

3DWORX uses an **eviXscan HD Optima 3D Scanner** and **Geomagic Design X** in BST Hypertek Electric Motorcycle development project



Blackstone Tek (BST)

Blackstone Tek (BST) combines innovative carbon fibre manufacturing and a love for racing to create exceedingly strong, lightweight wheels, fuel tanks, swingarms, fairings and custom-built components for iconic motorcycle and automotive brands.

Challenge

Design the most innovative electric motorcycle using CAD, whilst also hand-sculpting some prototype parts to achieve an organic aesthetic.

The Master designer is none other than Pierre Terblanche, who was responsible for styling motorcycles like the Ducati 999, the HyperMotard and the SuperMono.

The challenge is digitising the compound-curved components that were hand-sculpted into CAD models so that moulds can be manufactured for production lay-up of the carbon fibre parts.

Solution

Combine CAD with 3D Scanning so that the entire motorcycle design can be represented in CAD.

- ◆ eviXscan HD Optima 3D Scanner, manufactured by Evatronix in Poland
- ◆ eviXscan Suite 3D Scanning software
- ◆ 3D Systems Geomagic Design X software for Reverse Engineering

Results

- ◆ Successful reverse engineering of prototype parts with compound curve shapes
- ◆ CAD files that can be used for CNC machining of moulds for carbon fibre part manufacture



eviXscan HD Optima 3D Scanner

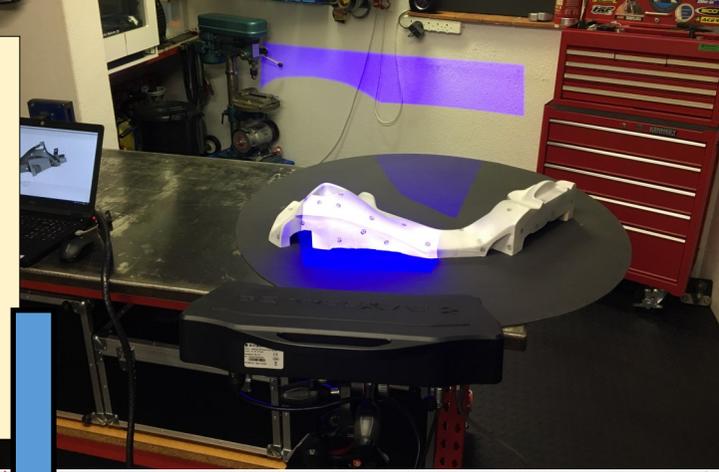
www.evixscan3d.com

A professional reverse engineering tool for 3D scanning, contactless quality control and fast prototyping of medium-sized models

- ◆ High accuracy measurement (up to 0.0183 mm)
- ◆ High point density (95 pt/mm²)
- ◆ Large scanning volume (250mm x 170mm x 120mm)
- ◆ 5 megapixel cameras
- ◆ Blue LED light source
- ◆ Certified precision to VDI/VDE 263 Part 2, 4.1 Ps standard
- ◆ Rugged, mobile construction

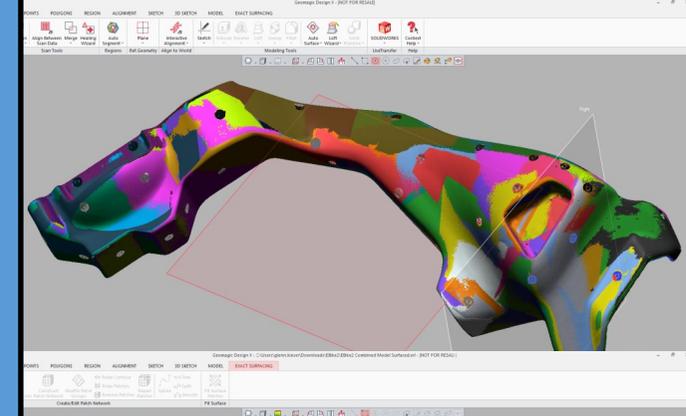
Step 1

3D Scanning one of the two side patterns with an **eviXscan HD Optima** structured blue-light 3D scanner for extreme accuracy. The pattern is sprayed with an extremely thin white contrast and has eviXscan unique markers attached for quick, accurate pre-alignment by eviXscan Suite software of multiple scans sets from various orientations.



