

EMS Scans Large Transformers

Transformers convert electricity from very high voltage down to levels that can be used safely by homes and businesses. These transformers can be very large in size and complex in shape. Over time these transformers must be replaced. There are two replacement options, a new transformer can be purchased or the old one can be rebuilt. Since large transformers cost millions of dollars brand new, rebuilding them is an attractive option. The outside housing of the transformer is usually reused while the components on the inside are replaced.

The Problem

A large rebuilder of these transformers spends 2 to 3 weeks hand measuring the outside and inside of the transformer housing. This process is tedious, limited and not very accurate. Most of these housings have no CAD data and at best there may be some 2D drawings. It is important to document the current housing so that as they design and rebuild the transformer all the new electrical components will fit inside and work properly.

The Solution

Wanting to find a faster and better way of documenting the transformer housing, EMS was called to travel on-site and 3D scan the housing. For this project EMS used their Surphaser 25HSX hemispherical 3D scanner. The Surphaser 3D scanner scans 360 x 270 degrees in one single scan capturing data from 3 feet all the way to 60 feet. This range allows the scanning of large, complex objects to be done very quickly and easily. The Surphaser is a high accuracy long range scanner with unmatched resolution and detail. It was important to the customer to capture all the detail of the transformer. Another advantage of the Surphaser 3D scanner is can be used in direct sunlight which was required for this project. Many laser based scanners don't work well in direct sunlight as the laser gets "washed out". The Surphaser is a phased based 3D scanner with a powerful laser to eliminate this issue. Within a half day EMS had the entire transformer housing scanned and ready for CAD model creation. EMS then used RapidForm scanning software to create a detailed 3D solid model of the housing. This process took about a day to complete.

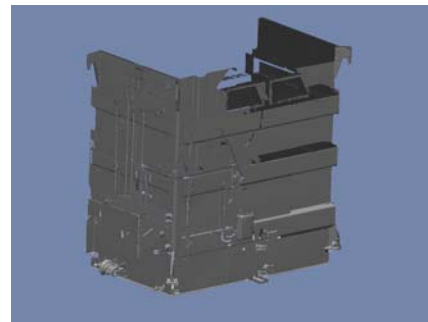
Conclusion

What took 2 to 3 weeks in the past took EMS two days to complete for the customer. Not only was it much faster but the data was much more detailed and accurate. This allowed the customer to begin the re-design process much sooner and more efficiently saving them thousands of dollars.

To learn more visit www.ems-usa.com



3D Scanning of transformer with a Surphaser 25HSX 3D Scanner



Single scan of the transformer



Finished feature based solid CAD model