



TapTone

APPLICATION NOTES

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

Closure Inspection Using an Integrated Camera Solution for Visual Inspections

Application: Vision inspection for closures on various products

Closure: 28mm Flat Plastic Screw Cap

Inspection: High Cap, Cocked Cap, Missing Cap, Compromised Tamper Ring

System: Front View Backlight (FVBL) SelectVu™ System

Challenge: Closure inspection integrity is critical to meeting stringent FDA regulations and to ensure the quality of consumable goods for the end user. A properly sealed container insures leak-free transport from the production facility to the end user while extending the shelf life by protecting against possible contaminants and bacteria from open air exposure.

An improperly torqued cap or a compromised tamper ring can be impossible to identify in today's high speed production lines without a high speed inspection system. The TapTone SelectVu system offers a scalable line of vision systems specifically designed to meet your needs.

TECHNOLOGY CORNER *How it works*

Each SelectVu camera is programmed with a product solution to inspect through a series of taught images and protocols to determine a 'Pass' or a 'Reject'. Utilizing DSP technology, the controller analyzes the measurements and assigns merit values to each measurement taken on a container. Any merit values outside of the user set tolerances signals a remote reject system to properly separate good vs. bad containers.

The SelectVu system is the most versatile and compact inspection system in the TapTone vision product line for non-contact package inspection. The system utilizes a fully integrated Dalsa "smart" camera designed to capture multiple inspections in a single pass. Its multifunction design coupled with a small footprint captures and processes images of passing containers within a fraction of a section.

The SelectVu system can operate as a stand-alone system or can be integrated with other TapTone inspection systems. Applications include Cap / Closure Inspection, Visual Fill Level Inspection, Label Inspection, Date & Lot Code Verification, 1D and 2D Barcode Verification and more. At its maximum operating speed, the SelectVu vision inspection system can reliably inspect up to 2000 containers per minute.



▲ The TapTone SelectVu

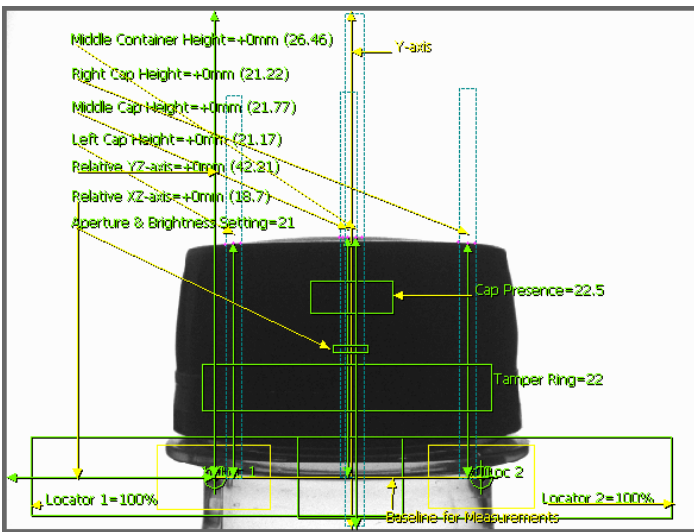


Overview

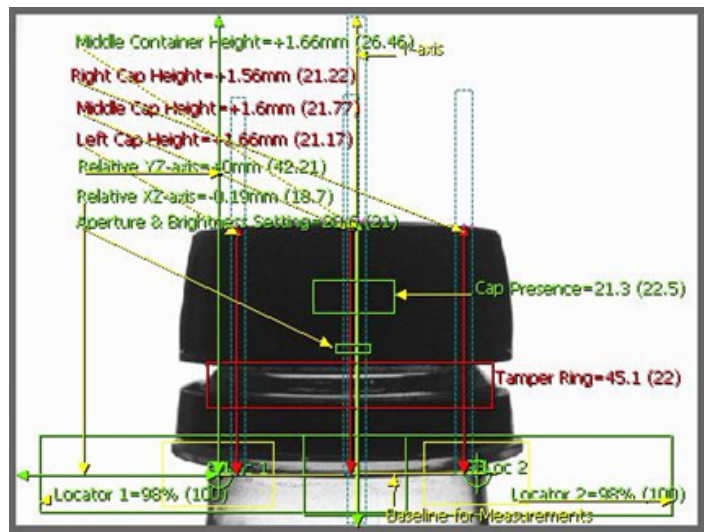
The figures and illustrations below represent actual inspection images from a sample test performed on 16.9 fluid oz. (1.06 pint) PET bottles with a SelectVu Front View Backlight (FVBL) System. Both acceptance and rejection tolerances were defined and preset into the solution of the configured camera for criteria comparison. Inspected components of the container's cap acceptance criteria resulted in a Green inspection tool status indicator while components that fell beyond set tolerances resulted in a Red inspection tool status indicator. The status indicators used in each solution clearly outline the "good" versus "bad" areas for identifying defects



