



## Custom Jeweler Provides its Clients with their Dream Pieces Through the Use of EnvisionTEC 3D printers

Whitehurst Associated Galleries Inc. (Whitehurst Gallery) is a specialist jewelry manufacturer based in Tarpon Springs, Florida, USA. The business consists of a team of highly skilled craftsmen who create ideas and manufacture intricate custom jewelry pieces for clients around the world.

With a career in jewelry spanning over 50 years, Gareth Whitehurst, founder of Whitehurst Gallery, experienced his first spark of interest in the industry when he worked part time in a jewelry store in 1968 (whilst also teaching high school math and playing keyboard in a band!).

Being initially drawn to the business aspects of the trade, he has since embraced the creative elements: enjoying the process of idea generation, translating ideas into designs and eventually into physical objects.

***"With any work I've ever done there has to be a pretty strong creative component in it to maintain my interest and enthusiasm. In jewelry, for example, the variety and spontaneity keeps it fresh."***

- Gareth Whitehurst , Founder of Whitehurst Gallery.

### Why 3D printing?

Gareth had long been looking at ways to translate his creative ideas, as well as those of his customers and his team accurately into the real world. Designs can include a wide variety of styles and ideas taken from throughout the history of jewelry.



Whitehurst Gallery is housed in a half scale copy of the Jefferson Memorial.

***"To me, the fun in the field of creating fine jewelry is to try to create things that are interesting and that people have never seen before. That captures something in their own imagination they can't find anywhere else."***

- Gareth Whitehurst , Founder of Whitehurst Gallery.

### Whitehurst Gallery

**Industry:**  
Jewelry

**Machines:**  
Micro cDLM, Perfactory Series

**Materials:**  
Easy Cast, PIC100, Pro Gray, HTM140

Being aware of his own skills, he knew that as long as he studied, he was never going to be a master of everything. Equally, employing a team vast enough to encompass all of the skills that he desired would also never be possible. However, with the advent of CAD/CAM technology, the skills shortfall was no longer an issue. CAD/CAM technology removes the need for specific specialist skills and effectively allows anyone who masters the computer software to produce the most complex and intricate jewelry pieces.

***"I don't have an unlimited repertoire of personal skills to build things, to undertake master modeling. This technology gives me all those skills that I don't have at my fingertips. It lets you go anywhere you want to go, create any kind of an impression, or styling. It makes a master out of anybody, it's a total game changer."***

- Gareth Whitehurst , Founder of Whitehurst Gallery.

The integration of CAD/CAM technology into the business has resulted in the ability to produce far more complex and intricate designs than would have been possible through the use of traditional methods.

***"If you can think limitlessly, this technology gives you the technique to actually pull it off. Once you have mastered the skill of the software and machine it is liberating, because it lets you be anything you want to be, think anything you want to think in a design sense. You don't have limitations."***

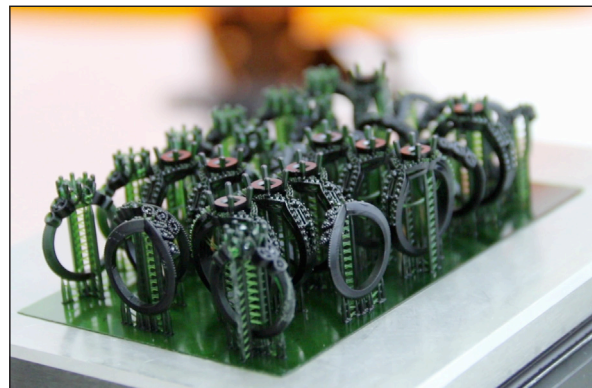
- Gareth Whitehurst , Founder of Whitehurst Gallery.

## Why EnvisionTEC?

Both 3D printing technology and materials technology for jewelry manufacturing have improved dramatically in recent years. The improvements in castable materials in particular has resulted in more freedom of design, with models casting cleanly every time and retaining the detail.

***"As the material quality has improved and the castability has gotten easier this has allowed us to produce more complex pieces, knowing that they will cast cleanly"***

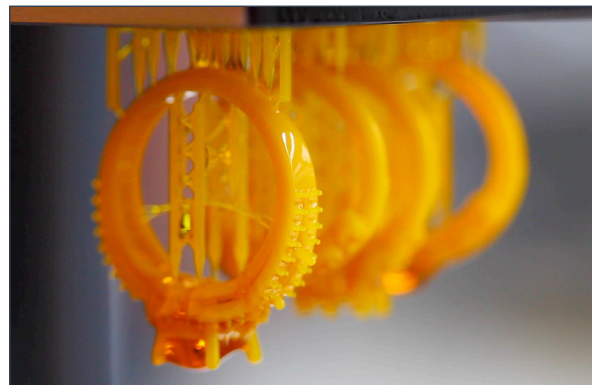
- Gareth Whitehurst , Founder of Whitehurst Gallery.



Large numbers of rings can be produced at once on the in house EnvisionTEC Perfactory series printer. Above, in EPIC castable material. Below, printed in Pro Gray which is ideal for creating master patterns for molding.



