Cast a 3d Printed Necklace in Metal

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https://learn.adafruit.com/cast-a-3d-printed-necklace-in-metal

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Introduction

3d printing jewelry at home can be a lot of fun, but most home 3d printers will only print in various plastics. There are plenty of commercial services available that will print in metal or other fancy filaments, but they can be expensive. This guide details one method of designing and printing your jewelry on your home printer, then making a silicone mold and casting the part in pewter. You can reuse the mold over and over, enabling you to make multiple metal parts for much less money than buying one from a 3d printing service.

Things You'll Need

- 3d printer (http://adafru.it/3528969338439640) and filament (or a 3d printing service)
- Easy Mold silicone mold maker (https://adafru.it/CI6)
- Low-melt metal crucible (https://adafru.it/19vb) & ladle (https://adafru.it/CI8)
- Lead-free pewter ingot (https://adafru.it/CI9)
- Necklace cord & findings (https://adafru.it/CIa)
- Talcum powder
- Sand in a catch pot
- Sandpaper in varying grits
- Rotary tool with sanding and polishing bits (optional)

Software Used in this Guide

- Adobe Photoshop CS5 or later
- Autodesk Fusion360
- Simplify3D Slicing Software

3d Printing & Casting

This pendant was designed in Fusion360 from a .png logo file. See the full design process in the video at the beginning of this guide.

Download and edit our Fusion360 Project here:

Pendant.f3d

https://adafru.it/B0y

Or download the completed .stl to print at home:

Pendant.stl

https://adafru.it/B0z

Download from Thingiverse

https://adafru.it/B0A

If you don't have a 3d printer you can order a complete print for just a few dollars from Shapeways. Or, you can order a silver or platinum one for just a few (thousand) dollars more.

Order from Shapeways

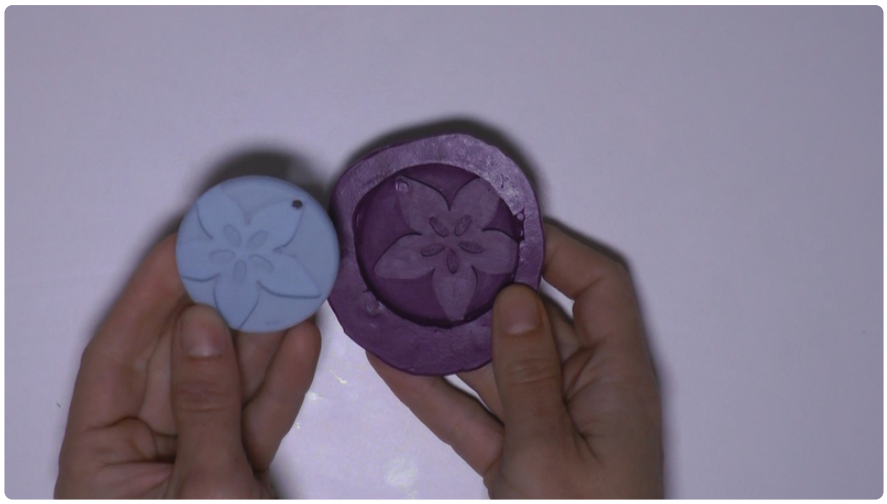
https://adafru.it/B0B

3d Printer Settings

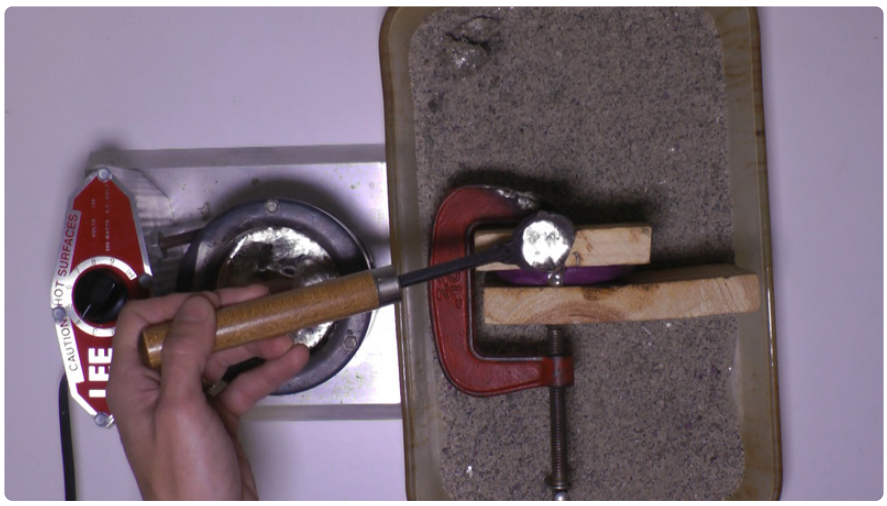
This pendant will print with no supports or raft. I used 20% infill and a very high resolution -- I set my layer height to 0.100 to get a really smooth curve along the edge. The smoother it prints, the less sanding you'll need to do in order to get it ready for the mold.

Molding & Casting

Once your print is finished and sanded smooth, use silicone putty mold maker to make a mold of your pendant. Be sure to squish it into all the cracks very well in order to avoid air bubbles, which will show up in your cast.



Cut a pour spout in your mold, then dust it with talcum powder for a smoother pour. Clamp the finished mold to some wood or another heat-resistant flat surface and pour in your molten pewter. It may take several tries to get a good cast!



Once you're happy with the cast, trim off the excess metal from the pour spout and sand the pendant with increasingly finer grit sandpaper until you achieve the level of shine you want.

Finally, add your necklace hardware and enjoy your new style!