LMI TECHNOLOGIES

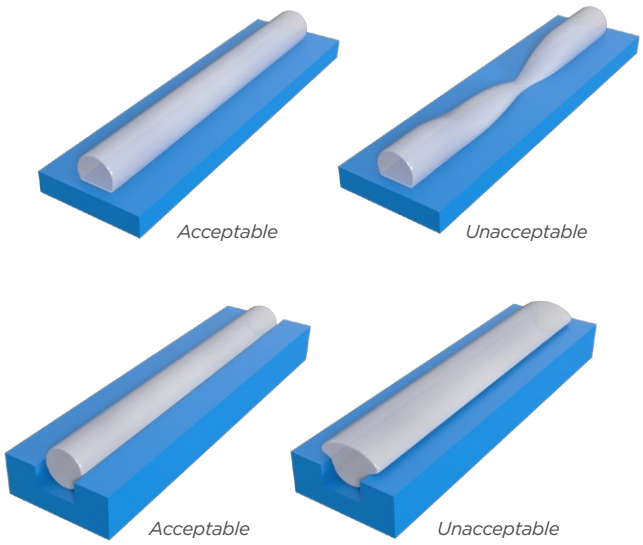
Industry Applications

Electronics

Gocator Line Profile Sensors

ADHESIVE AND SEALANT INSPECTION

The inspection of adhesives and sealants (typically applied as beads) is a critical quality control step in the assembly of electronics. To meet this challenge, Gocator all-in-one 3D smart sensors offer a complete solution to ensure correct bead volume and location without overflow or breaks.



Examples of acceptable and unacceptable adhesive application for an open (top) and groove-filled (bottom) surface

The Application

Adhesives and sealants are used in a wide range of applications in consumer electronics. Whether they are applied as continuous or individual beads, it is important to verify correct volume and location before moving to the next assembly step.

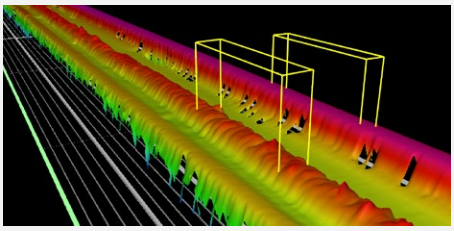
Excess volume can result in leakage and rejection of the final part. Alternatively, insufficient or broken beads can lead to poor adhesion or seal and premature failure as a result.

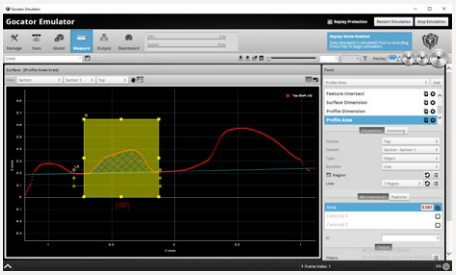
The Implementation

A Gocator line profiler is mounted on a robot or dispenser to scan the adhesive or sealant after it is applied to open or groove-filled surfaces. Scanning after dispensation ensures the beading is properly applied and within the correct tolerance.

Gocator provides built-in measurement tools to set up automatic pass/fail requirements. These tools can detect excessive coating, dents/gaps, or flaws (incorrect position). For example, to calculate the correct position of the adhesive bead, the width between the bead and the edge of the part can be measured using the Surface Dimension tool (top image) at chosen locations.

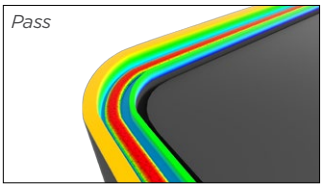
Additional measurements, such as height, length, and angle can be applied to ensure adherence to desired shape. In Profile mode, the sensor calculates the amount of material applied using the Profile Area tool (bottom image). This can be achieved continuously in real-time and produce multiple profile cross-sections along the target.

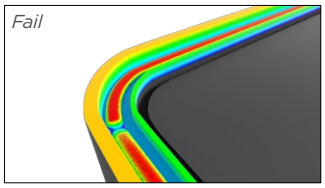




Built-in measurement tools, including Surface Dimension and Profile Area for calculating bead volume and location.

Glue bead height inspection on an electronics enclosure





The Benefits of 3D

2D technology cannot be used for adhesive and sealant inspection because 2D images are unable to distinguish transparent glues from the surrounding area. Gocator 3D smart sensors provide features for scanning materials that vary from transparent to opaque, including multiple exposure and automatic top surface detection.

In addition, 2D is unable to measure height data and volume. Gocator 3D smart sensors, in comparison, provide high-resolution height data, which allows users to accurately determine bead location and volume.

To learn more about Gocator 3D Smart Sensors,
please email **contact@lmi3d.com**

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