

Deviation Analysis Case Study

Test Report: Compact C210

About Polyga

Polyga is a developer of 3D scanners and mesh processing software based in Vancouver, Canada. We have more than 10 years of experience building structured light 3D scanners and software that meet complex 3D imaging requirements. Our line of 3D scanners are a trusted brand of 3D imaging solutions used worldwide for a variety of industrial applications.

Products & Technology

All Polyga 3D scanners use structured-light technology for capturing high-resolution digital 3D scans from real world objects. These systems are great for companies, manufacturers, academic institutions, visual effect studios, and research labs that need 3D scan data for visualization and measurement applications including:

- 3D modeling
- documentation/archiving
- reverse engineering
- scientific measurement
- computer-aided inspection
- rapid prototyping/3D printing



Scanning Overview

Scanners:

Compact C210

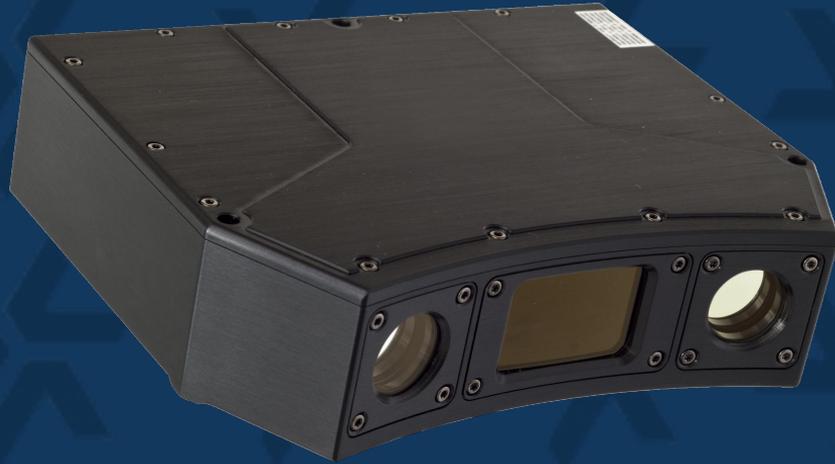
Introduction:

The purpose of this sample test was to demonstrate and examine how long it will take to complete the process of performing three scans and compare them to a reference model. Since the reference model was not provided, the top and bottom of the part was partially scanned to be used as the reference for comparing.

Scan Processing Results:

The part was scanned with the G3210 mounted on a tripod. The part itself was rotated at different angles to get a 360 of the top and bottom of the part.

Equipment Used

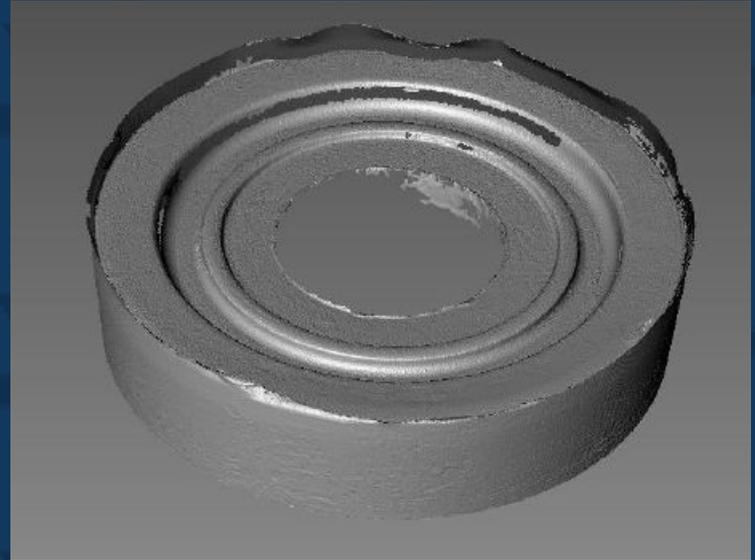
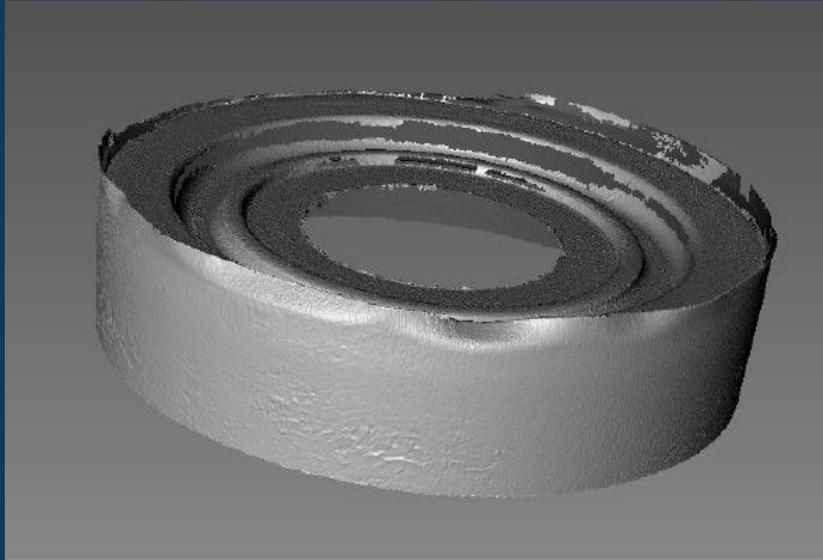


