

# TAPTONE

# APPLICATION NOTE

Volume 1, No. 1

## FINDING HIGH CAPS AND MISSING FOIL INDUCTION SEALS IN PLASTIC PHARMACEUTICAL BOTTLES

**Tested:** Various sized (50cc to 1300cc) plastic bottles with plastic lids and foil induction seals

**Tested with:** TapTone 100 High Cap/Missing Foil Proximity Sensor

The TapTone Series of Inspection Controllers can be configured to perform a number of inspections including: low vacuum, missing caps or lids, swelled cans and "button-up" lids, cocked caps, missing labels and tamper bands, and visible low fills. For this test, the evaluation performed, was for the detection of high caps and missing foil seals in plastic pharmaceutical bottles.



TapTone 100

## How It Works

In this configuration, the inspection system utilizes a proximity sensor to detect foil induction seals. The proximity sensor produces a continuous magnetic field that monitors the presence of metal foil and produces a proportional analog voltage. When a container without a foil seal passes the inspection station, the absence of any voltage indicates the absence of a foil seal.

To find high caps, the system uses an optical sensor set-up horizontally. This optical sensor will detect cross-threaded or misapplied caps.

All controllers are equipped with quick disconnects, which allow for the addition of sensors for alternate inspections. These include low vacuum, missing caps or lids, swelled cans,

cocked caps, missing labels and tamper bands, and visible low fills.



TapTone 100 base with quick disconnects for optional inputs

See next page for test results



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*Package Inspection Systems*  
A Teledyne Technologies Company

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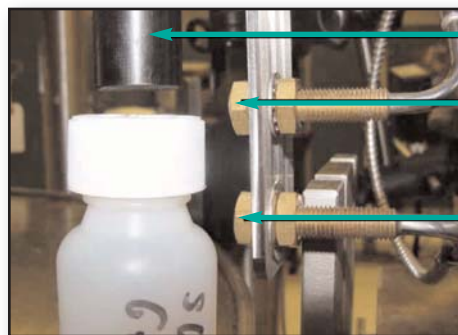
### TEST SUMMARY

Several sample pharmaceutical bottles of various sizes were inspected. The samples had both standard and safety caps. The evaluation was performed on a rotary table. The data provided below, indicates that the T100 can consistently detect both high caps and missing foil seals. It was determined that safety caps did not reduce the ability of the system to detect these defects.

The TapTone 100 High Cap/Missing Foil sensors can easily be configured with a conveyor mounted bridge assembly, with an adjustment crank for reproducible height alteration.



Plastic Pharmaceutical Bottles



Proximity Foil Detector

High Cap Detector

Photo Trigger

120cc Bottle			60cc Bottle		
Good Cap	High Cap	Missing Foil	Good Cap	High Cap	Missing Foil
Total = 50	Total = 50	Total = 50	Total = 50	Total = 50	Total = 50
Pass = 50	Pass = 0	Pass = 0	Pass = 50	Pass = 0	Pass = 0
Fail = 0	Fail = 50	Fail = 50	Fail = 0	Fail = 50	Fail = 50
Missing Lid = 0	Missing Lid = 0	Missing Lid = 50	Missing Lid = 0	Missing Lid = 0	Missing Lid = 50
Swelled Can = 0	Swelled Can = 0	Swelled Can = 0	Swelled Can = 0	Swelled Can = 0	Swelled Can = 0
Cocked Cap = 0	Cocked Cap = 0	Cocked Cap = 0	Cocked Cap = 0	Cocked Cap = 0	Cocked Cap = 0

TapTone 100 High Cap/Missing Foil Observed Results