

INSPECTION DEVELOPMENTS

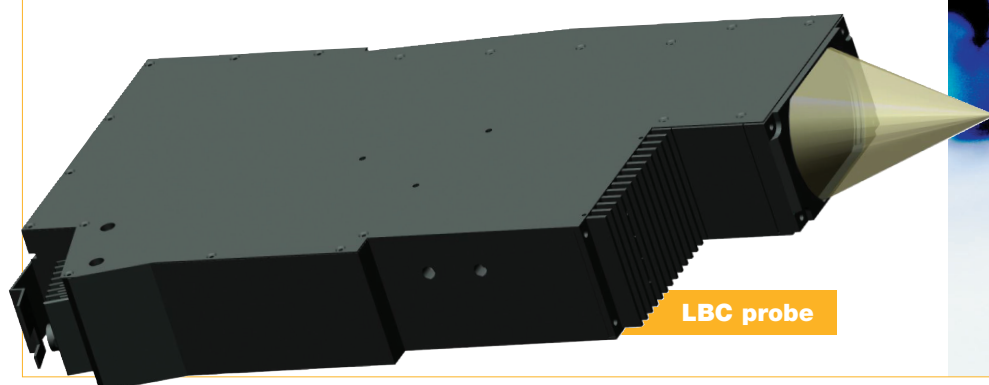
TIAMA LARGE BAND CHROMATIC PROBE

innovative thickness
detection with Smart
Factory possibilities

HUGE INSPECTION AREA

LBC, which stands for Large Band Chromatic, is a non-contact probe, designed in Tiama Headquarters with the collaboration of high-performance optical instrumentation specialists, and is based on a chromatic confocal technology. It is one of the probes of the Universal Thickness Measurement (UTM)

installed in carousel machines. In a climate of constant challenge, requirement levels are continuously increasing. The real breakthrough is to offer to customers a versatile multipoint thickness control in an extremely concentrated sensor. The LBC has an 11-millimetre vertical coverage thanks to eight measurement points, which makes it




LBC probe



Tiama
INSPECTION
systems





The LBC head is the latest enhancement in glass thickness measurement for Tiama and a real step toward reliable and trustful detection of thin defects. And being 'Smart' will allow glassmakers to prevent any type of container rejection, improving global production line efficiency.

Damien Defenouillère
Carousel Product Engineer
TIAMA

the widest chromatic confocal thickness detector of the market in the thinnest probe (only 45 millimetres high). This reduced vertical footprint combined with the possibility of mixing up to four heads on the same system, among which three large band devices, offers a huge vertical coverage of 34 millimetres reducing considerably the risk of missing any thickness defect.

SURFACE ANALYSIS

The concept of the LBC probe is to offer to customers the possibility to set the equivalent of eight very well-known Chroma-20 probes in an extremely reduced footprint. The combination of these eight close signals, sprayed on an 11-millimetre band, allow

to track the thickness defects even if they slightly deviate from their original position. Moreover, the association of these measurements allow a surface analysis and therefore an extremely precise mapping of the glass distribution in the inspected area. The thickness measurement is not anymore a basic "GO/NO GO" control. The surface concept allows a more accurate filtering of large and consistent defect versus tiny thin spots that might be acceptable up to the final customer. The thickness threshold is obviously part of the reject decision but the LBC (as the LBT before it), also considers the area of glass under this said threshold to make its decision.