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Scan Results

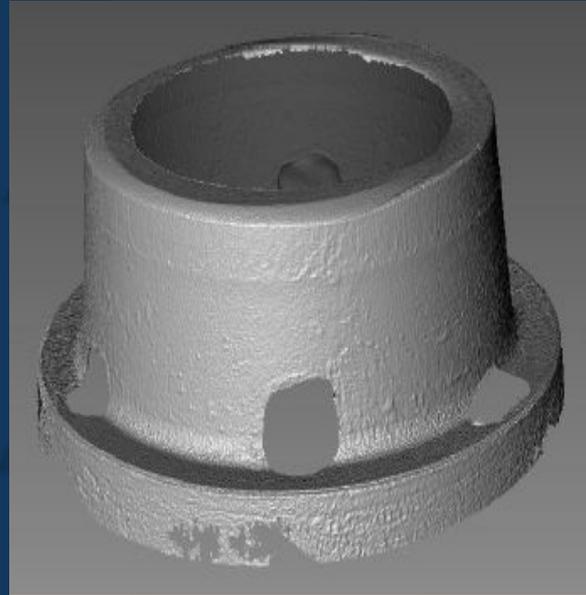
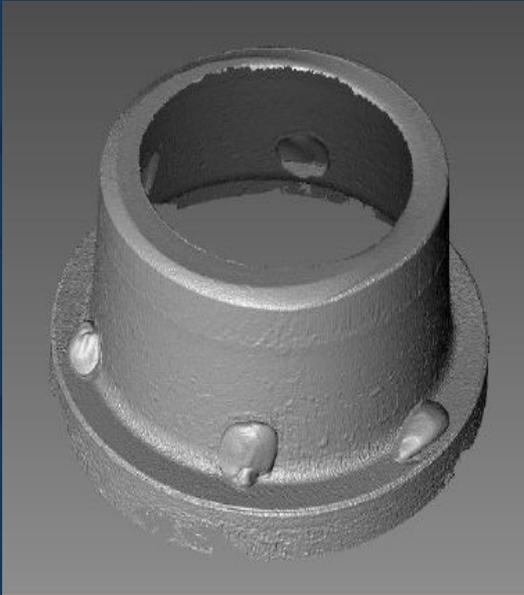


