

# In-line Bottle Testing Technology

**The article presents the reflections and conclusions of a fast-growing, export-oriented bottling company, willing to integrate the latest in-line bottle inspection technology, whilst being able to master the newly installed, high-technology equipment and its associated cost of ownership. Through choosing Miho Inspektionssysteme as a partner, Lisbeth Sources de Soultzmatt has successfully reached these challenging objectives!**

### **A long history, a bright future**

Soultzmatt is a French municipality located halfway between Colmar and Mulhouse. It enjoys the notoriety of its food and wines but it is also famous for its water source and the exceptional quality of its water. The 18th Century saw the first bottling of the waters of Soultzmatt which were sold locally but also exported for their medical properties.

The production of lightly mineralized table water under the brand name "Lisbeth" was initiated in 1922. Thirty years later, the municipality became the owner of the Sources of Soultzmatt and started an industrialization process to professionalize its operations and business.

To further strengthen and support the company development, the well-known Swiss soft drink company Rivella joined in 1991.

The historic building of the water sources.



### **Constant product innovation to trigger constant expansion**

Since its decision in 1996 to have "Lisbeth" as its main brand, the company developed a diversified product range exported worldwide. It not only includes water but also high-quality beverages, some of which are based on natural aromas like, for example, Effervé traditional lemonades. In terms of packaging, the company opted for PET and glass. It specialized itself in the production of swing top bottles and is today the market leader in France for private label swing top soft drinks.

### **Quality Management as a key ingredient for customer satisfaction**

Being aware that total customer satisfaction must be a key objective of daily operations, Jacques Serillon, General Manager, put product safety and quality at the heart of the company culture. This commitment is validated

by the IFS (International Food Standard) certification and by the Ecocert certification for organic lemonade.

To support the continuous Quality Control improvement policy, the company decided in 2017 to renew and upgrade all the in-line inspection equipment of its glass bottling line. It produces 9 different formats, ranging from 0,33cl to 1L, with crown cork, thread or swing top bottles at line speeds of up to 15 000 bottles per hour. Returnable and one-way glass bottles are produced and for optimal quality objectives the one-way bottles are also treated through the washing machine and inspected.

### **The importance of defining clear project goals**

Nicolas Rinnert (Production Manager) and Maëva Naffzger (Quality Manager) formulated a number of specific inspection equipment requirements presented here below:

During our discussion, Maëva Naffzger stated that for her, "The new equipment had to be able to help the company to satisfy and even exceed the quality requirements of our customers. It was also my intention to explore how the new equipment could help us optimize our internal quality control procedures."

Nicolas Rinnert concluded her reflections by stating that "for me, as a Production Manager, I was of course interested in inspection performance, but it was also crucial for me to have well-engineered, well-built, user-friendly equipment. I am looking for reliable machinery, guaranteeing a low cost of ownership and delivered by a reliable supplier with whom I can establish a positive, trustful and long-term collaboration."

### Miho Inspektionssystem - the sensible choice

After a thorough audit of several leading inspection equipment suppliers, the decision was taken to set up a partnership with Miho. The Miho sales and technical team had to present its solutions and convince all Soultzmatt operational people; including production, maintenance, quality control and management. In fact, Nicolas Rinnert confirmed that "it is our policy to implement collegial decisions on all important business aspects that have the capacity to impact the company in the long term".

"We took a look at the stainless steel construction of Miho inspection systems, admired their hygienic design and the passion for detail, surfed through the user interfaces, imagined the cutting edge inspection hardware and software integrated within them. We see and have in front of us over 40 years of engineering excellence and practical experience, ready to serve our company and our customers."



Linear empty bottle inspector

#### The Miho David 2

This linear empty bottle inspector inspects all bottle surfaces and can therefore be called an All Surface Empty

Bottle Inspector (ASEBI). Some unique features of this Miho machine were particularly interesting for Sources de Soultzmatt.

## Processing

The innovative software OpAL, combined with the 360° inspection of a fully equipped bottle that uses 4 cameras, gives Sources de Soultzmatt the possibility to inspect their bottles without the need to exclude some parts of the sidewall from the inspection process.

