

AT A GLANCE

Company: Vista Technologies, LLC
 URL: www.vistatek.com
 Location: Vadnais Heights, MN
 Industry: Rapid prototyping, rapid tooling and injection molding service bureau.

Challenges

Add in-house overmolding prototyping capabilities to enable customers to improve product designs and accelerate time-to-revenue.

Solution

Objet Connex500 3D printer

Results

Overmolding capabilities have helped grow repeat business, and helped convert more prototyping projects into tooling jobs – overall, overmolding tooling business has grown by 40 percent since the Connex500 was implemented.



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Dan Mishek, Sales Manager
 Vista Technologies, LLC

Objet Connex500 3D Printer Helps Vista Technologies Achieve 40 Percent Growth in Tooling Business for Overmolded Parts

Unique overmolding capabilities enable service bureau to capture more prototyping business, and convert more prototyping projects into tooling jobs

Vista Technologies, LLC (VistaTek™) specializes in rapid prototyping, rapid tooling and injection molding. The company's broad mix of capabilities set it apart from other service bureaus. With complementary technologies from stereolithography (SLA), Polyjet, and fused deposition modeling (FDM), VistaTek can produce prototypes fast with virtually any rapid prototyping material.

VistaTek has more than 1,600 customers across the U.S., including 3M, SPX Corporation and Toro. The company specializes in making quick-turn prototypes and complex injection molds in 2-3 weeks that lead to better designs and improved manufacturability, while accelerating its customers' time to market.

Service bureau adds Polyjet capabilities to complement traditional prototyping tools

VistaTek saw the value of adding Polyjet technology to its offerings in 2006, with the purchase of its first Objet 3D printer – the Eden500V. “It was obvious to us that Polyjet had certain advantages over SLA, FDM or SLS for particular applications, such as medical models and other applications that require crisp detail and resolution,” explains Dan Mishek, Sales Manager for VistaTek. “It can also build faster models with certain geometries that allow for less cleanup and finish time. The Objet printer was a good complement to the other capabilities we offered in-house.”

Customers use VistaTek prototypes in the proof-of-concept stage of development as well as to check fit, form and function for manufacturability and tolerance. The prototypes are also often used by marketing staff for focus groups and to develop packaging. So it's crucial that they be of high quality, and that they operate as realistically as possible – for instance, with moving parts and flexible materials.

Though VistaTek's ability to produce realistic prototypes was greatly enhanced with its Objet Eden500V printer, Mishek and his team still sought the ability to print multiple materials into a single



printed part – a process known as overmolding. When Objet introduced its Connex500, the first multi-material 3D printing system, VistaTek paid attention.

“We were really excited to learn about Objet’s Connex500,” recalls Mishek, “because it meant it was now possible to prototype an overmolded part. We knew we had to have it.”

Overmolding is a molding process where two or more materials are combined to produce a single part. Typically the part seamlessly combines a rigid plastic with a rubber-like elastomer. The result is the soft-touch, non-slip surface that has become common on power tools, toothbrushes, razors, consumer electronics, medical devices and more.

Objet’s Connex500 enables VistaTek to perform overmolding in house

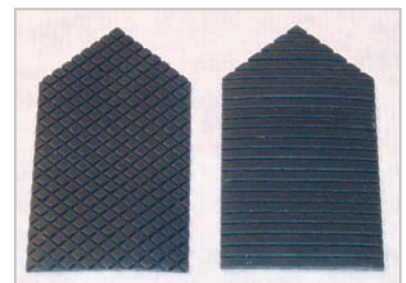
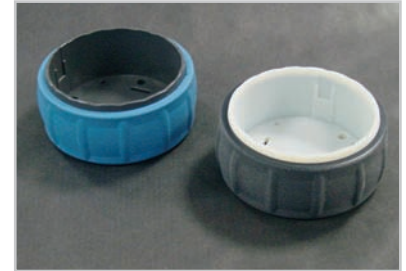
VistaTek was one of the first companies in the U.S. to implement the Connex500 printer. According to Mishek, it has provided three major benefits to VistaTek:

- The ability to prototype complex parts, including overmolded parts and living hinges, that were impossible (or cost-prohibitive) to prototype in the past;
 - Customers can now design for overmolding, which means they are giving VistaTek more prototyping business; and
 - Tooling business for overmolded parts has grown by 40 percent, as more prototyping projects convert into tooling projects.
- **The ability to prototype complex parts:** According to Mishek, “Customers had expressed an interest in having us to do this type of work for them, but for a long time the printing technology simply didn’t exist. The only alternative was to print two separate parts using two different materials and then literally glue or tape them together. Or, we would print the part with one hard material, and say, ‘OK, now imagine that top part is soft.’ With the Objet Connex500, we don’t have to rely on imagination to convey how an overmolded part will actually look, feel and operate. We can print out an accurate prototype and just hand it to the customer.”
- **Customers can now design for overmolding:** Mishek says that the Connex500 has given his customers more design latitude. “In the past,” he says, “they may have restricted their designs in some regard because there was no way to get a functional model for what they really wanted to try, or a model would be cost prohibitive. Hence, straying from traditional designs created risk.”
- “Today,” says Mishek, “customers tell us, ‘Now that I know I can prototype these types of features, I may design the next part differently.’ They can design in a soft-touch area or a more complex assembly, and we can prototype it quickly and relatively inexpensively. That gives them the freedom to try new designs and new approaches, and makes it more likely that they’ll come back to us.” Mishek says repeat business has grown among customers who have had rapid prototypes produced on the Connex500.
- **Overmolding tooling business has grown by 40 percent:** VistaTek customers have been impressed by its unique overmolding and living hinge capabilities. “It’s opened the door for us to present more of our in-house capabilities to customers, and more and more prototype jobs are converting into tooling jobs,” says Mishek. “The better the prototype, the more likely they are to continue with the project. Our overmolding tooling business has grown by 40 percent since we started doing rapid prototyping with the Connex500.”