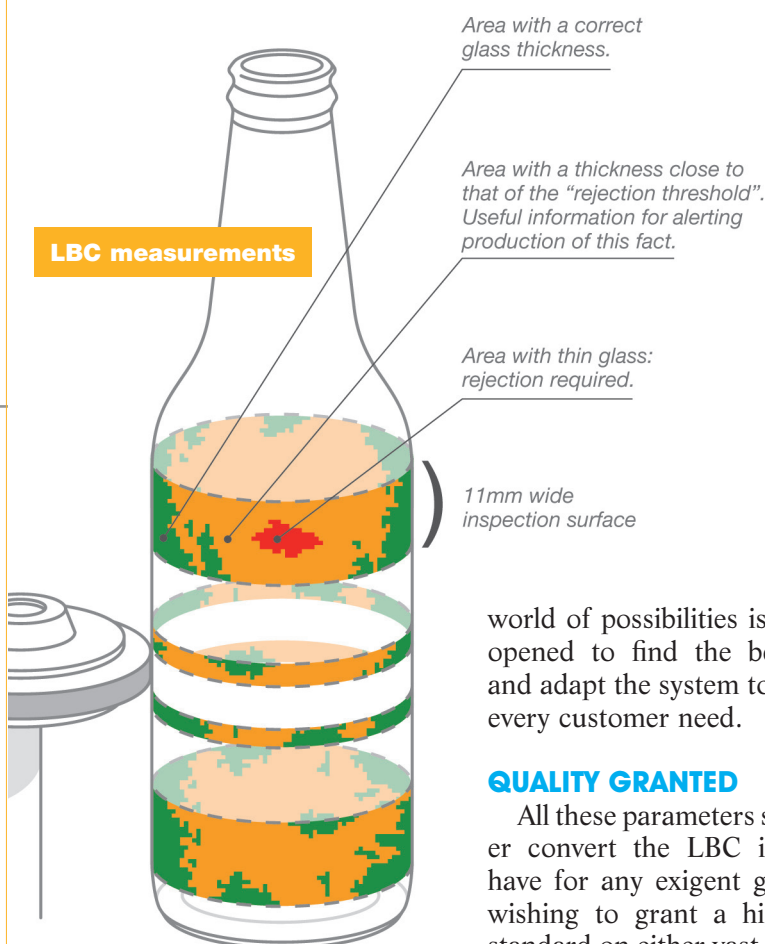
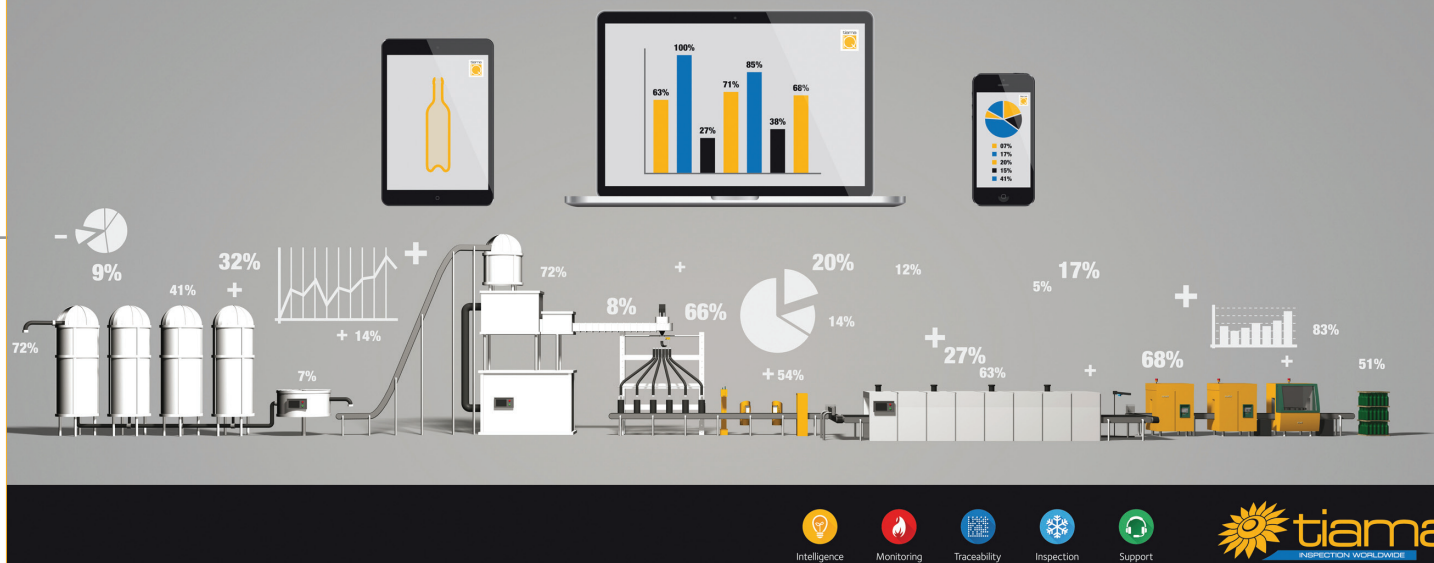
EXTREME VERSATILITY

