

# APPLICATION NOTES

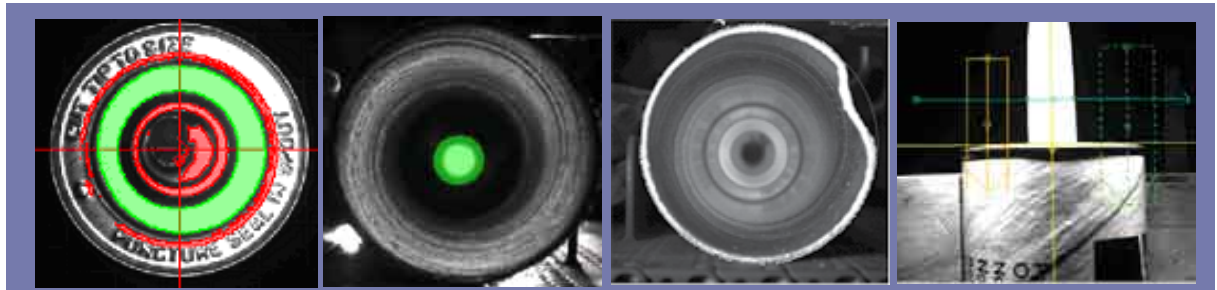
## IMPACT Solutions for Packaging Industry Four Cameras Inspection Caulk Container

### Application Description

Four Impact T20 cameras are used to inspect an empty caulk container before product is loaded into the tubes. The vision systems are required to look for four major defects; 1. The position of the nozzle; 2. The presence of the foil inside the tube; 3. The shape of the open end of the tube; and 4. The seal between the metal end of the tube and the cardboard side of the tube. Camera 1 is positioned to look at the nozzle end of the container. A 3.5 inch strobe ring light is used to light up the area such that the metal around the nozzle appears bright. When the nozzle is missing or not positioned correctly, this area will appear dull or dark. Camera 2 is positioned to look at the open end of the container.

The same trigger that starts inspection on Camera 1 starts the inspection for the presence or absence of the foil with Camera 2. Since the nozzle is translucent, the light positioned at the nozzle end will appear as a bright spot to Camera 2, unless the foil is in place to block out the light. After the foil inspection task is completed, Camera 2 is triggered again, this time with a second 3.5 inch ringlight positioned to only light up the edges of the tube. A circle gauge tool is used to measure the roundness of the tube opening.

### Two cameras with 5-inch LED light inspecting the sides of the tube



Camera 1

Camera 2A

Camera 2B

Cameras 3 & 4

### Application Highlights

- Four Cameras producing 7 different images of the part
- Special lighting configuration to accommodate for a variety of colors on the side of the tubes
- Complete all inspections within 0.2 seconds per container

Cameras 3 and 4 are used to inspect the side of the tube. The cameras are triggered simultaneously before the part is rotated 90 degrees. After the part is rotated, a second trigger occurs giving 4 images of the tube, one every 90 degrees. In moving 90 degrees the tube will travel about 4 ½ inches. For this reason two 5 inch led linear lights were used to light the top and bottom of the tube. A polygon ROI is placed along the edges of the tube to look for defects such as cracks, dents and broken seals.