




Tiama
INSPECTION
systems

DEVELOPMENTS AT THE COLD END



TIAMA

MULTI4 and WEM for defect identification and measurement

When Tiama's clients continued to request more capacity in defect detection, the company immediately started to innovate and develop a new function that not only optimizes detection performance, but also to undertake the corrective actions to eliminate defect from production.



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developments at the cold end

REEVOLUTION
TOWARDS WIRE-EDGE
IDENTIFICATION AND
MEASUREMENT

A few months ago, Tiama was asked by a number of customers to strengthen its capacity in the detection of wire-edge and overpress defects. The challenge proposed was to secure the detection and the characterization of this kind of defects. The need was not only to detect a defect but also to measure this defect and propose action towards it.

Knowing that wire-edge and overpress defects are often critical for the glass plant process, Tiama has innovated to respond to this demand with a new patented function called WEM, standing for "Wire-Edge Measurement", to be installed on a MULTI4. This new feature enables to optimize detection performance while keeping the highest possible productivity levels. It offers defect identification based on height measurement. No compromise: glassmakers can precisely qualify what the acceptable limit is for the defect height and

therefore refine pack-to-melt ratio while keeping the highest level of quality. The WEM principle enables to obtain the evaluation and anticipation of production drifts, giving the opportunity to identify the presence of an acceptable-size artifact and, if need be, to undertake the corrective actions to eradicate it completely from the production process.

OPERATING PRINCIPLE

The aim of this new system is to measure the height of any continuous protrusion at the inner part of the finish. Combining several views of the finish through a patented mirror adjustment, the WEM gives the exact value of the defect height for each container displaying a defect. The innovation lies into the ability to measure in μm the height of the protrusion and give for the wire-edge and for the overpress – two different types of protrusion in the neighborhood of the sealing surface – a value to compare to the acceptable threshold.

When developing WEM, glass

colour criterion had also to be taken into account. Indeed, several parameters generally affect the standard detection of the wire-edge. The worst combination is flint glass, narrow neck bottles with a threaded finish, where so many reflections and light paths are present that they affect the ability to correctly read the wire-edge defect presence. This is why WEM was designed to be adapted to any colour of glass ware.

Associated with a mould number reader, the Tiama MULTI4 with the WEM inspection can then immediately communicate the presence of such a defect in a given cavity or even inform of a tendency of good ware (commer-

The previous visualization of defects provided access to defect presence only. With side-wise visualization of defects, the inspection also enables to have defect height measurement. Threshold is set in order to reject any inner protrusion above limit. False rejection rate is kept very low thanks to the accurate height measurement. Global performance and productivity is improved.



Intelligence



Monitoring



Traceability



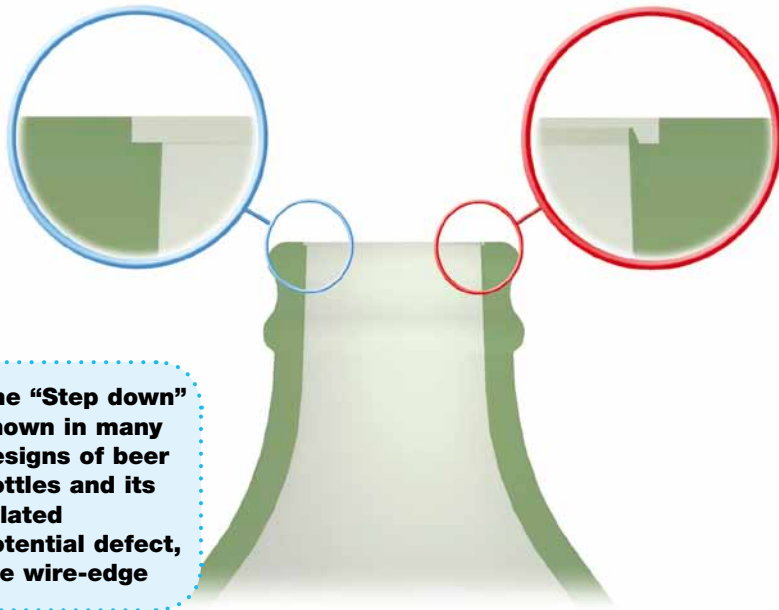
Inspection



Support



Real-time Process & Quality Controls



The “Step down” shown in many designs of beer bottles and its related potential defect, the wire-edge

cial ware) showing an increase in height of inner protrusion. This information is shared through line supervision solutions such as the IQ Tiamo product range, indicating overpress/wire-edge defect at the finish of the given cavity. The WEM, originally designed for narrow neck containers, is also available to inspect jars with finish diameters up to 90 millimetres. Available at the end of this semester, Tiamo foresees a strong demand for the WEM and is prepared to respond to it.

DEVELOPMENT THANKS TO BREAKTHROUGHS

This innovative inspection device has been developed thanks to three major breakthroughs. First, the design of a new camera with twice as many pixels than the highest resolution used so far for finish inspection. This high resolution camera is designed and produced by Tiamo to maintain the lowest price possible for customers and manage its long term availability. Second, and linked to the high resolution, is the ability to measure the glass protrusion in real-time and give an accurate μm value. This was made possible thanks to a new generation of electronics providing the highest speed analysis. Last but not least, the third tremendous input to this development was the use of new LED lighting delivering high power in a specific wavelength adapted to any glass colour used in our industry.

The WEM, with its measurement, set thresholds and its capacity to inspect all colours of glass, is capable of differentiating a wire-edge and an overpress from the ring mould seam or from the step down commonly present at the mouth of many designs of beer bottles.



The impact of this ability strongly reduces false rejects, which immediately translates to production efficiency. This way, no choice has to be made between quality and productivity.

Altogether, Tiamo has succeeded in delivering a new accurate measurement tool at the cold end. ■



WEM can be added to the Tiamo Multi4 Top and Bottom inspection machine or can be installed on your Cold End inspection line as a standalone system



Real-time Process & Quality Controls

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