APPLICATION CUSTOMER STORY:

SEUFFER

Stratasys®
3D Printers and Production Systems

PolyJet Enables Functional Testing of Injection Molded Prototypes Faster and Less Expensively Than Ever Before

"The ability to functionally test parts made of the final material makes it possible to efficiently and inexpensively modify the design prior to mass production."

— Wilfried Zachmann, research and development manager, Seuffer

SITUATION

Robert Seuffer GmbH & Co. KG, based in southern Germany, is a manufacturer of electronic component parts for the household appliance, commercial vehicle and automotive industries. Examples of their products include interactive fans, sensors and switches.

Because many of Seuffer's products include customer-facing, interactive elements, they must be designed to withstand extended use, while also providing protective housing for the internal electronic components from high temperatures, shock, vibration and corrosive fluids. Functional testing of new parts is critical to validate their ability to perform properly over time. To do this, Seuffer would create injection molded prototypes using final production materials and metal molds. It was only after creating actual prototypes in this manner that engineers were able to conduct the necessary tests. But this process caused significant delays in delivering new parts to the market because the time to build a metal production mold was generally 8 weeks and cost approximately $50,000. And, if changes were needed, new costs were incurred and more time was lost.

Not surprisingly, Seuffer's management was interested in finding ways to accelerate the process and better manage these costs. Their solution was to use a PolyJet™ 3D printer as a mold-making machine.

How does PolyJet compare to traditional methods for Seuffer?

Method	Production Time	Cost
Metal Mold*	56 days	$52,725
PolyJet Mold	2 days	$1,318
SAVINGS	**54 days (96%)**	**$51,406 (98%)**

* Production mold

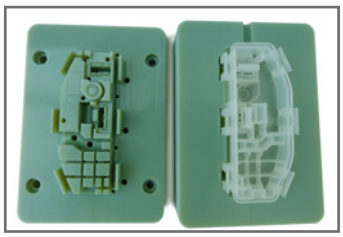
SOLUTION

To test the approach, Seuffer selected a part that was geometrically complex; its design included shut-off surfaces, thin walls and tall core pins which would normally require multiple inserts and many hours to fit into a normal metal mold base. With the help of a PolyJet 3D printer, a prototype mold was built in less than two days and required only three hours of component fitting and assembly. What's more it cost less than $1,400 to produce — savings of 96% and 98% respectively as compared to traditional metal molds.

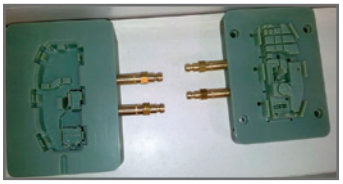
RESULTS

Now, with the help of PolyJet molds, Seuffer can:

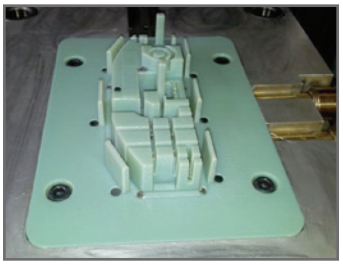
- Quickly and cost-effectively produce new molds following each round of design modification.



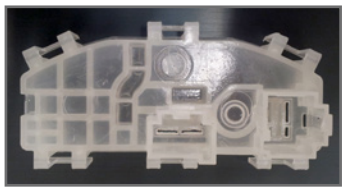
Part produced with a PolyJet mold that is ready for functional testing.

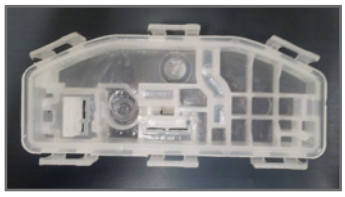


Core and cavity mold inserts ready for assembly onto the molding machine together with fittings for cooling lines.



Core mold insert assembled to the mold base.





Seuffer's polyethylene housing created with a PolyJet tool.

- Reduce and / or eliminate rework on final production molds.
- Create prototypes from final production material with complex geometries, thin walls, and fine details.
- Gather true-to-life performance data much earlier in the process than previously possible.

“In the past, we could not conduct performance tests until we had built a steel or aluminum tool and used it to create injection molded prototypes on actual production machines,” said Wilfried Zachmann, research and development manager for Seuffer. “Now we have the ability to perform functional tests and modify designs faster and at much lower costs.”

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