Extremely accurate models can be produced on the EnvisionTEC Micro cDLM in a matter of a few hours.



Above: rings printed on the EnvisionTEC Micro cDLM in PIC100 series castable material.



EnvisionTEC provides a combination of materials for a variety of end uses within the jewelry industry. The Easy Cast material, as an example, has the highest wax content of any premium castable material in the market. Specifically built for the EnvisionTEC cDLM series printers, it provides the ability to work and finish by hand as with traditional waxes. Other materials provide different properties and burnout characteristics depending upon the raw material being cast.

The materials are only one part of the story. The production of accurate models relies on not only the use of a quality material, but also requires a machine capable of producing models with the finest details and smooth surface finish. When searching for machines this was a primary concern to Gareth and his team.

***"High resolution is crucial in the process. We have to see all the details that we have in CAD in the printed models."***

- Attila Kuczora, CAD/ CAM Specialist, Whitehurst Gallery.

They knew that the production of beautiful models in the computer was pointless if this was not reflected and reproduced accurately by the printer. After seeing the options from EnvisionTEC, it was clear that the machines and materials were the best available.

The team settled initially on a Perfactory Series printer, which allowed for the production of large numbers of models simultaneously. The printer provided high resolution and accurate reproduction of models. As a bonus, the printer was fast and provided the ability to quickly switch materials to match the needs of that particular customer.

***"We use EnvisionTEC's Perfactory to print a lot of models at once. It is very easy to switch out materials. We use PIC 100, sometimes we use Pro Gray and HTM140."***

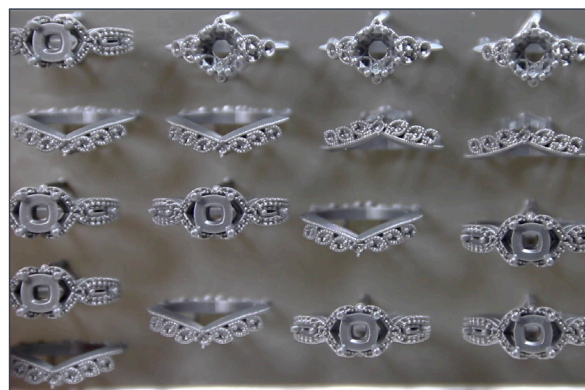
- Attila Kuczora, CAD/ CAM Specialist, Whitehurst Gallery.

Later the team saw demonstrations of the EnvisionTEC cDLM continuous printing technology with its superior speed. After seeing demonstrations of the Easy Cast material, the team at Whitehurst Gallery knew they needed to invest in the new technology.

Adding an EnvisionTEC Micro cDLM has resulted in the ability to turn around small batches of high wax, castable ring models in a few hours.

## The Results

The Team use the machines constantly. The combination of EnvisionTEC 3D printers and materials allows for the rapid production of large models or large numbers of smaller ones for either casting, molding or prototyping. The cDLM high speed printer allows for intricate castable and moldable parts to be printed in a few hours. This reduces overall production time and waiting time for customers.



The extreme accuracy of prints provided by the EnvisionTEC 3D printers allow for both accurate molds and directly castable models. All result in clean, crisp casts that are much faster to finish and set.



Prints are not just limited to rings, even large models can be printed simultaneously on the EnvisionTEC Perfactory printer.

## EnvisionTEC Materials, the perfect choice for Jewelry

EnvisionTEC is a leading choice among goldsmith jewelers, and custom and large manufacturers for 3D printing jewelry patterns for casting. EnvisionTEC's 3D professional-grade printers and materials offer superior detail, precision and a smooth surface finish that requires less finishing.

Highly detailed filigree and accurate settings are routinely produced with little or no adjustment to the machine. Models are produced at extremely high speed, especially when using EnvisionTECs patented cDLM technology that is unparalleled in the industry.

EnvisionTEC DLP technology provides accuracy beyond laser or printing alternative technologies with 15 micron resolution capability as standard. This makes EnvisionTEC 3D printers the perfect choice for micro pave or invisible settings. A substantial, focused range of materials ensures that no matter what the application, you are covered:

- **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.
- **EC500** - A castable material with moderate wax levels for 3D printing heavier jewelry pieces of up to 20 grams finish weight.
- **HTM140 V2** - A high-temperature molding material for producing non-metal masters.
- **RC Series** - High-temperature resins for building tough and stiff parts at very high resolutions.
- **PIC 100 Series** - A popular casting material, allowing for exceptional detail and surface finish. Recommended for pieces up to 5 grams finish weight.
- **EPIC** - A 3D printing material that contains 8% liquid wax, resulting in 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.
- **QView** - A resin that is ideal for providing fast design verification models.
- **WIC100G** - A popular value material in the EnvisionTEC portfolio. Containing 20% powder wax content.

***"Using the computer techniques you can achieve a detail and a precision, and symmetry you just couldn't do by hand. Either because it's physically impossible or most people would not be skilled enough to pull it off with the precision you get this way."***

- Gareth Whitehurst, Founder of Whitehurst Gallery.

### 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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