

COOKING UP A STORM

Helvex Cuts Prototyping Time by 80 Percent with Objet 3D Printer

"With our Objet 3D Printer, we get every prototype on time and exactly how we want it. We're seeing time savings of 50 to 80 percent, depending on the complexity of the part."

— Daniel Verde Hernández, Helvex

Since incorporating an Objet 3D printer into its rapid prototyping program, Helvex has drastically cut the time required to produce prototypes.

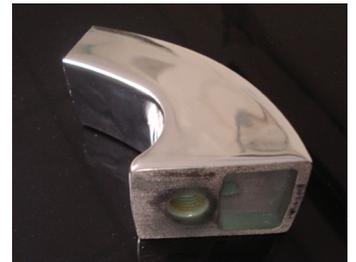
Mexico-based Helvex is a leading manufacturer of kitchen and bathroom fixtures and ceramic bathroom furnishings, ranging from faucets and bathroom suites to institutional sensor-operated sanitary equipment. At Helvex, prototypes are used throughout the product development process from industrial design models for new design concepts to detailed models for functional testing, including water flow tests.

Over the years, demand for prototypes has increased, and the requirements have become tougher. Whereas sculpted prototypes used to suffice, Helvex now needs models that closely simulate the final product. For several years, the company used a competitive printer for some models and worked with a service bureau to produce more complex models, with limited success.

"We could produce some functional prototypes, but it took a lot of work," says Daniel Verde Hernández, design engineer at Helvex. "Cleaning the models was time-consuming and difficult. The machine did not offer the level of precision we needed, and it left an uneven finish on curved surfaces." Additionally, sending designs to an outside bureau to produce the complex prototypes took too long.

Helvex compared different types of rapid prototyping technologies, testing their performance on a flushometer valve. The Objet® 3D Printer outshone others in printing time, precision of parts, versatility of materials and surface finish. Helvex chose the Objet350 Connex™, which uses PolyJet™ multi-material 3D printing technology. The Connex can 3D print multiple parts with different types of materials simultaneously on the same tray, and also print up to 14 different material properties in the same part, in one print job.

"We tried functional prototypes with a combination of materials, and this has helped us a great deal with our parts," says Hernández.



A faucet prototype printed in Digital ABS, after chrome plating

Heightened Precision

Helvex first printed functional models of mixer faucets in translucent material. Jonathan Blancas Sánchez, product engineer, says: "At first glance we really noticed the improvement in printing precision and how easy it was to make the prototype functional. It's a world of difference from what we did before."

Helvex has drastically cut the time required to produce prototypes. For industrial models, the Connex 3D Printer yielded time savings between 30 and 40 percent. Functional prototypes of faucets that use running water saw a 50 percent time saving for simple functional prototypes and 70 to 80 percent for more complex prototypes.

The Connex prototypes' curved surfaces come out smooth, greatly reducing time to post-process parts. The 3D printer's multi-material technology enables Helvex to print prototypes with fine screw threads of 20 to 40 threads per inch. The Objet 3D Printer excels at producing even the finest thread Helvex requires – 5-40 UNC-2B – as well as NPT thread, which is used in gas and water pipes.

Presenting high-quality prototypes accelerates consumer testing and produces more valuable results. Helvex prints with Digital ABS™ material or combines rigid and flexible materials to simulate faucets, nozzles, handles and other bathroom fixtures. "The prototypes look good when they come out of the 3D printer, and they look even better with a paint post-process," says Sánchez. "But chrome-plating gives us much more in the way of product presentation. End users don't want images or mockups. They want to see how the final product will look, and that's the idea behind the Objet 3D Printer."

The ease of use and unattended printing capabilities of the Objet350 Connex 3D Printer are a windfall to Helvex. Sánchez says, "The machine has inspired confidence in us because we can print at any time, even overnight. We wait for the printer to start printing, and we monitor it for just a few minutes. Then we can leave and come back the next day with full confidence that the parts will be ready."



Fully functional prototype printed with Objet rigid and flexible materials to simulate gaskets and spray nozzles

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