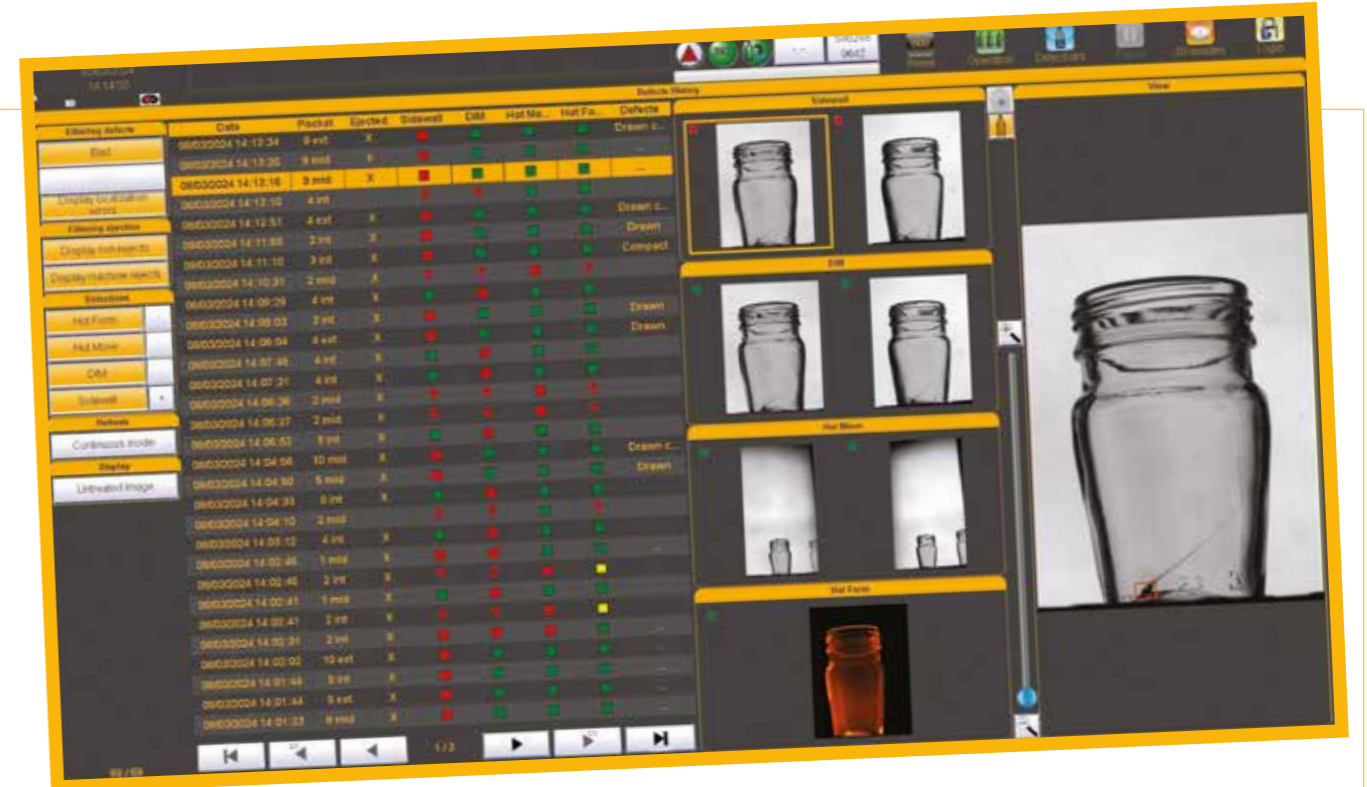
COST SAVINGS

HOT Systems by TIAMA signal greatly improved glass production

TIAMA continues to wow customers with its glass production revolution in innovative hot-end to cold-end process monitoring. Enhancing efficiency while reducing defects -all within the YOUNiverse concept- the company's technologies are leading to both significant savings and improved production quality.

Lucie Jouve - Hot End product Leader at TIAMA

For more than ten years now, Tiama has been a major player at the hot-end launching several systems dedicated to process monitoring. The very first one was the I-Care machine which was equipped with two infrared cameras located just after the IS machine. In 2014, the company launched its HOT systems, adding to its historically-provided cold-end products a fresh range of sensors dedicated to the hot-end. This was the beginning of a new era and the first steps towards what is now known as YOUNiverse. Today, the Tiama HOT systems range consists of four



sensors, each located in a different area around the IS machine - from the gob with the Tiama HOT mass 2 to the exit of the IS machine with the Tiama HOT eye, the Tiama HOT form and the Tiama HOT move.

