Chinese jewelry manufacturer embraces 3D Printing to improve service, reduce costs and stay competitive.

Shengyao Treasures Design Co., Ltd. (Shengyao) is a leading jewelry supplier that services major international jewelry retail chains and wholesalers. It boasts customers in Europe, Russia, Australia and China and North America.

The business produces a huge variety of products and collections designated for different markets. Shengyao prides itself on service quality and its uncompromising pursuit of brilliant design and craftsmanship.

Why move to 3D printing?

Like many jewelry manufacturers Shengyao, was, prior to the discovery of 3D printing and CAD, using traditional hand-carved wax models. Though they had served them well, other manufacturers were moving to digital methods to remove the shortcomings and stay competitive.

The old techniques had several weaknesses. First they were slow and difficult, requiring specialist skills. Prototyping and modifying models was time consuming and difficult and they did not deliver the accuracy expected by modern customers.

Director of digital manufacturing, Paul Liu with the EnvisionTEC Perfactory printers.
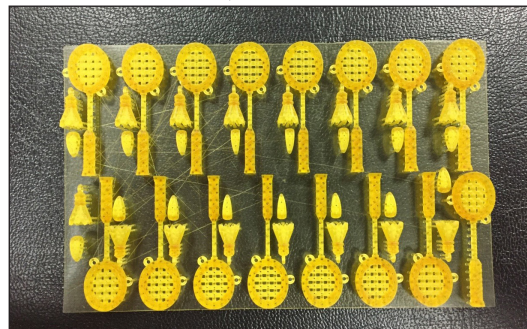
Pendants printed in EC500 ready for casting.

Shengyao Treasures Design Co., Ltd.

Industry:
Jewelry

Machines:
Perfactory 4 Mini XL

Materials :
EC500

"When casting we needed a material that would produce an exceptionally fine and accurate result, that we could also work by hand if required post print. " - Paul Liu , Director of digital manufacturing, Shengyao Treasures Design Co., Ltd.

Accuracy was a large consideration for Shengyao. The team knew that with increased model accuracy came savings in finishing time, and a better overall finish for the customer, whether models were used for direct casting or mold production. Additionally, improved accuracy would result in reduced wastage from finishing highly expensive materials.

The Shengyao team knew that to achieve the increase in speed and accuracy they desired, and ensure that they were keeping up with competitors in the market an investment in new digital technologies was required.

Why EnvisionTEC?

The business looked at a large range of different manufacturers. After experiencing the exceptional quality of prints from the EnvisionTEC range of 3D printers, and the materials available, the decision was made to invest in two Perfactory 4 Mini XL printers.

"We chose the Perfactory 4 printers based on the precision of the printing and the range of focused materials available to us." - Paul Liu

EnvisionTEC's range of materials was also key to Shengyao's decision. Together with one off castables the company produces silicone molds for mass production purposes. The EnvisionTEC range includes materials such as Photosilver, suitable for the production of vulcanized rubber molds, through to high wax materials such as EC500 for use in lost wax casting. Switching between the different materials is a simple process.

Outcome

The move to CAD has meant that Shengyao has more control over its designs and can produce far more intricate and fine details than when using traditional methods. Designs which were previously impossible to produce by hand are now available to the designers through the adoption of digital.

The use of 3D printing has dramatically improved the accuracy of the wax masters and moldable parts. That in turn has resulted in final pieces that require less finishing, and result in less wastage.

3D printing has also had an effect on prototyping, allowing multiple iterations to be produced quickly, and modifications to those, and re-prints taking far less time than the traditional methods they replaced. Additionally, large batches of the same or mixed orders can be printed at the same time.
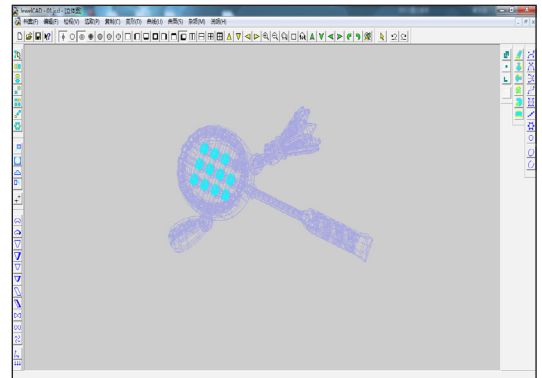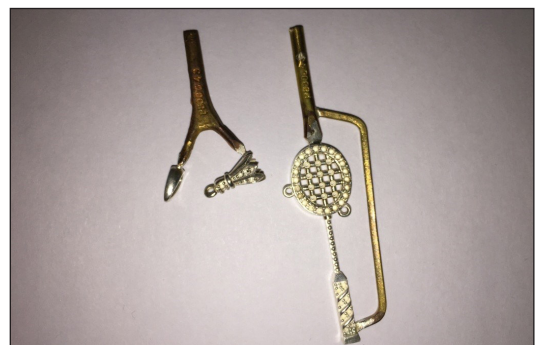

All of Shengyao designs are initially produced in CAD.
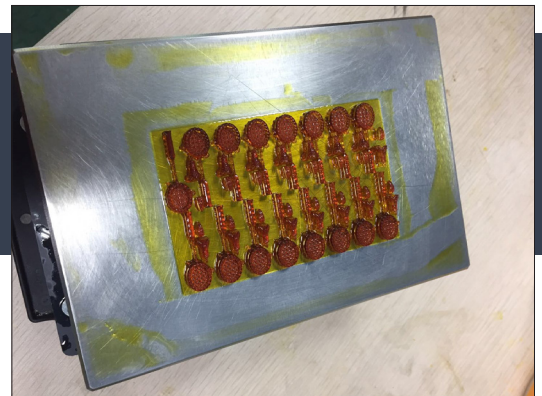
Designs are bundled together to get the maximum yield from the build platform.

Prints can be produced for casting or the creation of silicone molds for mass production.

Cast items ready for finishing.

> **"Switching to a 3D printing solution reduced production time over the previous cumbersome process. It has also reduced our costs, increased efficiency, improved service and the results for our customers."** - Paul Liu

EnvisionTEC Materials, the perfect choice for Jewelry

EnvisionTEC is a leading choice among jewelers, and custom and large manufacturers for 3D printing jewelry patterns for casting and molding.

- **EC500** - A castable material with moderate wax levels for 3D printing heavier jewelry pieces of up to 20 grams finish weight.

- **WIC100G** - A popular value material in the EnvisionTEC portfolio. Containing 20% powder wax content.

- **RC Series** - A series of high-temperature resins for building tough and stiff parts at very high resolutions

- **PIC 100 Series** - A popular production casting material, allowing for exceptional detail and surface finish. PIC is recommended for pieces up to 5 grams finish weight.

- **Easy Cast 2.0 C** - A breakthrough material for the high-speed printing of a castable photopolymer with the highest wax content available in 3D printing.

- **EPIC** - A 3D printing material that contains 8% liquid wax for lower thermal expansion during burnout.

- **EC3000** - A high wax content material that delivers exceptionally crisp details and a smooth surface finish.

- **Photosilver** - A high temperature resistant material for the production of vulcanized rubber molds.

- **HTM140 V2** - A high temperature molding material for producing non-metal masters.

- **QView** - A resin that is ideal for providing fast design verification models.

> *"One of the advantages of the EnvisionTEC EC500 material is that even after printing, its high wax content means we can still remodel and trim, you can use the tools directly on the print."* - Paul Liu.

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 range 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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