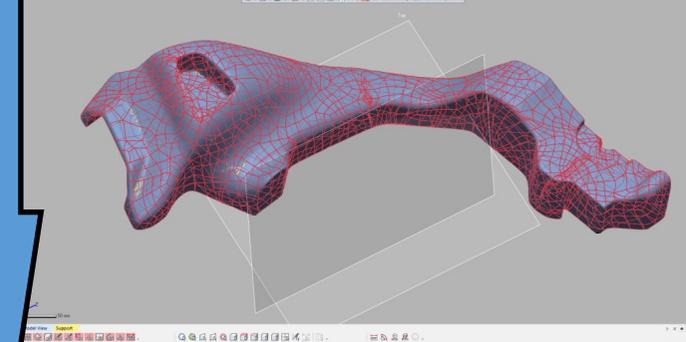
Step 2

Geomagic DesignX software for reverse engineering used to create a high-fidelity surface mesh, remove markers, fill holes and edit the scan.



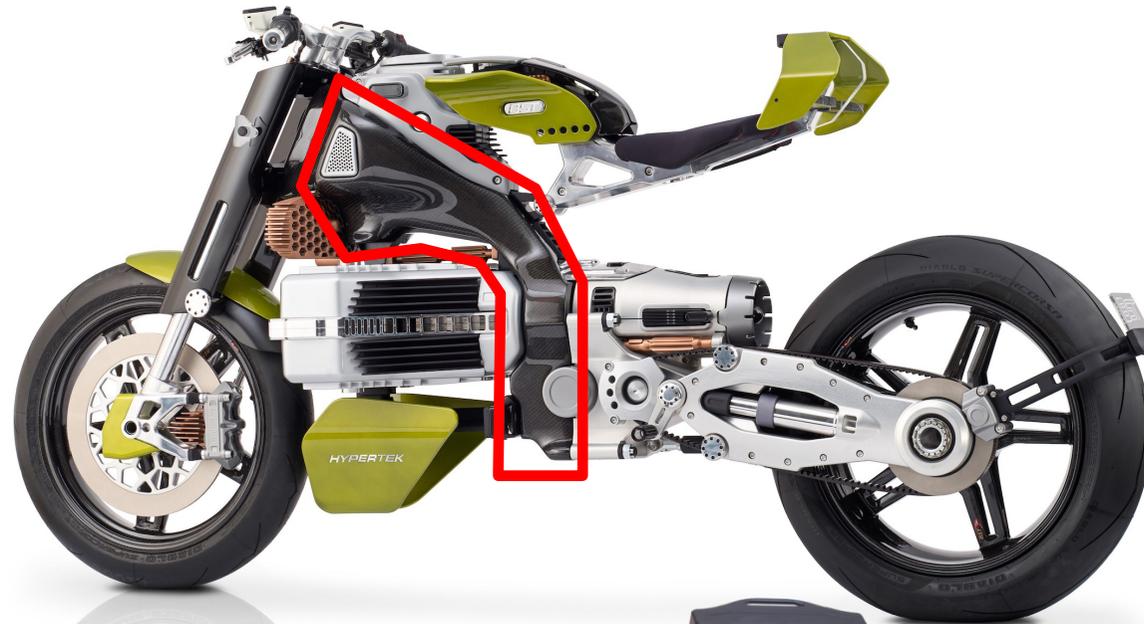
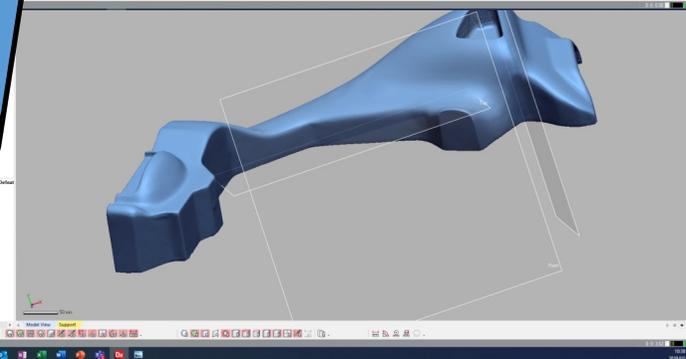
Step 3

DesignX used to extract geometric surface features and automatically generate form-following surfaces over the organic-shaped sections.



Step 4

DesignX exports 3D parametric models - including the geometries, topologies, modelling histories, and parameters - directly to popular feature-based CAD systems including Autodesk® AutoCAD®, Autodesk® Inventor®, Autodesk® Fusion 360®, CATIA®, PTC® Creo®, Siemens® NX™, Siemens Solid Edge®, and SOLIDWORKS®.



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