

RSC Tuning Turns to 3D Scanning to Design OEM Quality Carbon Fiber Aero Kit for Lamborghini Huracán

EMS's 3D scanning technology enabled RSC Tuning to create a precise digital representation of the Huracán, eliminating the need for traditional clay molds and reducing risk of damage to the exotic auto.

The Challenge

RSC Tuning, a leading manufacturer of performance products, styling accessories and aerodynamic components for exotic vehicles, planned to engineer an OEM quality carbon fiber aero kit for the Lamborghini Huracán. Well known in the tuner community for developing cutting edge aftermarket products for exotic vehicles, RSC Tuning wanted to find a better way to design and engineer OEM quality carbon fiber parts in an industry where aftermarket parts were not always well built.



The Solution

Rather than design the aero kit parts using traditional hand molding methods, RSC Tuning decided to use 3D scanning to capture a detailed digital model of the Huracán and design the parts on the computer using 3D CAD software.

RSC contacted EMS based on the company's knowledge and experience working with exotic cars utilizing a full range of 3D scanning technologies. Within a single day, EMS completed the 3D scanning process using a Surphaser and Creaform MetraSCAN. With the ability to scan 1.2 million points per second and 360 x 270 degree scanning, the Surphaser was used to capture the detail of the larger surfaces of the Huracán in high resolution. EMS then used a handheld MetraSCAN 3D optical CMM scanner, with its portability, extendable measurement volume and ability to accurately scan dark and shiny objects, to capture the underside and darker areas of the vehicle in the detail needed. After completing the 3D scanning, EMS combined and aligned the scan data to create a high resolution digital model of the vehicle.



EMS uses a Surphaser to 3D scan the larger surfaces of the Huracán in high resolution.



The Creaform MetraSCAN captures the underside and darker surfaces in detail.

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3D Scanning Replaces Automotive Aftermarket Clay Molding....

RSC to test for fitment and attachment. By using 3D printed parts for testing, RSC to able to avoid using expensive carbon fiber prior to actual production.

After finalizing design, RSC Tuning took the RSC LP680 carbon fiber aero kit to production. Designed to be low drag and aerodynamically efficient, the kit is built from the highest quality pre-impregnated carbon fiber utilizing a cutting edge autoclave process. All the parts in the kit are UV resistant and use the same material and process as Formula 1® and SpaceX, resulting in lighter, stronger parts and better performance. (In addition to the aerodynamic visual enhancements, the kit also upgrades the Huracán from 610 to 680 hp.)

Since launching the kit in August, market reaction to RSC's design process and quality of components has been really positive. "The 680 kit allows for improved performance while keeping a simple, understated look that does not disrupt the design of the vehicle, while clearly setting it apart from other Huracán kits," said Bill Waldock Jr., President of RSC Tuning. "Working with EMS to 3D scan the Huracán enabled us to design the parts in CAD and 3D print them for testing. One of the great things about working with EMS is that they stay on a project and see it through even when things don't go according to plan."

Conclusion

EMS's 3D printing capabilities enabled RSC Tuning to quickly capture a computer model of the Huracán that provided the digital starting point to design the LP680 aero kit parts. The non-contact optical scanning reduces potential damage to the car by reducing physical contact and studio time. It also allowed RSC to use 3D printed parts for testing rather than expensive carbon fiber test parts. The digital files have since proved useful beyond the initial kit as RSC considers new potential new products for the Huracán.

About EMS

Founded in 2001, EMS, Inc. is a leading single source provider of 3D Scanning and 3D Printing solutions to companies in the aerospace, automotive, military, simulation & trainer, consumer products, medical and art industries. With over 15,000 projects completed and hundreds of systems sold, EMS specializes in helping clients streamline product development, inspection and reverse engineering through advanced 3D technology. EMS is headquartered in Tampa with regional offices in Detroit and Atlanta.

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