The LBC has been designed in order to respond to customers' constraints. Its adjustment has been thought to be the easiest, proposing a large nominal working distance of 65 millimetres and a wide measuring range, up to 20 millimetres. Those parameters allow to set the probe at the same height as the article rotation, increasing the possible thickness measurement coverage. Due to this significant working distance, risks of shocks and damages are reduced and consequently this will reduce the maintenance operations. In addition, the horizontal tolerance of $\pm 15^\circ$ is converting the adjustment shortly and easily. This extreme flexibility makes this system equally efficient with odd shape containers as it is with round ones.

The flexibility of the LBC also lies in the fact that it can be hosted in any carousel machine of the market, by the UTM system. This Universal Thickness Measurement device allows, through powerful homemade dedicated processing boards, to welcome on the same base any

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On the way to Smart Factory



world of possibilities is therefore opened to find the best match and adapt the system to each and every customer need.

QUALITY GRANTED

All these parameters set together convert the LBC in a must have for any exigent glassmaker wishing to grant a high-quality standard on either vast or sophisticated article mix. The tracking of thin defects regardless of container complexity has never been so easy. The compliance of the device not only eases the settings,

but it also gives access to surface thickness measurement, even on odd shape areas. The global quality of the production can then be granted despite the container shape. With the LBC probe, the Tiamo thickness measurement portfolio is complete and ready to address any customer need in any area of the container, from contact points to the settle wave, passing by the bottom surface. Bad news for thickness defects: none of them will survive the UTM inspection!

AND FURTHERMORE, IT IS SMART!

Active component of the Tiamo YOUNiverse data providing philosophy, the LBC, as part of the UTM, participates in the development of the Smart Factory. When installed in a Tiamo MX4 machine, the UTM collects thickness measurements, which are high-value data, for every single container inspected.

Measurements and data can then be associated with other controls, specifically with a Data Matrix or Mould Number Reader, and the information sent into Tiamo Intelligent supervi-

of the latest thickness probes available in the Tiamo catalogue (LED, Chroma-8, Chroma-20, Chroma-BTM, LBT, LBC). A

sion systems such as Tiamia IQ scan. Instead of only rejecting articles with thickness defects, as we were able to do before, it is now possible to follow production drifts and react with immediate actions that can be conducted at the hot end on the concerned cavity, even before the relevant defect occurs. This will allow glassmakers to prevent any container rejection and consequently improve their pack-to-melt ratio. This closer regulation loop therefore improves the global production line efficiency.

YOUNIVERSE, THE SMART FACTORY CONCEPT

Tiamia created its smart factory concept called YOUNiverse, where 'YOU' stands for customers playing a central role in smart factory implementation; it aims to

help customers to make the most of the information Tiamia systems can provide, utilizing flexible and automated 'plug and play' solutions, making the inspection process statistical and capable of adapting to any changes, in any environment. Thanks to an open information interchange, this concept allows machines from any manufacturer to be linked to the YOUNiverse and 'speak to each other' but also to link Tiamia's five areas of expertise: Monitoring, Inspection, Traceability, Service and Intelligence.

In the glass plant, Tiamia provides data thanks to a series of strategically placed machines; at the hot end (gob control, article shape, emissivity etc.), in the laboratory (weight, dimensions etc.) and of course, at the cold end with inspection machines

(bottle thickness or ovality measurements). With a data matrix code engraved at the hot end, each container becomes unique and data gathered from all Tiamia sensors can be associated to this code and sent into the intelligent family.

Tiamia Intelligence Systems give customers the opportunity to gather real-time data across the production line, with results displayed on a single platform. □



Real-time Process & Quality Controls

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