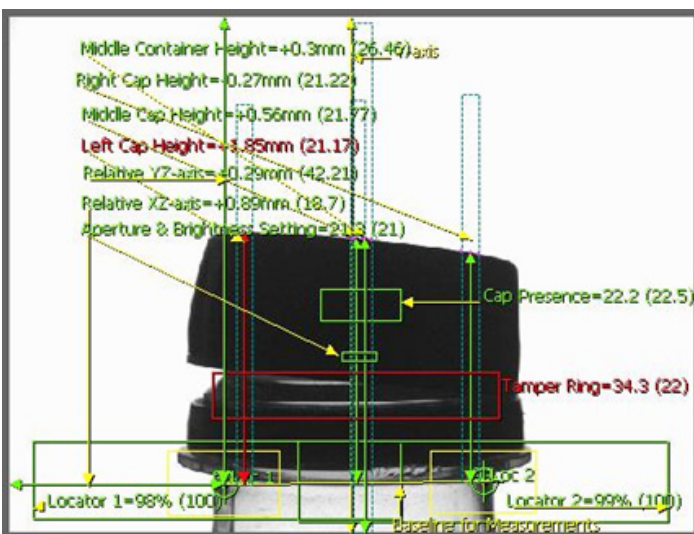
Fig.1 Featured Cap: 28 mm flat plastic screw cap



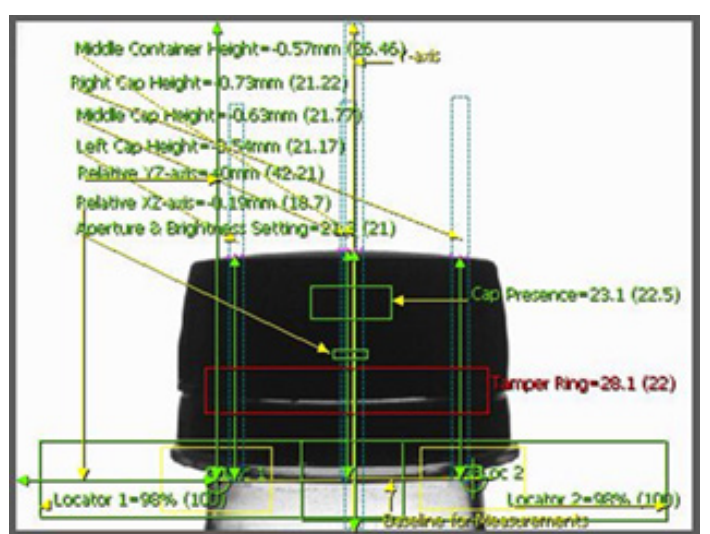
Solution for a 28mm flat plastic screw cap inspection



High cap detection

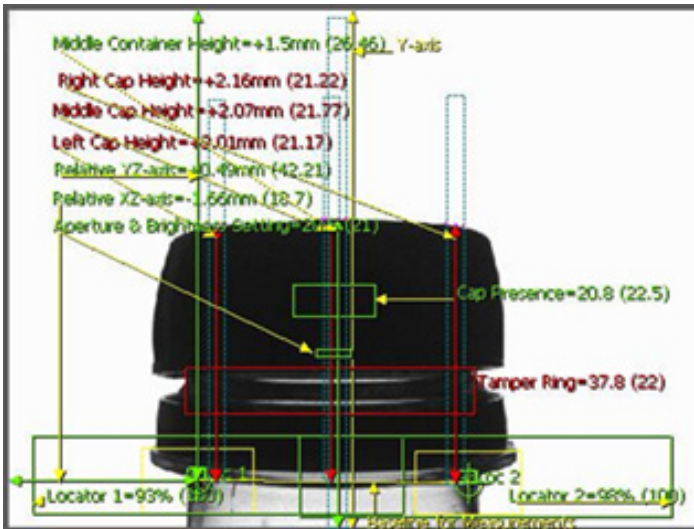


Cap cocked left detection

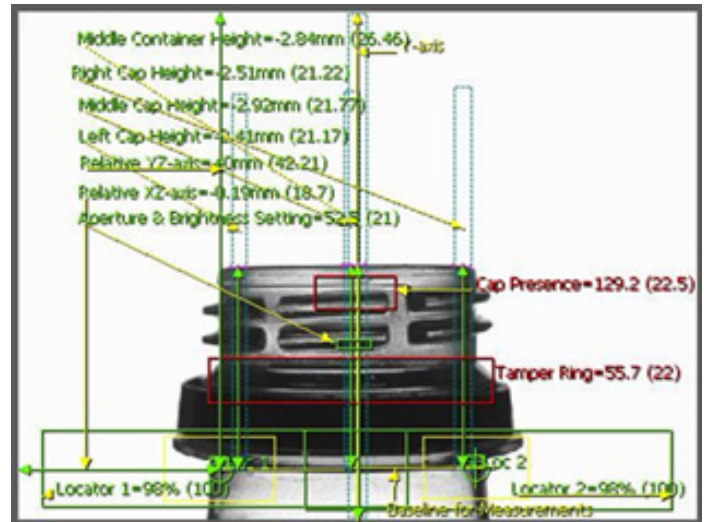


Compromised tamper ring detection





Cap cocked front detection



Missing cap detection

Application Summary

Failure to detect cap closure and tamper ring defects can pose a real consumer hazard and directly impact the brand owner product image. The application here demonstrates the effectiveness of the SelectVu system in identifying and rejecting cocked and/or missing caps as well as compromised tamper rings.



49 Edgerton Drive • North Falmouth, MA 02556 USA
P: +1 508.563.1000 F: +1 508.564.9945 E-Mail: taptone@teledyne.com
5/2014 Specifications subject to change without notice.
TapTone is a registered trademark of Teledyne TapTone. Copyright 2014, Teledyne TapTone.

