



SITUATION

Elan Motorsports uses a standard fiberglass lay-up process to create the shell (outer body mold) of their VanDiemen DP02 Sports Racer. Based off the model design of an existing racer body, Elan needed to know the shell's dimensions in order to correctly place the engine and chassis. The DP02 also required optimization of packing density and weight ratios in order to maximize the performance of the car. Due to the complex and free form surfaces of the shell, as well as the critical aerodynamic features, Elan would need to utilize 3D scanning technology to ensure that the dimensions were measured as accurately as possible.



SCANNING THE DP02

SOLUTION



CAD DATA



3DScanCo was contracted to perform 3D laser scanning and reverse engineering services on the DP02 shell. Elan transported the racer to 3DScanCo's Engineering Service Center, where it was scanned using the Konica Minolta VIVID 9i. 3DScanCo used photogrammetry in conjunction with the VIVID 9i to ensure the scan data captured was within a tight 0.002 inch tolerance.




3DScanCo used the scan data acquired by the VIVID 9i to reverse engineer the car. Working with Rapidform's powerful reverse engineering software, 3DScanCo generated accurate IGES surfaces of the racer. Rapidform enabled 3DScanCo to maintain a high level of control over the surface network of the car, ensuring that the CAD data was as accurate as possible for testing and optimization purposes.

RESULTS



The CAD data supplied by 3DScanCo was a success for Elan Motorsports' digital optimization of the DP02 racer. Using this data, Elan was able to lower the weight of the car while increasing performance, ensuring the future success and competitive advantage of the VanDiemen DP02 Sports Racer. 3DScanCo's ability to deliver exactly what Elan needed paved the way for many future projects with both Elan Motorsports and its partner company, Panoz Automotive.



TECHNOLOGY

-  Konica Minolta VIVID 9i
-  Photogrammetry
-  Rapidform

TECHNIQUES

-  3D Scanning
-  Reverse Engineering

APPLICATIONS

- Automotive Industry
- Performance Surfaces
- Packing Density