Connex500 is an “everyday workhorse” that can also do dual-material projects

Though certain jobs, such as overmolding and those requiring a living hinge, can only be done on the Connex500, VistaTek uses it for many different types of jobs. Mishek reports that the quality of parts printed with the Connex500 is at least on par with, if not better than, any other printing technology VistaTek offers when it comes to tolerance and finish. “For many applications and parts, the service finish in its raw stage off the Connex500 is superior to SLA,” says Mishek. “Plus, the materials options are second to none.” Therefore, the VistaTek team uses the Connex500 for many different types of projects. “It’s an everyday workhorse with the advantage of also doing dual-material projects,” says Mishek. “I’d say about 15 percent of the jobs we do with it today are dual-material, but I expect that to grow over time as more of our customers take advantage of the capability.”

Another plus for the Connex500 is that it is clean. “Unlike our SLA machines, which involve hazardous waste and a lot of cleanup, our Connex500 can basically go wherever a regular network printer would go,” says Mishek.



Before/After scenarios demonstrate significant time and cost savings from Connex500

Mishek provided the following “before and after” scenarios to illustrate how much time and money the Connex500 can save VistaTek customers:

- Several years ago, VistaTek produced prototypes for client SPX Corporation with RTV molding. It was a two-piece, overmolded part that that required two patterns and two molds for both the upper and lower pieces of the housing. It took VistaTek four weeks to produce and cost \$15,800. The resulting castings demonstrated that design modifications would be necessary before the project continued. SPX made the modifications, but budget and time constraints prevented them from doing a second set of prototypes before moving on to production. When SPX Corporation recently came back for a similar project, VistaTek was able to use the Connex500 rather than RTV molding to do the prototypes. “With the Connex500, we were able to complete prototypes in just a couple of days for about \$2,800 – about the same time and cost as just the patterns used for the RTV job. It shaved many weeks and thousands of dollars off the project.”
- In another example, Mishek describes a project where VistaTek was hired to produce a small, overmolded part for a meter-reading device. Because the quantity was small – just 350 parts per quarter – VistaTek recommended an injection mold. The cost was \$8,900 and it took three weeks to produce. The client decided not to spend an additional \$2,300 and two weeks to prototype the part with RTV molding. That meant that the first injection molded samples were effectively the prototypes, and unfortunately, they revealed that revisions and tooling rework would be required. In retrospect, Mishek notes that had the Connex500 technology been available two years ago, VistaTek could have delivered a working prototype for just \$350 in three days. “It would have saved the client thousands of dollars and avoided a two-week delay going into production.”



Options for prototyping meter-reading device:

Injection mold			RTV mold			Connex500		
	Cost	Time		Cost	Time		Cost	Time
1+1 family mold	\$8,900	21 days	Pattern (2)	\$500	2-3 days	Rapid prototype (set)	\$350	3 days
			RT molds (2)	\$1,700	7-10 days			
			Cast part	\$85	1 day			
			TOTAL	\$2,285	10-14 days			



As a result of experiences like these, says Mishek, customers are asking specifically for prototype work to be done on the Connex500. “Everyone we show it to gets excited,” he says. “It’s amazing technology.”

Connex500 saves VistaTek customers time and money without sacrificing quality

Mishek believes that the Connex500 is game changing. “Objet’s ability to jet multiple materials is one of the most important industry innovations of the last five years – on par with the change from 2D drawings to 3D CAD modeling,” he says. “It takes prototyping into molding to a whole new level. We’re really excited to be able to bring this capability to our customers.”

“Since we started working with Objet, they have always exceeded our expectations. The quality and materials are on par with SLA prototyping processes, and for certain types of parts, the Connex500 also has advantages in terms of speed and surface finish. It’s clean and very cost effective to operate compared to other large platform prototyping equipment. The net of all this is that it saves our customers a lot of time and money without sacrificing quality,” Mishek concludes.



Objet Geometries Ltd., the innovation leader in 3-D printing develops, manufactures and globally markets ultra-thin-layer, high-resolution 3-dimensional printing systems and materials that utilize PolyJet™ Polymer Jetting technology, to print ultra-thin 16-micron layers.

The market-proven Eden™ line of 3-D Printing Systems and the Alaris™30 3-D desktop printer are based on Objet's patented office-friendly PolyJet Technology. Connex500™ is based on Objet's PolyJet Matrix™ technology, which jets multiple model materials simultaneously and creates composite Digital Materials™ on the fly. All Objet systems use Objet's FullCure® materials to create accurate, clean, smooth and highly detailed 3-dimensional models.

Objet's solutions enable manufactures and industrial designers to reduce the cost of product development cycles and dramatically shorten time-to-market of new products. Objet systems are in use by world leaders in many industries, such as automotive, electronics, toy, consumer goods, and footwear industries in North America, Europe, Asia, Australia and Japan.

Founded in 1998, Objet serves its growing worldwide customer base through offices in USA, Europe and Hong Kong, and a global network of distribution partners. Objet owns more than 50 patents and patent pending inventions.

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