Global packaging leader uses EnvisionTEC 3D printers to quickly turnover design concepts for customers

Studio 111 is an innovative design studio based in downtown Chicago. A subsidiary of Berlin packaging, a leader in the production of packaging solutions for, amongst other markets: automotive, food and beverage, homecare, industrial chemicals, healthcare, veterinary, pharmaceuticals, health and beauty.

Studio 111 provides design and prototyping services, allowing businesses to see and decide on the packaging designs that will most effectively convey their brand image and attract buyers to their products.

Why 3D Printing?

Two dimensional sketches and designs are good at conveying a rough design idea to a customer, but a 3D prototype will always allow a customer to more effectively decide if a design is right for them or not.

Switching to the production of 3D prototyping was a simple decision for Studio 111, as the production of prototypes via other methods was both time consuming and expensive. 3D printing would remove these time constraints while reducing the cost of prototype production.

"We use 3D Printing to create amazing visual models for our customers to understand what we are proposing to them. A 2D print never does judgement to a 3D shape." - Martin Rathgeber, Director of Engineering

Berlin Packaging

Industry:
Packaging

Machines:
Xtreme 3SP and Perfactory XXL

Materials:
E-Glass

"We have a client that has a very specific design that they have narrowed it down to, and they want to be able to understand the actual look and feel, size shape and everything about it."
- Nora Flood, Senior Industrial Designer

The 3D printer can be used to produce not only a likeness of the final mass produced product, but almost an exact reproduction that allows the customer to experience what the finished item will be like. Additionally where multiple iterations of a design are required, they can be printed side-by-side at the same time, resulting in reduced time in the decision making process.

Why EnvisionTEC?

The team was aware of the players within the 3D printing market and during their search examined a number of competing brands, both the machine options and the materials available that fulfilled their needs. When approaching the search the team had a number of considerations in mind:

Size: Packaging models can often be large and there was a requirement to build multiples of these large items at once. At the other end of the spectrum the team also needed a solution that would allow the production of small, intricate parts and components, for example bottle lids.

"The reason we picked the Xtreme 3SP was because it has a large build envelope. We are able to build multiple bottles at the same time. With bottles that are up to 12-13 inches in height." - Gil Palmon, Senior Product Development Engineer

Speed: Though not a primary concern, the team needed a fast machine due to potential workload. With the studio often working on a number of briefs at the same time a slow printing solution would cause bottlenecks.

Surface quality: As the client would be handling the items the surface quality needed to be exceptional with little post finishing required.

Materials: The materials available should reflect the range of packaging options, with plastics and glass substitutes that accurately represent the finished items.

After discussion the team at Studio 111 settled on two EnvisionTEC models, the Xtreme 3SP to allow the production of large objects and a Perfactory XXL for smaller objects.
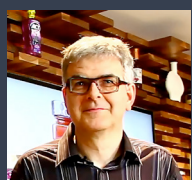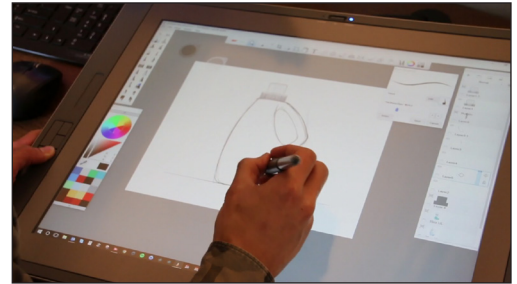
"We are always looking for the latest tools that provide us with what we need to develop extraordinary packaging." - Martin Rathgeber, Director of Engineering
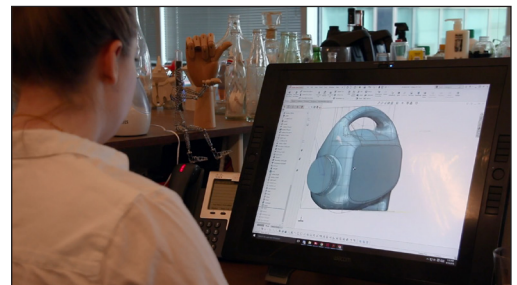
Accuracy was a key consideration. With the production of often small and complex parts a regular requirement.
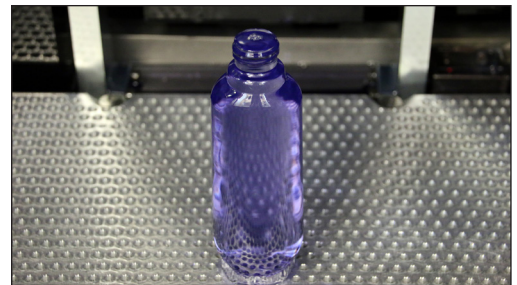
Stages of design:

Initial ideas are sketched out on a computer.

Designs are then transferred into 3D designs using CAD software.

Larger elements are printed using the Xtreme 3SP and smaller more intricate items on the Perfactory XXL.

3D printed items can be seen by clients to aid in their decision making progress.

EnvisionTEC's 3SP models can use a multitude of materials depending upon the finish and color required. Even when glass bottles are required, using a transparent material such as EnvisionTEC's E-Glass allows the customer to gain the look and feel of glass without the cost associated with producing a one-off glass prototype.

