



## Application Solutions

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### Packaging Industry

#### ***Molded bottle opening inspection detects molding defects.***

**Problem:** Customer needs to confirm that each molded bottle opening has been molded correctly to guarantee proper fit of cap and that the bottle throat was formed correctly. This inspection also helped guarantee that the bottle was not deformed or damaged in the cutting or cooling process. Each failed bottle can be removed and recycled before filling and capping to minimize waste.

**Solution:** Use Omron's F160 vision sensor to perform multiple edge inspections at critical locations and then use math comparisons to determine compliance with a "master" image.

#### *How it works:*

Multiple edge detections are performed at critical locations to determine molding errors as shown in image 1 at right. Image 2 and 3 show the mathematical calculations to determine if tolerances meet specifications.

By using the F160's edge extraction filter, edges can be highlighted for easy detection and measurement using edge detection software tools. With the use of a backlight, edges can be highlighted and extracted with ease. By using the F160's judgment calculation capability, edges with tolerance relationships can be manipulated against each other to determine width and height measurements and compensate for movement of the bottle in the field of view.

**Image 1**



**Image 2**



**Image 3**

