

Jewelry Casting

3D Systems FabPro® 1000 3D Printer

Setting a new standard in entry-level industrial 3D printing affordability, reliability and repeatability, the FabPro 1000 is ideal for jewelry applications, producing high-quality casting patterns with lightning speed, remarkably low operating costs and unsurpassed ease of use.

The FabPro 1000's projector images each layer for small fine details, high resolution and smooth surface finish. Printing parts in hours, the FabPro 1000 is engineered for material efficiency and consistent, repeatable runtimes, leading to lower part costs and lower Total Cost of Ownership (TCO).

FabPro JewelCast GRN Burnout Casting Guide

3D Systems' FabPro™ JewelCast GRN material was specifically developed to produce jewelry master patterns that can be used in part of the conventional jewelry production workflow for flask casting using conventional gypsum investments.

While many processes may work well with FabPro JewelCast GRN, the procedures outlined in this guide have been tested and shown to be a good starting point* for most users.

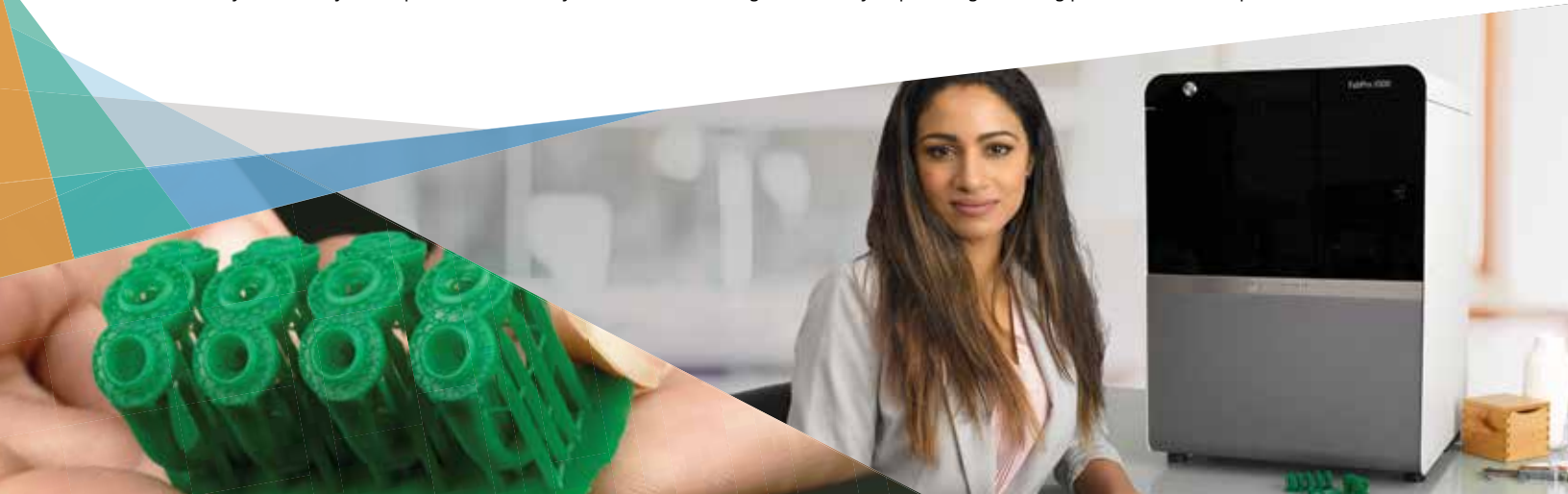
* Variations in the investment used, the burnout furnace, and the pattern geometry/size may impact the results obtained. Post-cure of the patterns is critical to good castings. Use of the LC-3DPrint Box UV post-curing unit from 3D Systems is need to ensure that patterns burnout well. Users may need to adjust the process to fit ideally with their needs. Larger flasks may require longer heating periods to achieve optimal results.



A Jeweler's Gem

Quickly and easily creating high-quality show and casting masters from the desktop, it allows jewelers to access a broad range of applications:

- *Investment casting*
- *Prototype pieces*
- *Design verification*
- *Fitting pieces*
- *Resin molds for wax cast and RTV*





FabPro JewelCast GRN is a green material, ideal for small, fine-featured jewelry master patterns for gypsum investment casting applications. This material leaves minimal ash after burnout to produce superior casting quality. Create and produce custom jewelry or other investment castings that capture fine detail with a smooth surface finish.

Pattern Creation

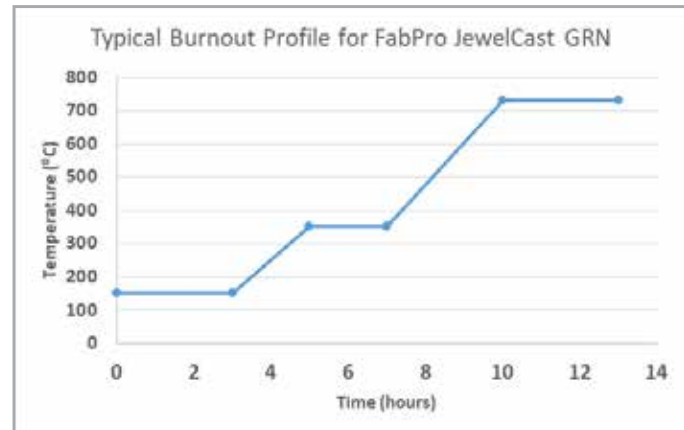
Patterns for jewelry casting must be made with care. Users should follow the user guide carefully and only use the recommended cleaning and post-curing process outlined. Jewelry patterns for casting should be UV post-cured 30 minutes in the LC-3DPrint Box. Most specifically, during pattern preparation, we know that excessive UV post-cure can cause issues with casting. Users should follow our recommended curing times to avoid excess light exposure.

Investment Selection

While many different investment materials can be used, best results have been achieved with gypsum investments, like Ransom & Randolph's Plasticast or Ransom & Randolph's Ultravest Maxx, both of which were designed for casting of plastic patterns.

Preparation of the Investment

Follow the manufacturer's recommendations for preparing investment and filling the flask.



Burnout

1. Load flask into a pre-heated oven at 150 °C (300 °F). Hold for 1-3 hours.
 - *This step is designed to dry the investment and remove water*
2. Slowly raise oven temperature to 370 °C (700 °F) over a period of 1-2 hours. Hold at this temperature for 1-2 hours.
 - *This step is designed to cause the thermal transition of the investment. The exact temperature required may vary based on the investment used. Care must be used to raise the temperature slowly.*
3. Slowly raise the oven temperature to 730 °C (1350 °F) over a period of 2-3 hours. Hold at this temperature for 2-3 hours.
 - *This step is designed to burnout the JewelCast pattern.*
4. Lower the temperature of the oven to casting temperature, and allow to stabilize for at least 1 hour prior to pouring metal.

Learn more about the FabPro 1000 at

<https://www.3dsystems.com/fabpro>