



TapTone

APPLICATION NOTES

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

New Package Inspection for Single Serve Coffee Pods

- Tested:** Coffee pods with plastic membrane seal closures
- Inspection Desired:** The purpose of this test was to verify the seal integrity of coffee pods for leaks.
- Tested with:** TapTone T4000 DSC-LP with TDLC Overhead Sensors.

With the growing popularity of the single serve coffee pod comes the need for manufacturers to insure proper seal integrity.

Teledyne TapTone has proven patented technology that can inspect one hundred percent (100%) of the container pods before the packages are shipped and the leaks are detected by the consumer.

Is Your Pod a Good Candidate for a T4000-DSC-LP Inspection System?

Sidewall Flexibility Test - The easiest way to determine if a container is flexible enough to be compressed in a T4000 DSC-LP is to place the container between your fingers and gently squeeze the sidewall. Use your thumb and forefinger to simulate the 1/2" compression belt height. If the container compresses to a point and stops, the container is a good candidate for compression testing. The size and shape of most coffee pods make them ideally suited for inspection on the T4000 DSC-LP with TDLC overhead sensors. This system configuration will yield the most sensitive and accurate leak detection for this container type.

TECHNOLOGY CORNER *How it works*

The T4000-Dual Sensor Compression system with TDLC overhead sensors finds and rejects leaking and damaged flexible coffee pods at production line speeds up to 300 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

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.

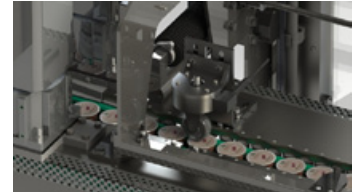


TapTone T4000-DSC-LP



TDLC Sensor

TapTone has expanded its product line of patented pressure inspection technology with the introduction of the TDLC sensor. Gently squeezing the container sides creates head pressure in the container and causes the foil or plastic seal to dome, thus permitting a pressure measurement to be taken from above. This innovative TapTone design gives customers a method to detect tiny leaks in smaller, low profile style products.

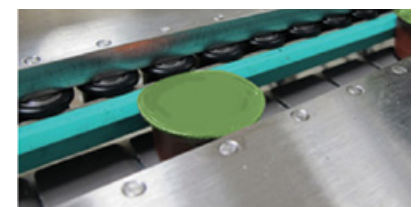
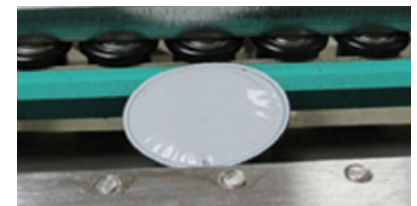
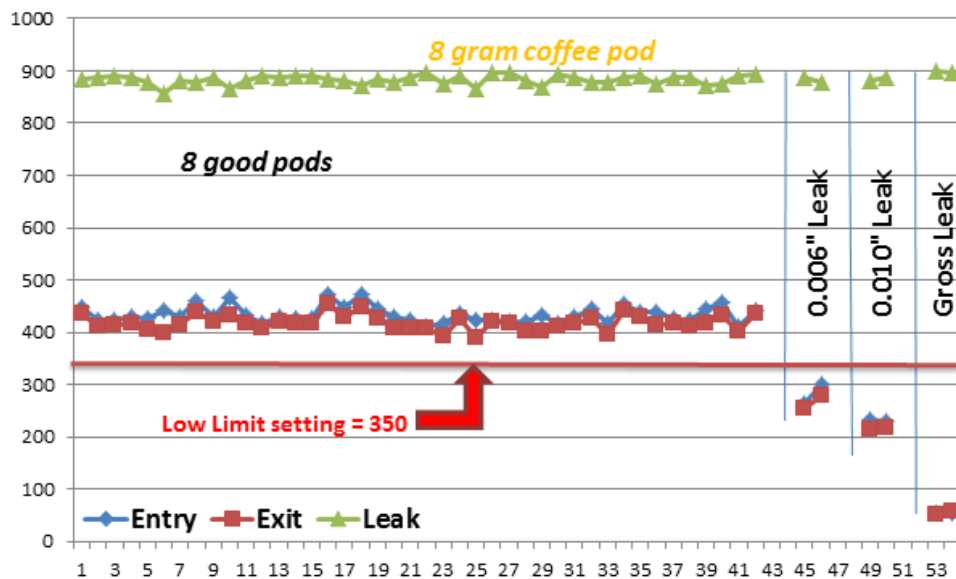


Testing Review

Three (3) sample sets were purchased locally for evaluation. The lids of these pods were already expanded due to the coffee de-gassing so minimal pressure on the sidewall was needed for testing. Eight (8) pods were tested several times on a rotary conveyor. Leaks were manually created using a precision drill and piercing the membrane near the edge.

Testing Summary

Dual TDLC sensors were determined to work best on this application. Testing results confirm leaks are detectable down to .006" depending on line speed and dwell time under compression. Larger holes (.010" - gross leaker) have greater than 10% change in Merit values from the normally sealed containers and are easily detectable with low limit settings. Visual observations confirmed that both the plastic container and the membrane closure showed no signs of wear during testing. See data below.



Single size pod samples (coffee) being tested in T4000 DSC-LP.

The T4000 DSC-LP sensor with TDLC worked well on these style coffee pods. The T4000 DSC-LP sensor with TDLC was able to detect a leak size of 0.006" and larger through the container and membrane closure. Testing at higher production speeds may result in a variance of minimum leak sizes. The T4000 DSC-LP sensor with TDLC sensor can be recommended for the inspection of most single serve coffee pod applications.

Test results achieved in the test laboratory may be different from results seen in the production environment.



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