



## German Automotive Manufacturer Turns To EnvisionTEC for the Accuracy Needed for Headlight Lens Production

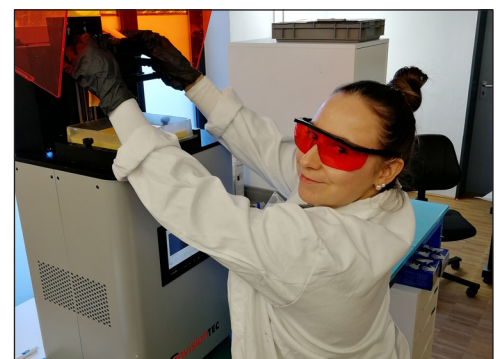
Inspired by his father, Blasius Gerg senior, an academic sculptor, Blasius Gerg initially completed an apprenticeship as a model builder before setting up his own business. GERG was initially established in a small garage in upper Bavaria in 1984 with its first order consisting of models for a home appliance manufacturer.

The business has steadily grown and now provides services including: Modelling and Mould design, Precision Manufacturing and Quality Assurance. An engagement with a German car manufacturer launched its initial relationship with the automotive sector, and this continues.

GERG Lighthouse are the specialist arm of GERG, focused on the production of automotive lighting. The business has recently supplied cutting-edge, custom LED technology to BMW for use on its 8 Series Coupé in the Le Mans 24 hour race.

### Why look at 3D printing?

3D printing technology has improved dramatically over the past few decades and is rapidly becoming a core tool for manufacturers. Within research and development for example, there is often need for multiple prototypes and iterations of those prototypes. With traditional manufacturing, those prototypes are often hand crafted or made from moulds. This is both extremely time consuming and expensive, requiring specific skills and tooling to achieve. There is also a vast amount of wasted material.



A member of the GERG team removes the build platform complete with finished prints from the Vida HD.

### GERG Lighthouse

**Industry:**

Automotive Manufacturing

**Machines:**

Vida HD

**Materials:**

LS-600, e-Silicone, e-Rigid PU

3D printing removes many of the costs associated with this process, allowing for the fast, mass production of prototypes directly from the printer. Changes to a design can be achieved quickly and without the need to re-produce or modify moulds. Additionally, unlike milling techniques there is little to no waste and no specialist tooling required.

GERG Lighthouse identified the benefits of 3D printing early on, and saw how these would not only improve productivity for its teams, but also improve the experiences of its customers. GERG initially invested in two 3D printing technologies, Polyjet and FDM.

Though productivity was improved and costs reduced, these technologies were not providing the tight tolerances or surface finish required for the production of complex automotive lenses. This pushed the business to look at other technologies that would provide the accuracy they required.

## Why EnvisionTEC?

The team at GERG Lighthouse investigated its options, examining a number of competitive machines and related materials, including those from 3D Systems, Raplas, Lithoz and FormLabs. After seeing demonstrations of the different manufacturers, they approached EnvisionTEC distributor Westcam who showed the team the EnvisionTEC range of machines including the DLP based Vida HD.

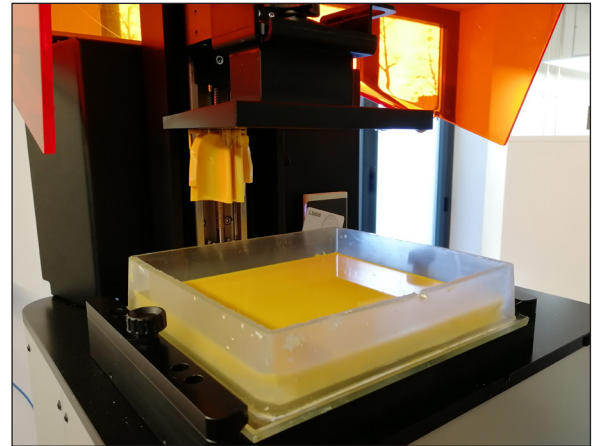
After seeing the results and comparing the prints GERG Lighthouse settled on the EnvisionTEC machine based on its ability to reproduce the models most accurately.

***“The EnvisionTEC Vida HD was the only 3D printer that provided the accuracy we required for the light lenses. Our team required the best surface finish and the closest tolerances. The other machines just weren’t in the same league.”***

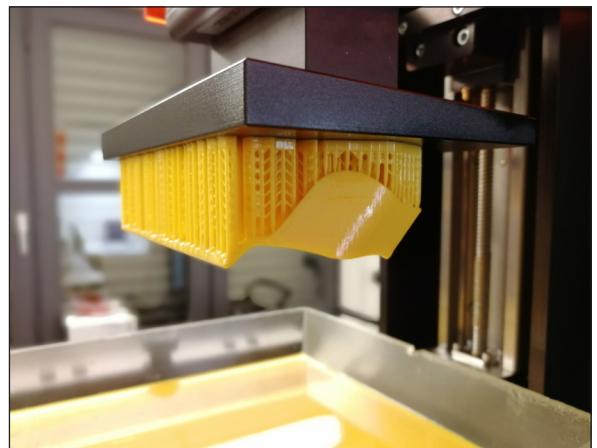
- Mr. Marco Tscherner, CEO/Managing Director, GERG Lighthouse

In 2018 GERG Lighthouse acquired its Vida HD and a number of EnvisionTEC materials including LS600 for tests, e-Silicone for the production of molds and e-Rigid PU for the production of models.

The investment in the EnvisionTEC product has proven to have been a good choice, with the accuracy and quality of prints, but also the simplicity of operation and maintenance.



The build platform size of the Vida HD ensures that larger parts can be produced with great detail.



