EMS 3D Scans the Tiniest Parts

3D scanning any object can have its challenges. They can include surface finish, line of sight issues, complexity and more. However when the part that needs to be 3D Scanned is barely visible to the naked eye it takes very high end equipment and techniques to be able to 3D scan and CAD model or inspect these types of parts.

The Problem

An orthopedic manufacturing company had some very small parts they wanted to update. The problem was the parts were designed without the use of 3D CAD years ago so there was no computer model to start with. Trying to measure the parts by hand was impossible as the parts are so small and complex.

The Solution

EMS was contacted and asked if they could 3D scan such small parts. EMS accepted the challenge and 3D scanned the part with their Steinbichler Comet L3D - 5 megapixel 3D scanner. The Comet L3D scanner offers 6 lens choices from an 800 mm field of view (FOV) down to a 45mm FOV. Each lens captures the same amount of points (5 Million) but as a smaller FOV is used the point spacing gets much tighter. Using the 45mm FOV, allowed EMS to 3D scan the part and capture the data at a .018 mm (0.0007") point spacing.

In addition to incredibly tight point spacing the Comet L3D 3D scanner also offers impressive accuracy of those points at .02 mm (00078"). With the part being so small it would be impossible to reverse engineer or inspect such a part accurately without this high resolution and accuracy.

The other challenge to 3D scanning such a small part was how to fixture the part. EMS came up with an ingenious way to suspend the part with magnets so it could be scanned from all directions eliminating any line of sight issues.

Conclusion

When it comes to 3D scanning and CAD modeling or inspection very small parts EMS has the equipment and expertise to get the project done.

Learn more at www.ems-usa.com

Extremely small orthopedic part on top of a penny

Raw scan of part with .018 mm point spacing

Finished 3D CAD model