Results

The EnvisionTEC machines allow the team to produce and re-iterate prototypes quickly and accurately without the need for expensive milling and manufacturing.

"We print essentially 6-7 days a week...To be able to crank out parts consistently day after day is great."
- Tien Nguyen, Senior Industrial Designer

The combination of EnvisionTEC Perfactory XXL and Xtreme3SP machine provides the team with the ability to produce everything from the biggest prototypes, down to the most intricate and small components.

The larger volume of the Xtreme also means that they can run multiple iterations or even jobs for multiple clients simultaneously. And with the exceptional reliability of the EnvisionTEC 3D printers these jobs can be run continuously and without the need for constant monitoring, even overnight.

Customer Benefits

Ultimately, though, the major benefit has not come to Studio 111 or Berlin Packaging but to its end customers. The EnvisionTEC machines were chosen to provide Berlin's customers with accurate representations of their ideas and aid with the development process.

With a range of materials that represents any need of the client, colors textures and transparency can be replicated. EnvisionTEC's E-Glass material even allows them to accurately represent glass objects. The Prototypes printed on the EnvisionTEC machines are extremely accurate and provide customers with a true representation of the look and feel of a final product.

During the development stages this allows the end customer to see multiple iterations, compare ideas, versions and make decisions about changes faster. In the final stages the prints allow them to make more informed decisions, confident that what they have signed off will be representative of what will be mass manufactured and their customers will see.
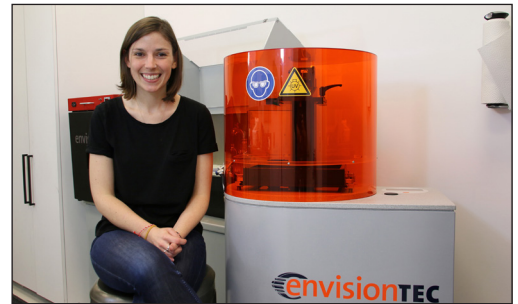
Nora Flood, Senior Industrial Designer with the EnvisionTEC Perfactory XXL.
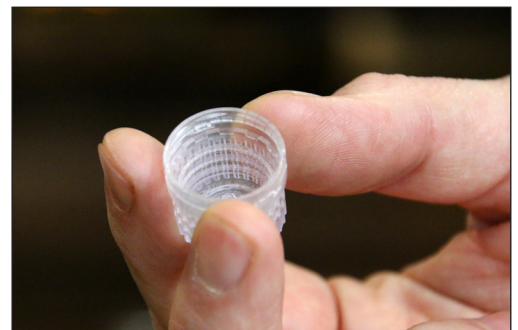
Even extremely complex and fine details can be produced

EnvisionTEC's range of materials represent any client need, including color, texture and transparency.

See our video:

www.envisiontec.com/berlinpackaging

"We do a lot of things in glass, we do a lot of high end spirits these days and a E-Glass clear model looks so much more exciting." - Martin Rathgeber, Director of Engineering

EnvisionTEC - The perfect choice for manufacturers

Whether you are looking for faster, more accurate prototypes for design verification and testing — to help the manufacturing process move faster — or for real mass production of custom products, EnvisionTEC can help.

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. The range of manufacturers using our technology is as broad as it gets. Our customers make toys, electronics, bottles, pumps, engines, brake pads, cars, airplanes and more.

EnvisionTEC's manufacturing focused materials

• **ABS Flex White 3SP** - ABS Flex White is an ideal solution for a wide variety of applications including snap-fit items and assembly applications which require some elasticity.

• **ABS Hi-Impact 3SP** - ABS Hi-Impact 3SP is a tough material, suitable for high quality prototypes as well as stable enough for production-quality end use parts.

• **E-CE** - A stiff, heat-resistant, high-performance dual-cure material that also offers chemical resistance. Perfect for industrial products that require thermal stability such as under-the-hood parts.

• **E-Glass 2.0** - A transparent material for use on EnvisionTEC's 3D Printers. Featuring excellent surface finish quality and feature resolution, E-Glass 2.0 is an ideal 3D printing solution for simulating clear plastics.

• **E-Model** - A tough material, suitable for high quality prototypes as well as the production of production-quality end use parts.

• **E-Poxy** - A partially biosourced, tough, dual-cure material that delivers strong, thin-walled final products. E-Poxy offers a good relationship between flexibility, hardness and heat resistance that is also ideal for connectors, among other objects.

• **E-RigidForm** - A polyurethane-like resin that 3D prints strong, hard and stiff parts that can be used for prototypes and end use.

• **E-Rigid PU** - A polyurethane-like resin that 3D prints end-use and prototype parts that compete with injection molded plastics.

• **E-Shore A** - An advanced engineering-grade polyurethane-like material that produces a final material with soft Shore A values of 40 or 80 depending on your needs.

• **FormCast** - An advanced, engineering-grade material delivering large castable patterns and functional prototypes.

• **HTM 140 v2** - A high temperature molding material for non-metal masters. HTM140 can be directly vulcanized in rubber, eliminating the need for a metal master.

• **LS600** - An extremely durable photopolymer for use in producing very accurate parts with high feature detail. LS600 produces parts with high impact resistance similar to thermoplastics.

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 variety 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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