Scan Results



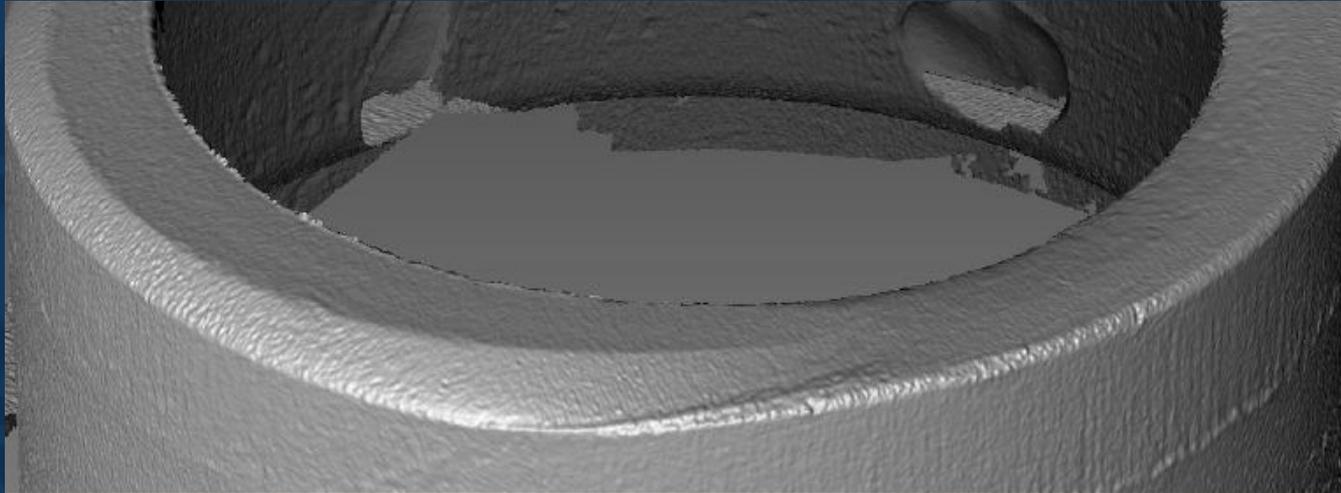
The top part of the object can be scanned without using any reference objects due to its unique geometry along the edges. These unique edges were used to align the parts.

Scan Results



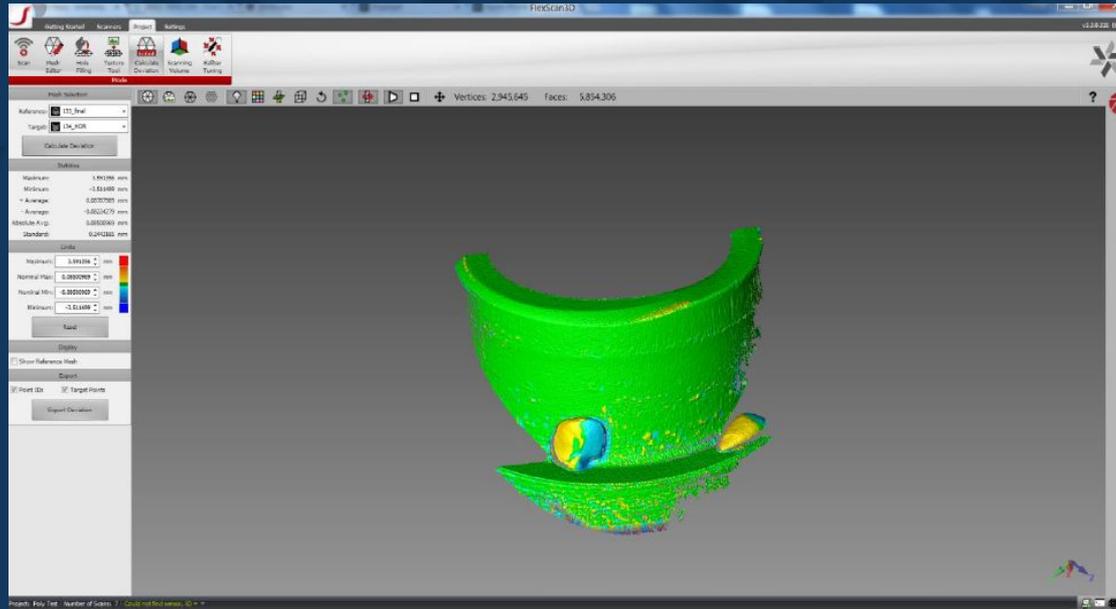
For the bottom, putty needs to be used in order to align the scans properly due to the geometry being symmetrical. Users can manually remove the reference objects from the scans within FlexScan. However, it will leave a hole on the scan.

