



Racing to Victory

RENNTECH DESIGNS WINNING RACER FOR MERCEDES-BENZ IN JUST 35 DAYS

“Producing strong, yet lightweight, parts in ABS plastic was a big factor for me in the decision to purchase the Dimension 3D Printer. We wouldn’t have completed the project with any other technology.”

– Dustin Hanna, RENNtech

CASE STUDY



The 3D prototype for this Mercedes-Benz GLK Rally Racer lapped other competitors to victory at the SEMA Show.

After working for just under a year at RENNtech, a shop that specializes in tuning and enhancing performance for European-made cars, product design engineer Dustin Hanna was presented with a unique opportunity.

Mercedes-Benz USA notified RENNtech that the shop had been chosen to compete in the Mercedes-Benz GLK Tuner Challenge, which provided four shops pre-production vehicles to modify according to themes, highlighting each respective shop’s versatility. The challenge had an impossibly tight deadline for the task at hand – RENNtech was given just 35 days to design and produce an off-road racer prototype of the Mercedes-Benz GLK to compete at the upcoming SEMA show, the premier automotive specialty products trade event. SEMA attendees, the public and online participants would then vote on their favorite vehicle to select a winner.

Supercharging the Design Cycle

Florida-based RENNtech, Inc., owned by renowned Mercedes-Benz high-performance expert Hartmut Feyhl, offers drivers minor enhancements, parts, modifications or total revamps. The GLK Challenge was a great opportunity for the RENNtech shop, but it posed a great dilemma.

“We had to make numerous body panels and parts you’d normally mold and produce with fiberglass or carbon fiber,” said Hanna. “We didn’t have the time or money for that. Our designers had to come up with a solution that would allow us to meet our deadline and prove more cost-effective than outsourcing the entire project.”

Hanna looked at a number of 3D printing options to help speed completion of the project. He found that a Dimension® 3D Printer offered an affordable solution that produced the kind of high-quality parts the job demanded.

“Producing strong, yet lightweight, parts in ABS plastic was a big factor for me in the decision to purchase the Dimension 3D Printer,” said Hanna. “We wouldn’t have completed the project with any other technology.”

Hanna put the 3D printer to use for the GLK Challenge, producing prototypes to test multiple variations, review fit, and prototype difficult-to-machine components, such as undercuts. “We had one month to produce the GLK. Without the Dimension 3D Printer, we would have had to mold each of the pieces individually,” said Feyhl. “There is no way we would have finished the body kit in time.”

A Win-Win

After successfully completing the project, RENNtech presented their racer at the SEMA Show in front of thousands of industry experts and influencers.

Inspired by the famed Pikes Peak Hill Climb, the Rally Racer included a host of upgrades including a body kit, which was prototyped using 3D printing technology. All together, RENNtech produced eight body panels, an airbox, an engine cover and a steering wheel cover for their version of the mid-sized SUV, the largest part measured at 36” x 20” x 6” in size.

SEMA attendees, among others, voted in an online competition to determine the most impressive model. Competing against three other models, RENNtech was awarded top honors, taking home the winning trophy for the Mercedes-Benz GLK Tuner Challenge.

“The GLK Challenge gave us a great deal of scope for bringing together form and function. For our model, performance may have been the primary goal, but it also looks the part,” Feyhl added. “And, thanks to 3D printing technology, we achieved both in 35 days.”



David Demitron skillfully fabricates the rear wing.



Gas cap inserted into printed rear fender section.



Front fender piece being attached to the body.

Prior to having the printer, RENNtech was forced to use an outside bureau for all prototyping projects, big and small. "If we couldn't get a part prototyped by an outside bureau in time, we'd have to scan clay models or just guess," said Hanna. "After the success of the GLK Challenge, we've found ourselves using the Dimension 3D Printer for everyday prototyping."



Prototype airbox printed in ABS.



Assembling the fender flare.

How Did FDM Compare to Traditional Prototyping Methods for RENNtech?

METHOD	COST
Outside service bureau	41% cost savings with FDM
Traditional Tooling	Over \$15,000 saved with FDM



E info@stratasys.com / STRATASYS.COM

ISO 9001:2008 Certified

HEADQUARTERS

7665 Commerce Way, Eden Prairie, MN 55344
 +1 888 480 3548 (US Toll Free)
 +1 952 937 3000 (Int'l)
 +1 952 937 0070 (Fax)

2 Holtzman St., Science Park, PO Box 2496
 Rehovot 76124, Israel
 +972 74 745-4000
 +972 74 745-5000 (Fax)