

Assure™ Quality Assurance and Control System

Provides unprecedented traceability of machine health, part integrity, and build reporting

Working in concert with Sapphire® and Flow™, Assure, a revolutionary quality control system, enables visibility into every layer of the build through real-time, multi-sensor, physics-based excursion detection algorithms.



Assure validates printed part quality to provide the transparency needed for volume production

Pre-build System Calibration

Assure helps you understand if machine health is optimal before a build begins. Assure monitors optics, sensors, consumables, and powder bed quality, and displays the data directly on the dashboard for all printers.

Real-time Monitoring and Alerts

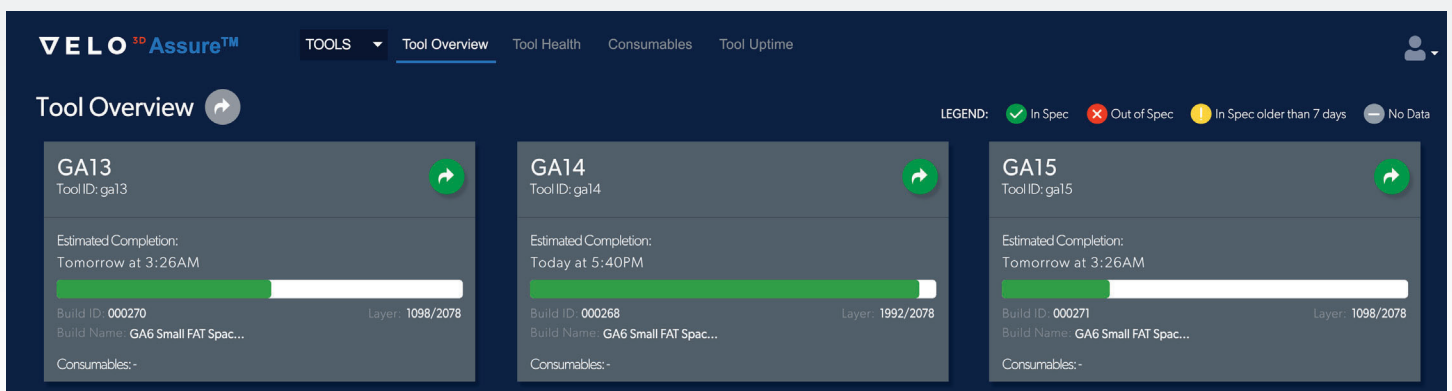
Assure enables engineers to track the quality and progress of Sapphire machines real-time via Assure's secure, on-site servers.

In-Situ Defect Detection

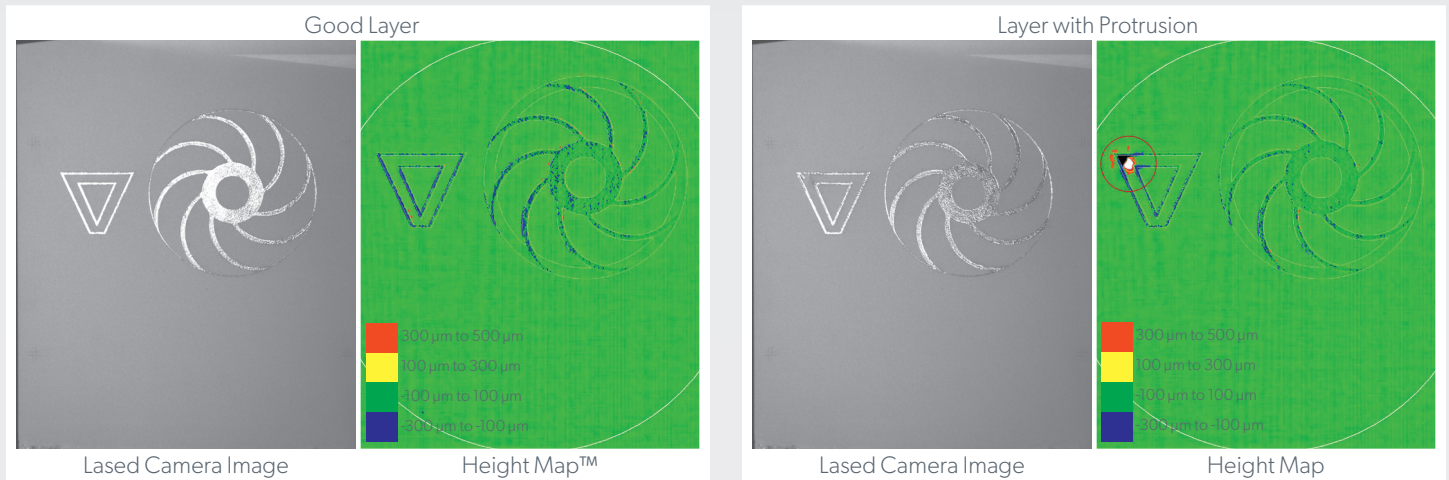
Assure substantiates the part quality needed for volume production by predicting bulk material properties, in real-time, for each part.