Parts shown supported on the platform.

***“We were amazed at the construction of the machine, and the fact it is virtually plug and play. There are no hoses, no print heads or pumps to deal with. The DLP technology is also so easy to maintain and requires little attention. We are thrilled with the choice we made.”***

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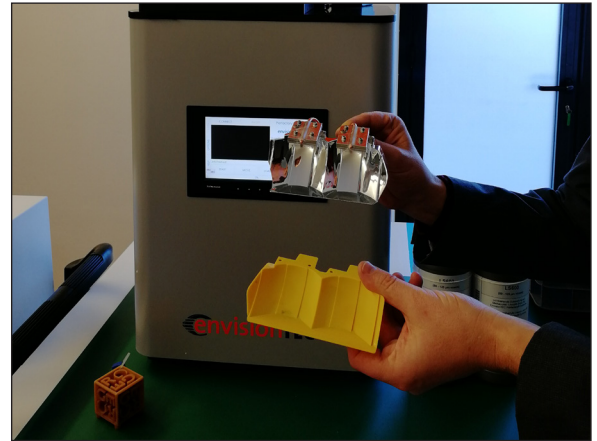
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After using the Vida HD for some time now it has proved reliable, and provides consistent results time after time. The GERG Lighthouse team can rely on the machine, even leaving it overnight to complete prints. They know that when they return they will be completed with no issues.

## The Outcome

The team at GERG Lighthouse have embraced the use of the Vida HD printer to great effect. The accuracy allows them to not only produce prototypes, quickly and accurately, but also produce the end use lenses and components to very high tolerances. Multiple iterations of a design can be produced in a matter of hours not days and changes made to a design quickly and painlessly.

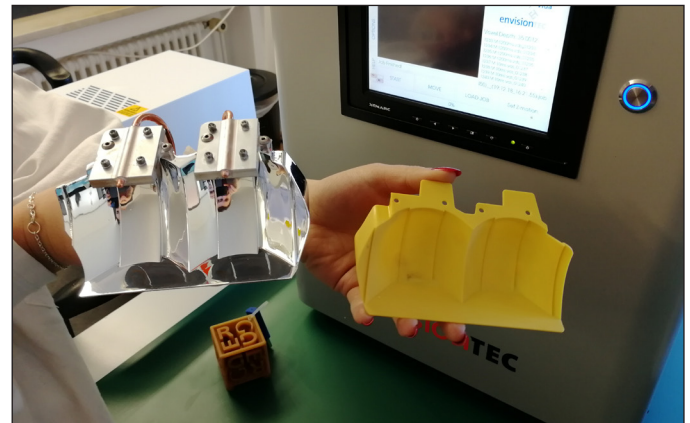
The surface quality is perfect for lenses with very little stepping. This results in shorter finishing times for parts.



Printed parts next to the plated lens reflectors.



Light reflectors following plating.



Light reflectors (left) fitted with bulb units.

The ability to quickly shift between materials for different applications has also been a bonus, allowing them to get even more value from the machine.

Though previously investing in Stratasys 3D printers, the experience with the Vida has opened the eyes of the team to the quality of prints available and they plan to replace other machines in their fleet with EnvisionTEC Perfactory and 3SP models in the future.

***“We have been so impressed with our Vida that we are now looking to replace our other models in the future, starting with a Perfactory 4, and then a large frame 3SP.”*** - Mr. Marco Tscherner, CEO/Managing Director, GERG Lighthouse

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, GERG Lighthouse

## EnvisionTEC materials and 3D Printers for Manufacturing

EnvisionTEC offers a full range of desktop, full-production and high-speed continuous 3D printers for the production of highly detailed prototypes for design verification and testing or for real mass production of custom products.

EnvisionTEC 3D printers and materials are already being used by the world's leading manufacturers, and some of the smallest ones, for a full range of production needs.

### Just some of the EnvisionTEC materials for Manufacturing

- **ABS Flex White** - An ideal solution for a wide variety of manufacturing, including snap-fit and assembly applications requiring some elasticity.
- **E-Model** - A tough material, suitable for high quality prototypes and production-quality end use parts.
- **E-Glass** - A transparent material featuring excellent surface finish and feature resolution, E-Glass 2.0 is an ideal solution for simulating clear plastics.
- **HTM 140 V2** - High temperature molding material for non-metal masters.
- **R5/R11** - R series produces robust, accurate, and functional parts with a good balance of rigidity to functionality. Ideal for master patterns in rubber molding applications.
- **RC SERIES** - Resins containing ceramic particles, capable of building tough, temperature resistant and stiff parts at very high resolutions. Ideal for silicone molding. RC series can also be finished in a variety of ways including painting or plating.
- **Q-View** - A material capable of impressive print speeds for the full build envelope. Put custom design pieces into the hands of your customers in record time. Q-View is also ideal for silicone molding applications.
- **LS600** - An extremely durable photopolymer with high impact resistance. For use in the production of very accurate parts with high feature detail.
- **PIC Series** - Castable materials. Ideal for printing jewelry, dental and other parts requiring exceptional detail and surface finish.

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### With Thanks

Huge thanks to GERG and EnvisionTEC partner Westcam for supporting us with this case study.



### About EnvisionTEC

EnvisionTEC is a leading global provider of professional-grade 3D printing solutions. Founded in 2002 with its pioneering commercial DLP printing technology, EnvisionTEC now sells a range of printer configurations based on six distinct technologies that build objects from digital design files. The company's premium 3D printers serve a variety of medical, professional and industrial markets, and are valued for precision, surface quality, functionality and speed.

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