PROCESS MONITORING TOOLS

The Tiama HOT eye is equipped with two high-definition cameras integrated inside two metallic tubes, as well as a light source, flashing articles on the conveyor with infrared light so that operators working on the line won't be disturbed. The main functions of the system are the detection of defects and the dimensional analysis of the containers. In dimensional terms, the system can provide verticality, height and diameter measurements.

The Tiama HOT move is an additional feature of the Tiama HOT eye, monitoring the transport of articles on the conveyor and providing information on positioning of the articles in both directions. The system also rejects the stuck or fallen articles on the conveyor.

The Tiama HOT form uses one or two infrared cameras while measuring the infrared emissivity of articles on the conveyor to

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identify problems with glass distribution or temperature. In this way such defects as thin glass or uneven bottom can easily be identified through the Tiama HOT form. The system also provides statistical data to identify production drifts at the early stage of the process. To limit the footprint on the production line, the camera of the Tiama HOT form can be integrated into one of the tubes of the Tiama HOT eye.

The systems are all synchronized with the IS machine - enabling the images and the various data supplied by the sensors to be linked to the sections and cavities of the IS machine. In the event of a drift, the operators know directly where problems arise on the IS machine.

This modular approach enables customers to meet their specific needs according to their production issues. Modules can be added step-by-step so customers can take time to understand how each machine works in order to facilitate ownership by operators.

HIGH PERFORMANCE IN HOT-END DEFECT DETECTION

The Tiama HOT eye uses a unique and innovative technology



at the hot-end. The high-definition matrix cameras and measurement by transmission both achieve an excellent defect detection level compared to infrared camera technology. Infrared images have areas with different brightness levels creating very dark or very bright areas where it makes it impossible to detect defects. The Tiama HOT eye is not impacted by these differences in radiation - which allows for complete inspection of the article from bottom to finish.

CONTINUOUS SENSOR IMPROVEMENT

Since the launch of these products, several developments have been made and implemented on the Tiama HOT eye and the Tiama HOT form. Owing to limited available space on production lines at the hot-end, Tiama has decided to launch a new version of its Tiama HOT move sensor - with no footprint. This new version is now only a software that can be installed as



an option on the Tiama HOT eye module. The old version of the Tiama HOT move was composed of a camera and several mechanical parts whereas the new one retains the same features. Tiama has always wanted to have products that can work on all production lines, which is now possible since the company recently developed the multi-product management on the Tiama HOT eye, Tiama HOT form and Tiama HOT move.

CUSTOMER BENEFITS

The Tiama HOT systems are sensors that help customers to

monitor and improve the glass process. Defects are detected at the hot-end by the Tiama HOT eye, allowing operators to perform quick corrective actions on the IS machine without waiting for cold-end feedback. Data measured by plants equipped with the Tiama HOT systems has shown that critical defects have been seen at the hot-end seven times more since the systems were installed. It also allowed a 20 percent reduction of blocked pallets and a halving of customer complaints - leading to significant savings for the plant.

Thanks to the glass distribution

analysis provided by the Tiama HOT form, defect creation can even be anticipated. Furthermore, data shared by customers has shown that the number of sidewall cold-end rejects has halved following installation of the Tiama HOT systems. Besides, ware handling has improved with the Tiama HOT move. Jams on the production line have seen considerable reduction and pusher settings have been optimized thanks to sensor-provided information.

SOLUTIONS THAT WORK WITHIN THE COMPANY'S RANGES

Tiama HOT systems provide a full range of data that can be used for a global plant overview from hot-end to cold-end. A few big data analysis projects have been carried out on lines equipped with all Tiama HOT systems sensors. Here the data provided by the systems can be correlated with different parameters of glass process and IS machines, allowing for production efficiency improvement afforded by certain defect reduction - all thanks to better process control. Tiama HOT systems are fully part of the YOUiverse concept in which its six fields of expertise are all necessary to move towards smart factories. Traceability, Inspection, Intelligence, Sampling and Services are all very important in the Tiama strategy with Monitoring being key to the life of YOUiverse. ■



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