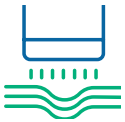
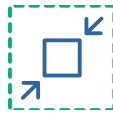


GelSight Applications in Aerospace



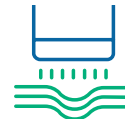
Enhanced Safety
and Readiness



Field-to-Lab
Consistency



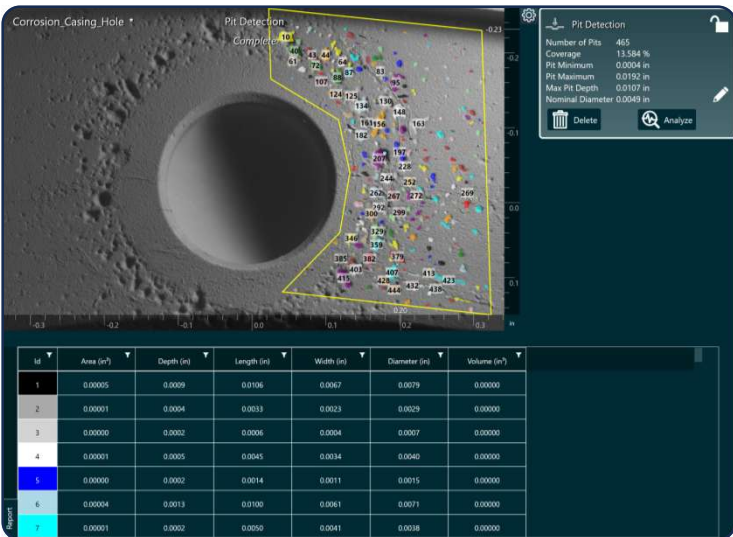
Ruggedized
Performance



Operational
Efficiency



Predictive
Maintenance



Corrosion and Pits on Casings

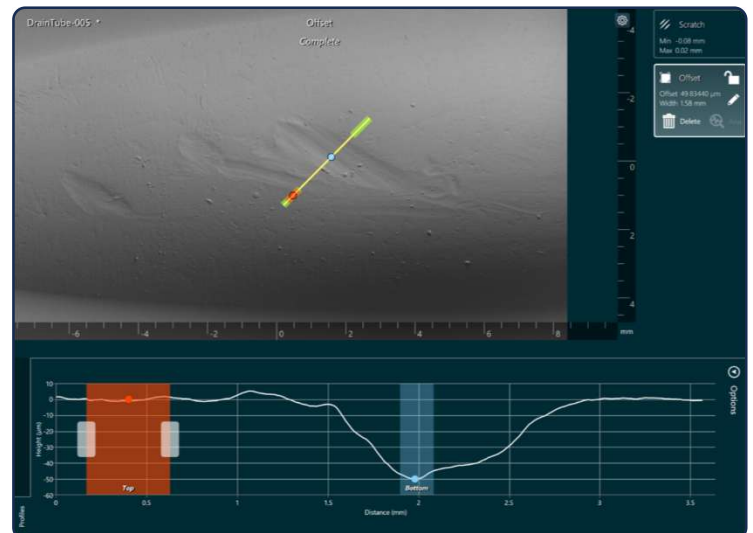
Use the Pit Detection function to identify and quantify pitting and corrosion. Corrosion can lead to critical failures in the field and quantifying it can help make immediate pass/fail decisions and optimize the rework process minimizing downtime. Other applications of the Pit Detection function include porosity analysis, measurement of gaps in resin composite fill, and multiple pits on a fan casing.

Figure 1: Pit Detection function used to quantify corrosion around a helicopter engine casing hole

Scratches, Wear, and Dents on Disks, Shafts, and Piping

Use functions like Offset, Scratch, or Defect Detection to characterize defects. GelSight can analyze defects on flat, curved, and complex geometries, allowing for in-situ data collection on traditionally challenging to measure surfaces. Measure damage and wear on internal engine parts, scratches on transparent windows, lightning strikes on fuselage, and dents on drain lines with the same tool and no required settings changes.

