



LMI TECHNOLOGIES

Industry Applications

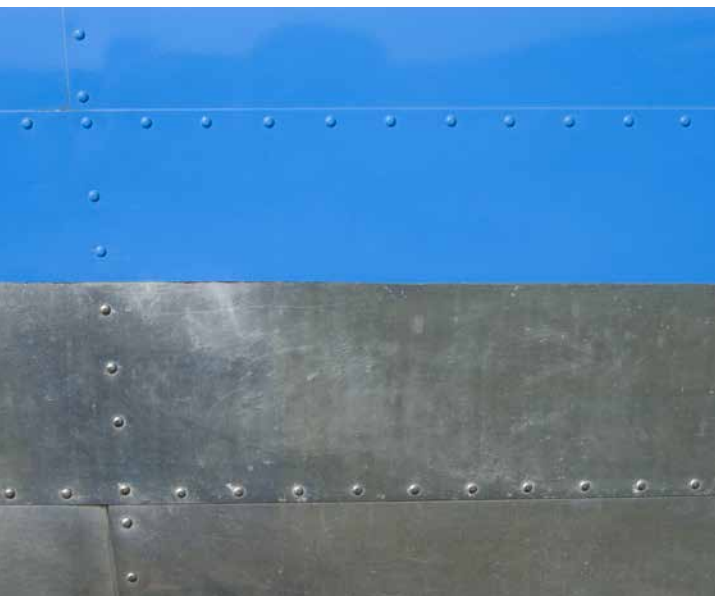


Aerospace

Gocator® 3210 | 3506

HOLE AND FASTENER INSPECTION

Drilling holes and applying fasteners are critical processes in today's aerospace manufacturing sector. To ensure the quality of key components, tight controls must be maintained. The Gocator 3000 series snapshot sensors offer a complete solution for this important two step application.



The Application

Countersunk holes drilled into curved parts and assemblies (such as airplane fuselages) must meet tight tolerances. The **Gocator 3000 series** snapshot sensors can be mounted on robotic systems and used to quickly scan and analyze the hole geometry.

After the holes are verified, fasteners (such as rivets) are inserted to join components together. These fastener heads need to be inspected for flushness, gap and angle in relation to the surrounding surface in order to ensure the quality of each join.

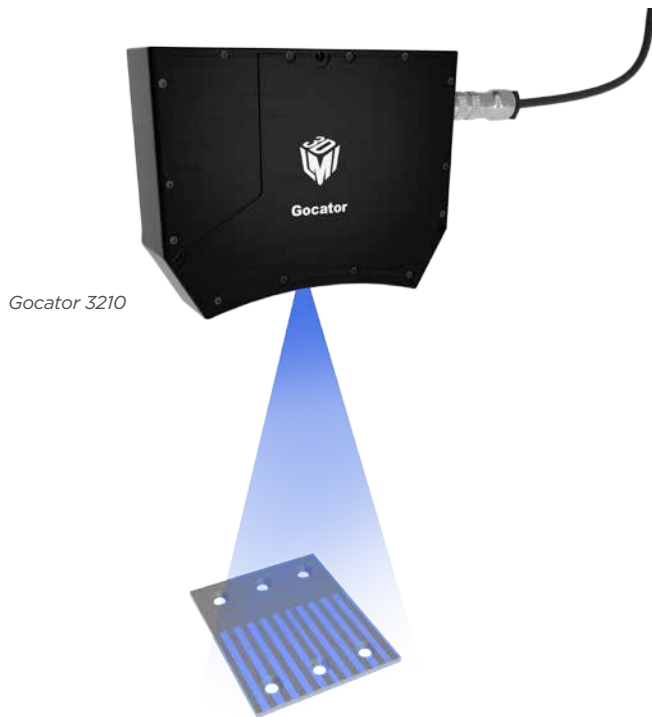
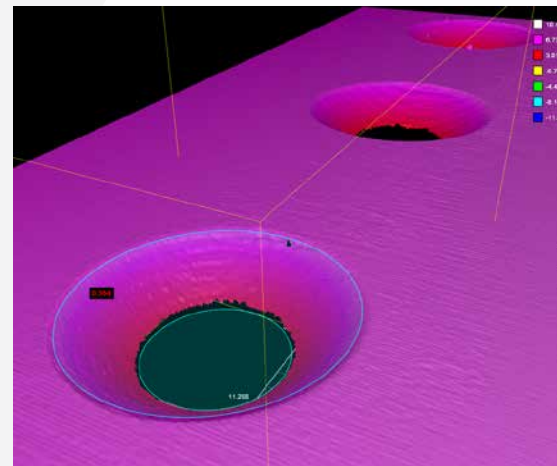
Thousands of fasteners can be required in the assembly of a plane and checking each fastener manually is time-consuming and error-prone. **Gocator 3000 series** is a powerful automated solution for this inspection challenge.

The Implementation

For hole inspection, a Gocator 3210 sensor, mounted to a robotic system, moves to a group of holes drilled into a piece of material and quickly scans them with a single 3D snapshot. Multiple instances of the **built-in Countersunk Hole tool** return a set of measurements for each hole, including inner and outer radius, depth, and counterbore.

For fastener flushness inspection, multiple Gocator 3506 sensors are mounted onto robot arms. As a fuselage or other component moves into a station, the sensors move close to the surface to scan the fasteners. The **built-in Surface Fastener tool** returns measurements on and around the fasteners. This tool can account both for fasteners that protrude and are set too deeply. It also has the ability to measure other types of fasteners, such as flat heads and dimpled heads, as well as fastener buttons on the underside of the material.

Countersunk hole showing counterbore: Fail



The Benefits

Gocator snapshot sensors offer a complete 3D quality control solution for this critical two step inspection process.

Gocator 3210's reliable, accurate measurements (down to 35 μm) help ensure the smallest deviations from strict tolerances are caught with every scan, reducing the risk of costly mistakes. In addition, the Gocator 3210 sensor's high speed and large FOV let you quickly measure multiple holes and/or fasteners in a single scan, saving your organization time and money.

Gocator 3506 offers a smaller FOV with even higher resolution (down to 12 μm) so you can meet the strict tolerances required on small holes and fasteners. Similarly, the sensor's high speed lets you scan one or more features in less than half a second, so you can quickly determine if intervention is necessary.

To learn more about Gocator All-In-One 3D Smart Sensors,
please email contact@lmi3d.com

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