

Elkamet Embraces 3D Printing to Maximize Design and Production-Floor Efficiencies

Quality is one of the core pillars driving the success at Elkamet Kunststofftechnik GmbH, a German plastic part manufacturer with a heritage dating back to 1955. The family-owned business has globalized its manufacturing efforts and produces extruded profiles for vehicle and lighting industries, impact-resistant plastic parts for outdoor lighting and much more. Servicing various industries with many different parts, the company faces the constant challenge of producing high-quality parts in as little time as possible. To uphold its quality reputation, Elkamet invested in 3D printers to speed-up in-house design and production processes.

“

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Mathias Sturma

Development, Consultancy and Application Additive Manufacturing, Elkamet Kunststofftechnik GmbH



Moving Faster With FDM Production Tools

Within the automotive industry, hundreds of thousands of vehicles are manufactured every year – each line with a unique design. Elkamet collaborates with automotive and glass manufacturers to produce profiles, such as window seals, that are tailored to each car model. To guarantee perfect tailoring of the window seals to each different vehicle, Elkamet uses gauges for measurement and quality checks.

Elkamet used to make the gauges with traditional manufacturing processes. However, the company turned to [Stratasys FDM® technology](#) to streamline this process. “Prior to installing our [Fortus 450mc™ 3D Printer](#), we milled the gauges for the window seals and support rails from aluminum,” said Mathias Sturma, Development, Consultancy



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Stratasys FDM additive manufacturing has benefited the Elkamet production floor, shortening lead times of tools, such as gauges, by up to 75%.

and Application Additive Manufacturing at Elkamet Kunststofftechnik GmbH. “However, these parts were very heavy, so moving them around the production floor was difficult. We also had to assemble parts to create the gauges. After realizing we could 3D print much lighter parts out of ASA material on the Fortus, we developed the gauge design to tailor them to our geometry needs.”

Besides a reduction in weight, which makes quality and measurement aspects much easier, the 3D printing process has shortened lead times for tools like the gauge by up to 75%. The ability to produce 3D printed customized gauges lets Elkamet efficiently respond to automotive market demands, improve internal manufacturing processes and provide faster, more tailored solutions for customers. 3D printing also allowed the company to easily change the gauge from white to gray, which avoids reflection and ensures better contrast for the Elkamet team.

“The Fortus 3D Printer runs non-stop on our production floor and was adopted enthusiastically by our team from the moment of installation,” said Sturma. “The safe and easy-to-use system has made tooling in-house much easier, especially because we can use a range of materials with it. The mechanical and thermal properties of those materials are also ideal for the production of jigs and fixtures, which are used today across our manufacturing floor.”

Seeing the Light With J750 Prototypes

Beyond jigs and fixtures, Elkamet also benefits from 3D printing across its prototyping processes. When manufacturing lighting profiles, such as covers for office lights, design iterations were often difficult because the parts are extruded and usually produced in series. Design iterations would typically only take place in the second series created, since producing one-off lighting covers to test designs is not viable. To overcome these challenges, Elkamet employed the full-color, multi-material [Stratasys J750™ 3D Printer](#).

“For our lighting profile covers, prototyping was previously very difficult, as we require transparent material and the ability to easily produce one-off parts,” Sturma said. “Furthermore, the combination of hard and soft materials and a wide color palette is needed for prototypes created in-house. The Stratasys J750 is the best solution in the market fulfilling that criteria.”

The final transparent lighting prototypes 3D printed in [VeroClear™ material](#) have received very positive feedback from the Elkamet team, according to Sturma. “The prototypes we achieved have a great lens effect – we didn’t anticipate such exceptional quality,” said Sturma.

The ability to manipulate material rigidity also allows the Elkamet design team to closely replicate final material properties of the lighting covers. Time and money is saved at the design and production stages by being able to 3D print one-off lighting prototypes and agree on the final design prior to production.

With its in-house Fortus and J750 printers, Elkamet has invested not only in its current processes, but also in the future of the business. “We are keen to further explore these technologies and their capabilities for other applications and processes,” Sturma said. “Our customers are continuously asking for quicker delivery and shorter lead times, and now that we have seen what 3D printing technology is capable of, we hope to expand our services with the technology in the future.”



The Stratasys J750 3D Printer lets Elkamet produce one-off, transparent lighting prototypes ahead of larger production runs.

Stratasys Headquarters

7665 Commerce Way,
Eden Prairie, MN 55344
+1 800 801 6491 (US Toll Free)
+1 952 937-3000 (Intl)
+1 952 937-0070 (Fax)

stratasys.com

ISO 9001:2008 Certified

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