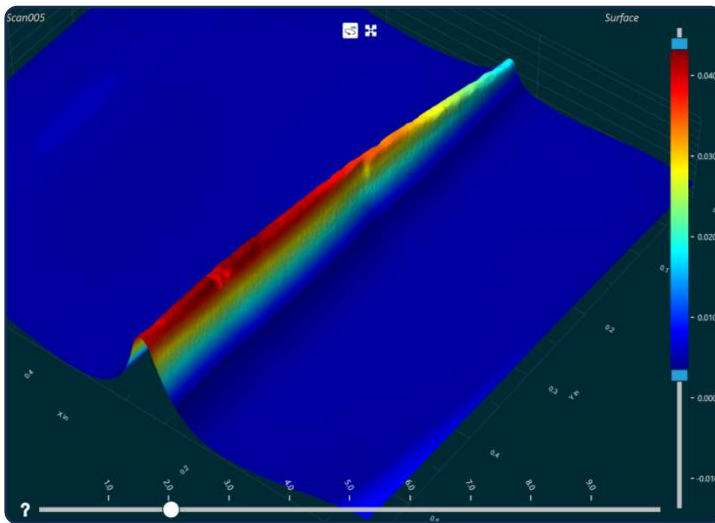
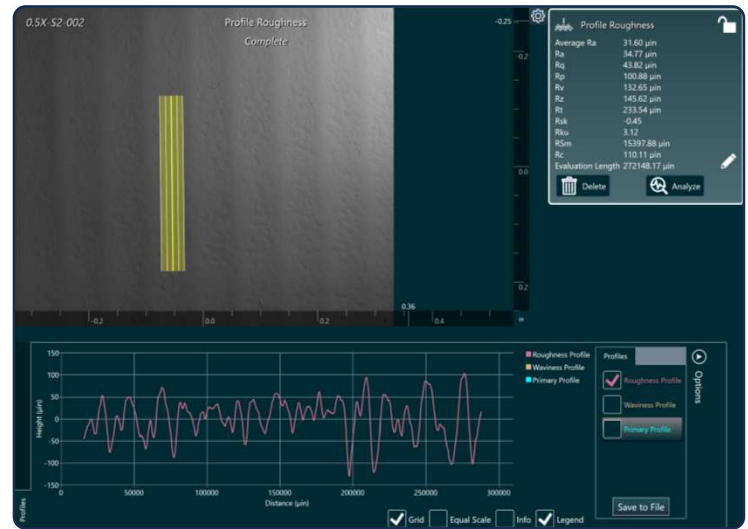
Figure 2: Offset function used to measure the depth of a dent on a CFM56 drain line



Surface Finishing on Blasted Surfaces

Use the Profile Roughness or Surface Roughness functions to measure parameters, including Ra and Sa, for the characterization of surfaces. The digitized, areal, output of the GelSight system lets the user make multiple measurements on a single scan and save the data for reference and traceability. Surface finish is a key specification on parts including shot peened or media blasted surfaces in MRO.

Figure 3: Using Profile Roughness to measure the Ra of a curved surface on landing gear



Integrity of Rotating Parts – Blades and Blisks

Measure defects, radii, and even roughness on the edges of blades. Features of, or defects on, the edges of blades are typically challenging to measure, and the measurement is made quick and easy with the GelSight system. Press the gel onto the edge of the blade and use the Offset function to measure depths of edge defects in seconds, something that can require significant setup time on other measurement systems. GelSight's 2D tools allow for the creation of shapes and datum to recreate damaged surfaces for characterization with the final report enabling clear communication across organizations.

Figure 4: 3D reconstruction of the edge of a turbine blade with heightmap

Transparencies Inspection

The gel sensor of the GelSight system allows for inspection of Any Material, Anywhere™. This includes surfaces that are highly reflective or transparent. Defects on transparent materials can be captured and analyzed with configured tolerances, allowing the operator to capture scans and receive a visual pass/fail indication. All images and analysis results can be saved for traceability using one-touch reporting, or use the API to automatically feed the data into other systems. GelSight functions encourage users to reference the captured analysis for any secondary investigations and allow for tracking locations and defects over time.

Figure 5: Defect Detection analysis on a transparent cockpit window

