

Artforge Studio Expands Capabilities with 3D Printed Jewelry Patterns

Jeweler uses FabPro® 1000 3D printer as cost-effective new tool to unlock design creativity for unique, high quality casting patterns.

Artforge Studio is the workshop of an artisan based in the United Kingdom specializing in innovative and imaginative designs. With more than 30 years' experience in fine jewelry, owner and founder Simon Walker is a goldsmith trained in classic jewelry-making skills, including diamond mounting, silversmithing, wax carving, and enameling. To enhance his creative opportunities, Walker augments his traditional background with an active interest and use of emerging technologies.

Intrigued by the competitive and creative value of 3D printing with castable and tool making materials, Walker has been using 3D Systems' entry-level industrial 3D printer, the FabPro 1000, with FabPro™ JewelCast GRN material and FabPro Tough BLK. Citing the printer's accuracy, ease-of-use, and cost-effectiveness as well as the quality and resilience of the material, Walker believes the FabPro 1000 is a useful tool for expanding creative ambitions: "This technology allows creative people to make and play with ideas ranging from engineering style work to whimsical pieces in a short time frame."

CHALLENGE:

Produce creative and unusual jewelry designs in a time- and cost-effective way.

SOLUTION:

A digital design and production workflow featuring 3D Systems' FabPro 1000 3D printer, 3D Sprint® software and JewelCast GRN material.

RESULTS:

- New capability to produce high quality, repeatable investment casting patterns
- Intuitive file fixing and preparation for printing
- Resilient material enables modifications to printed patterns using conventional techniques
- Streamlined integration of 3D printed patterns into normal casting workflow





Artforge Studio specializes in innovative and imaginative designs.

3D printer offers new tool to create accurate and imaginative designs

Many Artforge Studio customers approach the company with the hopes of restoring or recreating heirloom pieces that have been damaged or lost over the years, or to recreate something new using inherited gold and gemstones. Walker believes he is able to offer even more with the creative use of the FabPro 1000, including iterations of suggested designs for customers to hold or putting 3D printed rings on fingers without fear of them breaking as ordinary wax pieces would. Another useful realization Walker had was the ability to adjust 3D printed designs using the bench techniques of filing and drilling to moderately adjust designs for his customers.

For Artforge Studio, the growth in design capability enabled by the FabPro 1000 3D printer makes it a valuable and competitive opportunity.

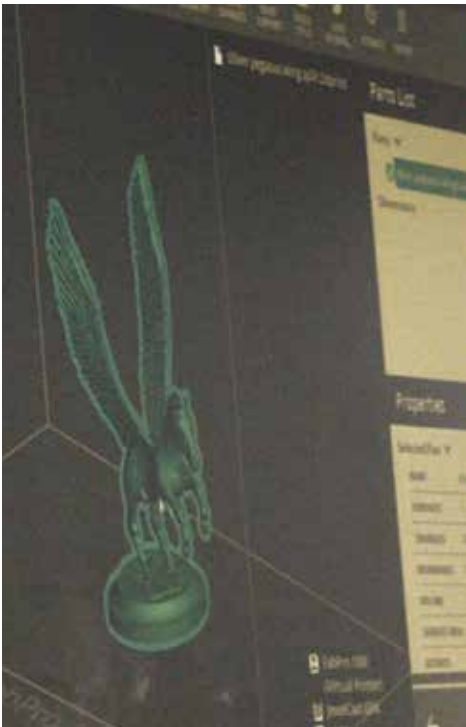
The FabPro 1000 is an entry-level industrial-grade 3D printer that combines smooth surface quality, accelerated throughput, repeatability and a straightforward user interface with intuitive 3D Sprint® software and high quality materials. Powerful yet compact, it is optimized for producing high quality plastic part prototypes as well as casting patterns for jewelry at print speeds up to three times faster than competitively priced systems.

3D Systems' FabPro 1000 delivers SLA-like edge detail, accuracy and surface finish with consistent, repeatable parts and runtimes. With a build size of 125 mm x 70 mm x 120 mm (4.92 in x 2.76 in x 4.72 in), the FabPro 1000 printer can print one part that fills the platform or build several smaller parts at once to generate multiple iterations simultaneously for high throughput printing.

Walker noted that with the larger build plate he can print bangle sized objects in one piece rather than printing them in several pieces and putting them back together as he has done using smaller machines. In his work creating sculptural pieces, he finds the build volume of the FabPro1000 to be very beneficial.



The ability to adjust 3D printed designs using bench techniques helps Artforge Studio accommodate changes requested by its customers.



Artforge Studio's Simon Walker says 3D printing with 3D Sprint software is "almost foolproof."

Casting with 3D resin

Walker occasionally does his own casting, and his experience with the FabPro JewelCast GRN material has yielded pleasing results. He approaches casting as both a science and an art and uses both gypsum and dental investment powders depending on the metal being used or the piece to be cast.

From using the FabPro resin he notes: "The 3D printed JewelCast GRN patterns are quite tough. If you drop a wax pattern, it could break, but these JewelCast patterns are resilient, which is really useful."

In his experience, the Jewelcast GRN material when cured can be used to make molds, and the ability to carve or file into it opens up other possibilities that allow the jeweler to add hand-crafted individuality to items as they choose. "It's nice to be able to adjust things at the bench," he says.

Digital design accelerates production, expands creativity

Using a digital workflow, Walker can design and print new designs quickly and cost-effectively. After designing a file, 3D Sprint makes printing "almost foolproof." Beyond enabling quick and easy print parameter adjustments, 3D Sprint allows users to automatically apply Smart Supports to ensure a quality build. "The automatic supports are brilliant," Walker says, and he is pleased with the ability of 3D Sprint software to identify and resolve common file issues that may impact print success along with a user-friendly experience for scaling designs, creating mirror images, copying models, modifying supports to match preferences, and sending files to print.

"I have to admit: I believe you get a lot for your money with the FabPro 1000. As an entry-level industrial 3D printing solution, it's easy to use, intuitive and quiet, which is great," Walker says.



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