Detailed Build Report

Assure automatically generates a build report that can form the foundation of a Certificate of Compliance. This report offers full traceability of system performance and any predicted part defects during the build.

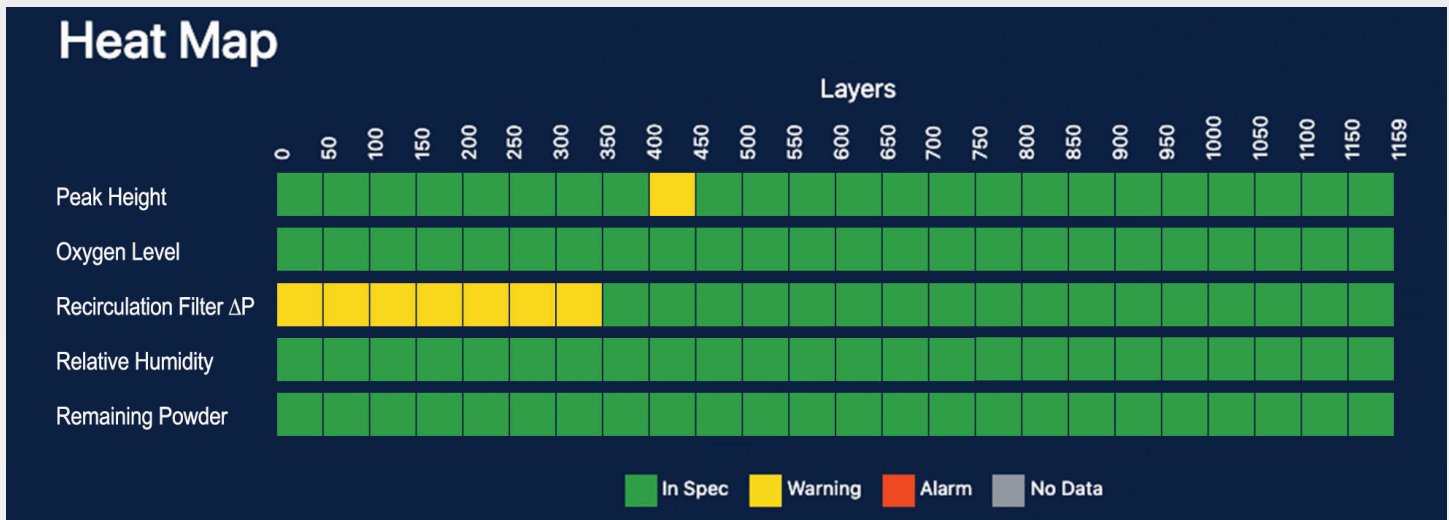


In real time, Assure predicts bulk material properties for each part through a multi-sensor defect detection system. Print health is determined by combining data from multiple sensors, including meltpool emission monitoring, and X, Y and Z mapping of the powder bed to provide a reliable real-time indication of part quality. Assure also provides a detailed build report for each part after the print completes. This quality control system accelerates the move to production by verifying part-to-part consistency to enable ramp-up.



Printer Health

Assure tracks and reports Sapphire’s ‘pre-flight’ check prior to each build, ensuring that parameters are within specification. During a build, the system validates that critical parameters such as powder bed health, consumables, chamber atmosphere, and optics, stay in spec. All together, these checks validate that the Sapphire printers are ready to print and stay within specification during a print.



Operational Performance

VELO^{3D}’s Assure also offers many tools to help manage the factory floor. Assure provides a dashboard that tracks each printer’s health and printer performance metrics. Engineers will be able to focus in on utilization trends, system availability data, consumables status, and advanced analytics. Each build includes a detailed build report that contains part quality data and printer health results for the part. With this set of information, VELO^{3D} is making it easier to qualify parts with less effort and to move AM into production.