

TapTone

APPLICATION NOTES

News and information from Teledyne TapTone, a leader in the package inspection industry.

Leak detection in a 100ml dairy container

Tested: Plastic 100 ml dairy container with foil seal

Tested with: TapTone 4000 Dual Sensor Compression (DSC) System

The purpose of this test was to prove the effectiveness of the TapTone 4000-DSC Sensor in testing very small plastic dairy containers with foil seals for leaks. Leaking containers can destroy outer packaging and ruin your brand image. More importantly, leaking containers offer contamination a point of entry into your product, which can cause product spoilage and potential health concerns for your consumers. The TapTone 4000-DSC sensor can test hot or cold filled plastic dairy container and is ideal for finding potential leakers before they leave your processing plant.



Plastic single serve dairy containers with foil seals.

TECHNOLOGY CORNER *How it works*

The T4000-Dual Sensor Compression system finds and rejects leaking and damaged flexible bottles at production line speeds up to 250 feet per minute. The system is designed with dual parallel belts suspended over the customers' existing conveying system.

As the container passes through the system, the dual parallel belts apply force to the sidewall of the container. This action compresses the headspace of the container which allows a comparative measurement to be taken at both the infeed and the discharge of the system. Comparing the container to itself between the infeed and discharge of the system, eliminates typical variations seen in the production environment (Fill Level, Product Temperature, and Container Density).

Utilizing advanced DSP technology the T4000 controller analyzes the comparative measurement and assigns a merit value to each container. If the merit value is outside of the acceptable range, a reject signal activates a remote reject system.

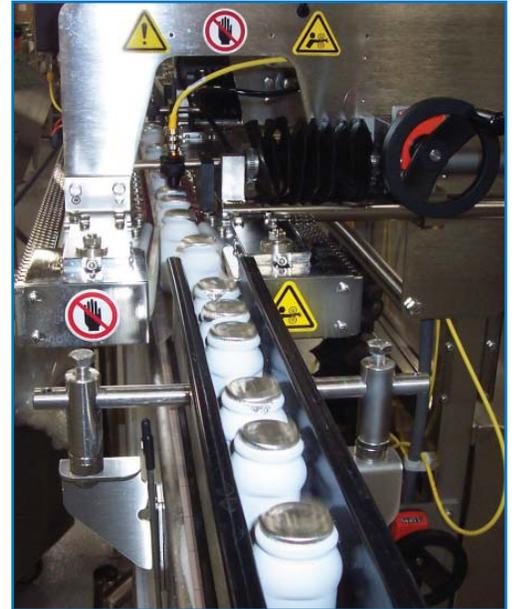
T4000 Dual Sensor Compression (DSC) System. Sensor has a cantilever design that suspends over the existing conveyor.



TEST

The TapTone 4000-DSC was designed to detect all leakers at .006 inch and larger. During testing, the system was challenged with 30 each of .030, .016, .012, and .008 inch leaks. The system was then challenged with gross defects passed through the sterilizer. The TapTone 4000-DSC demonstrated success in detecting and rejecting 100% of the defective bottles.

During the test period operators were asked to visually inspect for defects down stream of the labeler to determine if any defective bottles passed through the system. The visual inspectors reported that no leaking bottles were detected post labeler. Evaluation of the line continued by visually inspecting an additional 20,000 bottles post labeler. Further testing demonstrated the TapTone 4000-DSC was capable of repeating its 100% detection rate on .008, .010, .0125, .030 inch and gross leaks.



Foil capped dairy containers pass through the T4000-DSC post sterilizer.

SUMMARY

The TapTone 4000-DSC was successful in detecting 100% of leaks .008 inch (.200 mm) and larger. For this application, it is recommended that the system be configured with top down foil triggers and the optional missing foil sensor to provide additional protection. We also recommend the belt wash option for this system to remove residual product from the belts between line sanitation procedures. A TapTone 4000-DSC should be installed after the sterilizer and before the cooler, while the containers are still warm, to detect and remove containers with .008 inch (.200 mm) leaks and larger.



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