Scan Results



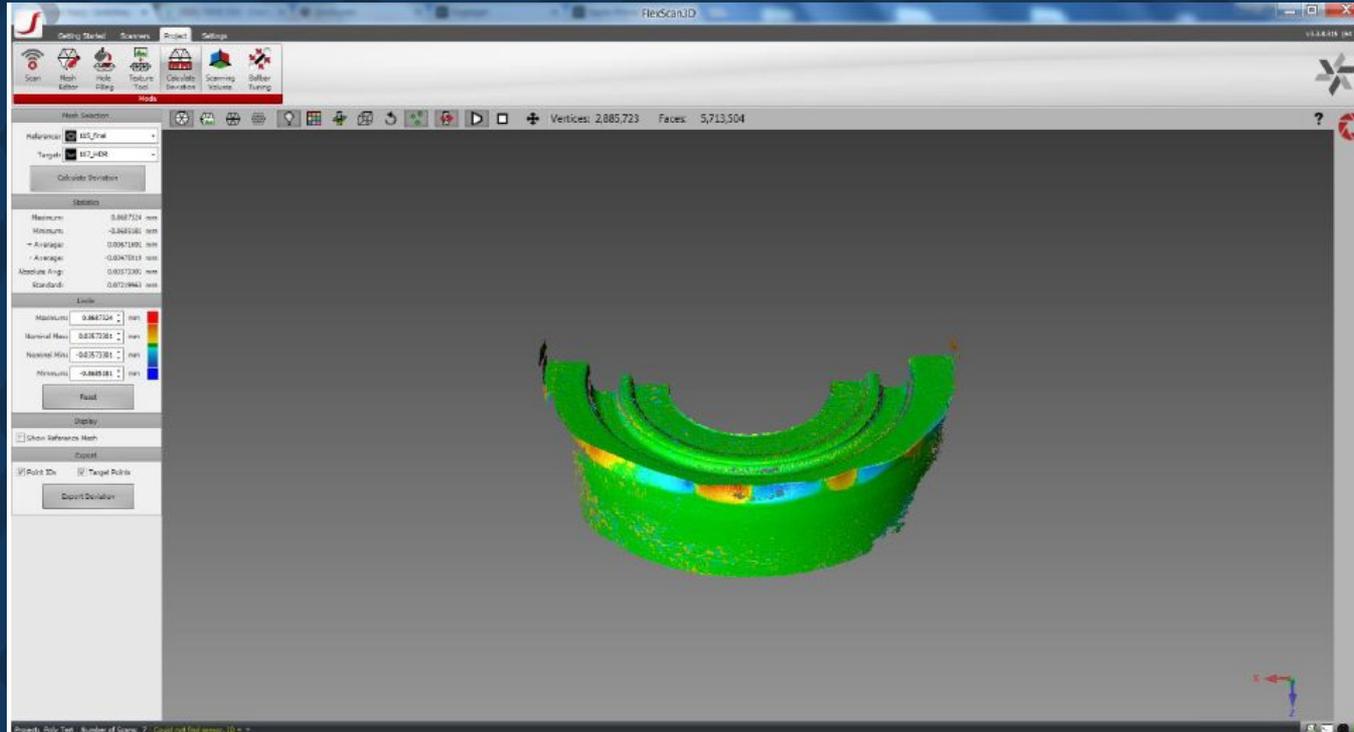
If users want a complete model without any holes, they will need to perform another scan without the reference objects and rely on the top edges on the bottom part to align the scans. Screenshot above shows the top edge is actually not symmetrical and could be used for alignment. Another option is to re-scan the part while placing the reference objects at different locations from the original. Users can then manually edit out all the reference objects and align the two complete scans and merge them together.

Scan Results



In order to compare scans, new scans should be taken to be used as the target to compare to the reference scan. Once the new scans are captured, users will need to manually align them to the reference scan before comparing. To compare the scans, navigate to the “Calculate Deviation” mode and select the “reference” and the “target” then click on “Calculate”.

Scan Results



Scan Results

Note that only one scan can be compared at a time. Therefore to compare three scans, it may take slightly longer.

Time required:

Capture time: approximately 1.2-1.5 seconds with HDR enabled. Without HDR, it takes approximately 0.7-1.0 seconds. Then it takes approximately another 1-3 seconds for the scans to show up on the software, which this is dependent on the PC specs. Slower PC may require longer time.

Alignment time: approximately 3-5 seconds. Note that this assumes the user already had the scans roughly close to where the reference part is. Otherwise it may require another attempt for alignment which increases the overall time required or the alignment process may take slightly longer.

Deviation Analysis: approximately 5-10 seconds including selecting the reference/target scans and perform the deviation calculation.

Overall required time to compare one scan: approximately 10-20 seconds from the software. Including user operation time, assuming the user is not familiar with the software, it may take up to 30-40 seconds in total to compare one scan.

Contact

Our Team Looks Forward To Speaking With You Soon!

Address

Unit 221 - 3993 Henning Drive
Burnaby, BC, Canada
V5C 6P7

Phone

(604)293-1767

Email

contact@polyga.com

