TapTone
APPLICATION NOTES

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

FILL LEVEL AND DAMAGED OR MISSING PULL TABS IN CRAFT BREWERIES - PART 2

Tested: Pull Tab Cans

Inspection: The purpose of this test was to prove the effectiveness of TapTone systems in determining fill level, seal integrity and pull tab inspection in beer cans. By using a T550 interface connected to an X-Ray Sensor with a Proximity Sensor, both of these defects can all be found using one system. This level of inspection is critical for ensuring that no beer cans reach the consumer without the highest quality.

Tested with: TapTone T550-RTV-X Ray Sensor
TapTone T550-RTV-P Proximity Sensor

Beer Can Passing Through the TapTone Proximity Sensor

TECHNOLOGY CORNER *HOW IT WORKS*

FILL LEVEL INSPECTION: X-Ray Sensor With Beer Cans

X-Ray technology is used to measure the product fill level in steel, aluminum, glass, plastic and paper containers. An X-Ray tube energized at high voltage is used to produce a low energy X-Ray beam. This X-Ray beam is focused to look through the container in the expected fill level region. As the X-Ray beam penetrates the container, it is attenuated by the amount of product blocking the beam. The beam is monitored by a scintillation detector, which counts the X-Ray intensity after it goes through the container. The level of intensity is proportionate to the fill level of the container. User set rejection limits defines the high or low fill threshold.

Five cans of craft beer with proper fill levels were passed through the Fill_xr sensor with one can intentionally made to represent a "bad" can with a reduced fill level. This series of tests clearly demonstrates the abilities of the TapTone T-550 Fill_xr X-Ray sensor to identify and reject cans with improper fill level.

TapTone Fill_xr system

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TECHNOLOGY CORNER
HOW IT WORKS
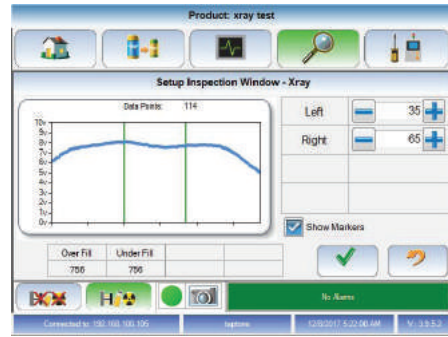
PROXIMITY SENSOR WITH BEER CANS

Proximity technology measures pressure or vacuum in food cans, beverage cans, glass jars, and bottles with pop-up lids by measuring the lid deflection. The proximity sensor produces a continuous magnetic field that monitors the distance to the metal lid and produces a proportional analog voltage. The continuous proximity signal is digitally sampled to produce a merit value* of the lid profile. The profile value is then compared to user-set limits. Containers with lid deflection outside these limits are rejected.

"Good" Can on X-Ray Sensor

"Bad" Can on X-Ray Sensor
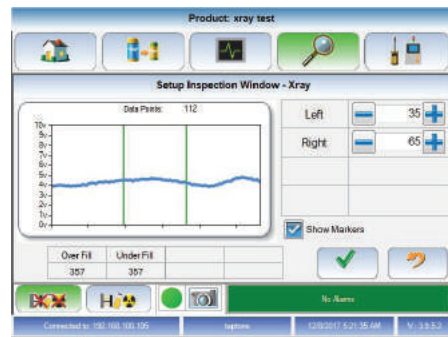
TEST SUMMARY – BEER CANS

For this application review, several cans of beer were intentionally made to be a "bad" sample by removing and bending the pull tab and pouring out 1.5 inches of product repeatedly tested on a loop conveyor. The graphs (right) indicate that the change in fill level, lid deflection and missing pull tab were all easily detected by the TapTone T550 X-Ray with Proximity sensor.
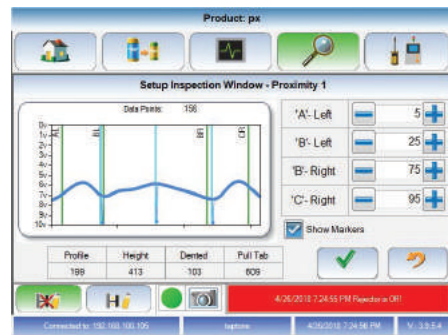

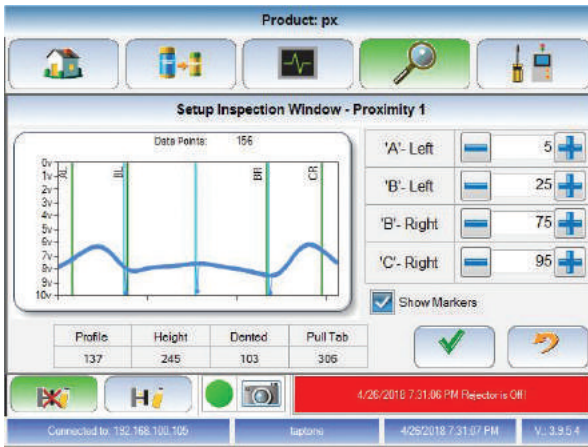"Good" Can on Proximity Sensor

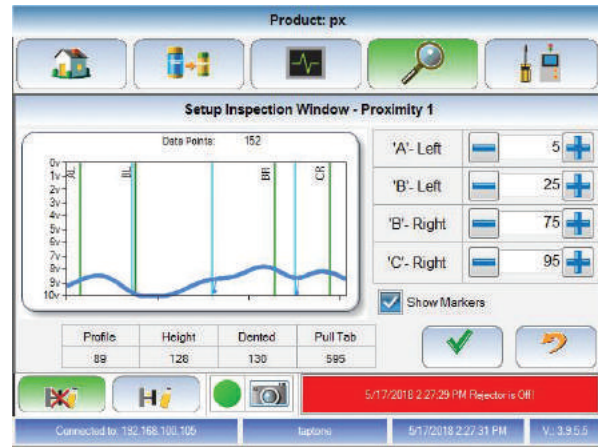Sample tested: Beer can with pull tab.

"Bad" Can on Proximity Sensor
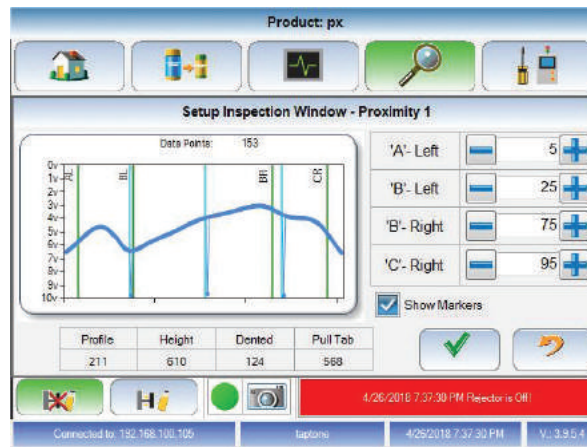
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Missing Pull Tab on Proximity Sensor

Open Can on Proximity Sensor

Bent Pull Tab on Proximity Sensor

CONCLUSION

The results clearly show that the TapTone T550 X-Ray sensor can easily identify under filled cans while adding the Proximity sensor can detect a missing or damaged pull tap and a zero pressure can. The combination of these two systems is highly recommended for canned craft beer applications. TapTone offers a wide variety of inspection sensors for production applications in the craft beer sector providing reliable inspection for both glass and can beer.

Merit value is a calculated number determined using an algorithm to compute a resultant from a set of data values. Test results achieved in the test laboratory may be different from results seen in the production environment.

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