3DScanCo

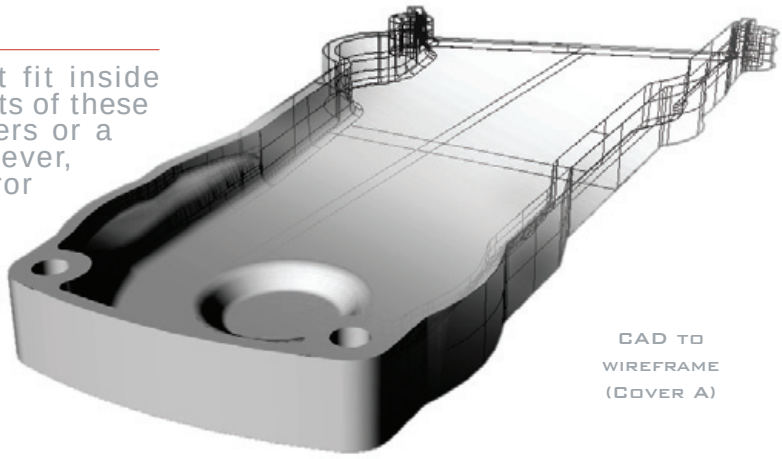
We Simplify 3D™

Engineered Plastic Products Inc

Motorcycle Chain Covers

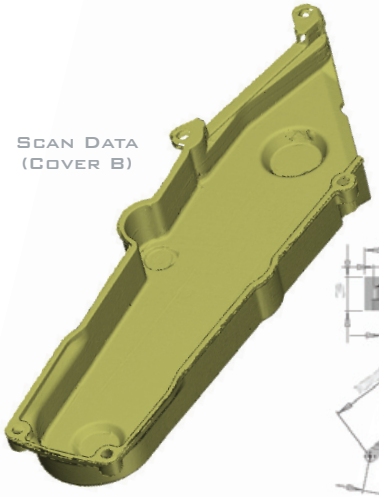
Situation

Engineers often need to design parts that fit inside objects that lack CAD data. The measurements of these legacy parts are typically obtained via calipers or a Coordinate Measuring Machine (CMM). However, these methods often suffer from human error or cannot sufficiently measure the complex surfaces. Engineered Plastic Products, Inc. needed accurate models of a pair of OEM motorcycle chain covers in order to design new pieces to fit within the physical part. For EPP to ensure that the newly designed parts would fit once manufactured, they would need CAD models that match the ideal as-designed shape of the covers.



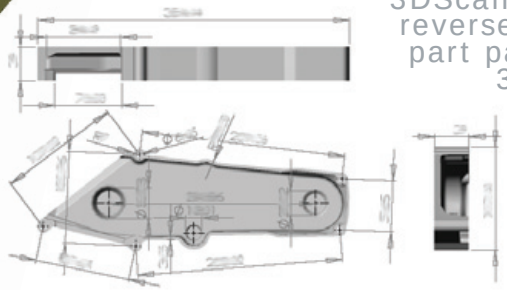
CAD to wireframe (Cover A)

Solution



Scan Data (Cover B)

3DScanCo was commissioned to scan and reverse engineer parametric CAD models of the motorcycle chain covers. 3DScanCo used the turntable feature of the Konica Minolta VIVID 9i to accurately scan each cover. The scan data, accurate to within 0.002 inches, captured the complex shape, curves, and features of the chain covers that would have been difficult to measure manually with calipers or a CMM.



2D Drawings

3DScanCo used Rapidform XOR's powerful reverse engineering tools to model the entire part parametrically. Using Rapidform enabled 3DScanCo to retain all modeling history for the parametric model. Furthermore, the CAD data generated by 3DScanCo was suitable for generating 2D drawings for documentation purposes.

Results

3DScanCo's efficient and fluid workflow in their scanning and reverse engineering techniques resulted in the client saving a substantial amount of time and money in their design process. Creating accurate parametric CAD models of the chain covers would have been difficult, expensive, and taken significantly longer to model without the use of 3D scanning due to the complex, freeform surfaces. 3D scanning provided EPP with superior quality data and accurate 2D drawings that enabled them to confidently design new parts to fit inside.

Parametric CAD data

TECHNOLOGY

- Konica Minolta VIVID 9i
- Rhinoceros
- Rapidform

TECHNIQUES

- 3D Scanning
- Reverse Engineering
- 2D Drawings

APPLICATIONS

- Parametric Modeling
- Bolt-Hole Locations
- Legacy Parts