Swing top closure defects, such as a missing bracket or clapper, as well as incorrectly attached closures can be detected using dedicated sidewall inspection functions.

Sources de Soultzmatt also opted for the FSI, an innovative 360° Finish Sidewall Inspection. The technology offers unsurpassed detection accuracies of vertical splits, underchip defects and damaged threads.



Effervé traditional lemonades

INSPECTION	Existing inspector limitations	New inspector requirements
ASEBI	Sidewall	
	Limited sidewall inspection capabilities. Areas with embossing and swing top need to be masked.	Possibility to inspect 100% of the sidewall
	Limited detection of transparent dirt (foil)	Detect transparent foil on sidewall.
	Some surfaces are inspected looking through the bottle glass, leading to reduced inspection precision and an increased risk of false rejects.	Real 360° inspection.
	Finish	Inspect full finish sidewalls.
	Inspection is limited to the horizontal (sealing) part of the chip finish.	Detect vertical splits.
	No detection of vertical splits.	Detect 100% of thread.
	Limited inspection of the bottle thread.	
	No inspection of rust or dirt in certain critical positions of the bottle finish.	Detect rust and dirt in all finish areas.
	Base	
	Limited inspection of bottle base with embossing.	Inspect areas with embossing.
	Limited detection of glass particles.	Detect transparent and non-transparent objects accurately.
	Special	
		Detect swing top presence and mounting orientation.
FILL LEVEL	Limited accuracy	Improved fill level measurement accuracy
		Integration of Filler Management with Bottle Burst detection functionality to decrease the risk of bottle contamination.
		Optimization of reject device and reject table.
FULL BOTTLE	Limited to label and cap presence	360° full label inspection (color, position, alignment, date code, etc...).

### Base inspection

The quality of the inspection software and hardware, combined with the possibility to set up evaluation zones flexibly and to inspect bottle bases with embossing, allowed Soultzmatt to drastically improve the detection performance of this critical inspection.

The highly innovative AIM system adds additional product safety, thanks to the fully automatic machine self-diagnosing function, informing the operator when optical disturbances appear which can alter the detection of critical defects.

### The Miho Allround

Labels are a major marketing tool, used to make the product attractive and they also contain important consumer information. It is consequently of key importance to have a perfectly "dressed" bottle, fitted with the label corresponding to the product it contains.

With the Miho Allround, Sources de Soultzmatt inspects in full color and 360° of the bottle to analyse the labelling quality in detail. They also use the system to read printed code, to verify, for example, the correctness of the best-before date. A camera looks at the logo printed on top of the cap. The implementation of this high-tech inspector guarantees that all the bottles shipped to their customers are free from any labelling, capping and code printing defects. In this case, the Allround has been combined with the

Example of vertical split in finish sidewall



Newton HF to detect underfilled and overfilled bottles.

### A positive experience and the certainty that "we made the right choice"

Choosing a supplier of critical production equipment which has to serve the company efficiently for many years

is both difficult and stressful. Sources de Soultzmatt's project team is currently most relieved and happy.

They received professional support from the first sales contact to project finalization, a reason for them to confirm that choosing Miho was the right decision. Nicolas Rinnert is happy to say that "Miho engineers had a creative and efficient project approach. They offered a line layout where the new inspection equipment could be integrated with minimum changes to the existing line, whilst also succeeding to optimize product flow and bottle reject conditions. The installation process was seamless and thanks to an open and constructive collaboration between our respective teams, small issues and problems typically encountered during such projects were quickly solved. All these aspects had a positive impact not just on costs but also on line efficiency."

As an end-user Maëve Naffzger further acknowledges that: "I know that the Miho in-line inspection systems allow me today to inspect 100% of my production using highly reliable inspection technology. The miho AWES provides total traceability of in-line inspection processes and provides me with tools to analyse the related quality control date. Whenever I need support, the same systems allow Miho engineers to log in to help us when needed." 