

Pen Blank Casting

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Casting your own pen blanks—or blanks for other kinds of turning—opens up a world of creativity. You can cast almost anything in clear resin, such as chiyogami paper, flowers, feathers, or small parts of any kind.

There are many ways to dress up a pen barrel if you're using commercially available pen kits. If the blank is made of wood, metal, or plastic, for example, it can be turned and/or carved, or you can add objects such as gemstones onto the pens after they are turned. You can also cast objects under a plastic or resin coating to secure them, creating unique pen blanks that express your creativity.

As a pen maker and artist, I've tried many different ways to make my pens stand out. I will share with you some instruction to get you started with casting your own resin pen blanks using the brass tubes that come in a typical pen kit.

Materials

The basic items you need to begin casting pen tubes include:

- A good quality “water-clear” resin
- A catalyst—i.e., the chemical that your chosen resin requires to make it harden

- Something to measure the resin in ounces
- Disposable stir sticks
- Silicone casting mold
- Acrylic paint
- Thin cyanoacrylate (CA) glue

Additional, optional items to consider include a pressure pot, an air compressor, a warming oven, and an ultrasonic cleaner (*Photo 1*). Most pressure pots have a curved bottom so a shopmade wooden disk set in the bottom of the pot will give you a flat surface on which to set your mold. I use a stand made from threaded rod, plastic pipe, and pegboard disks (as shown in *Photo 1* and the *opening image*) so I can “stack” up to four molds in the pressure pot. The pegboard pieces act as spacers between the filled molds.

I prefer a polyester resin for the simple reason that it works for me. When using polyester resin, I need to add methyl ethyl ketone peroxide (MEKP) as the catalyst; you will need to read the literature that comes with your

resin to know what type of and how much catalyst to add. I purchase my resin from Coast Fiber-Tek in Burnaby, British Columbia, Canada (fibertek.ca), but other sources can be found easily by searching the Internet for water-clear polyester resin. *Safety Note: Always read the material safety data sheet (MSDS) that comes with the resin and catalyst. If none comes with the products, then ask the company to provide it since there are health concerns when using these products. Never touch MEKP and then rub your eyes because it can cause blindness.*

Most resins are measured in ounces. If you are using a plastic cup, be sure the plastic won't chemically react and break down (I have found that disposable cups labeled number 5 will not break down). Or you can use silicone measuring cups (available from Internet sellers), which can be used multiple times if you keep them clean. The catalyst I use is measured in drops directly from the container. You will need something to mix the catalyst into the resin. I have found wooden coffee stir sticks work the best.

If you are not making your own mold, then a silicone mold can be made or purchased, but be sure to use the mold that fits the size of the brass tubes you are working with. If you prefer to buy a mold, there are lots of places online to purchase them. There are many types of molds out there: some are specific to the size of the brass tube, and others can accept multiple tube sizes. I recommend ptownsubbie.com for pre-made molds. These molds come with silicone plugs that center the pen tube in the mold so the resin is able to flow around the pen blank. This also allows the pen blank to be removed easily once the resin has hardened.

As for the optional items, once you start casting and if you decide to do a lot of casting, these items will come in handy. The ultrasonic cleaner will heat the resin slowly and remove bubbles that form when you pour it into a large mixing container. If you put your molds in a pressure pot, there is less likelihood of having bubbles form on your cast items. I use a maximum of 10 lbs of air pressure in the pot; you will need an air compressor to create this pressure. The warming oven helps harden and cure the resin once the pen blanks come out of the pressure pot; you can also use it to dry your blanks before casting.

Getting creative

Now that you have collected the items needed to start you on your new adventure in casting, you need to decide what you want to add to your brass pen tubes. You can be very creative in this regard. I've experimented with papers, watch parts, jewelry findings, dried flowers, and feathers. If you want to go a step further, you can paint a design on the tubes and cast that. You will also need to decide whether you want the items to be below the surface of the resin on the finished pen or if you want to turn through larger cast items such as seashells, coffee beans, or pinecones.

Setup for casting blanks



Some useful but optional pen-casting items include a pressure pot, air compressor, ultrasonic cleaner, and a warming oven. At a minimum, you'll need the resin and catalyst, as well as a mold.

Paint tube, cut paper



Choosing a busy design is helpful, since you can cut along the pattern and thereby hide the seams when the paper is rolled onto the tube. Note that the brass tube from the pen kit has been painted white since any non-patterned areas of the paper will become translucent when wetted with glue.

Regardless of your casting choices, the number one rule of casting is that resin doesn't like moisture. If moisture is present on the blank when it is cast, you will end up with a milky white appearance on the blank.

A sample casting: paper

Paper with interesting designs can be cast to create a pen blank. I prefer to purchase paper that has a small but somewhat busy design. I have found chiyogami paper works well if you are looking for an Asian theme, as it comes in many different colors and designs. I shop online for these, as the selection is seemingly endless and you can order the sheets in different sizes. A favorite outlet of mine is shop.thepaperplace.ca, but many more can be found on the Internet.

Chiyogami paper is fibrous and becomes translucent when wet, except where the design is, so keep this in mind

when you are cutting and gluing the paper to the brass pen tubes. If you don't want to see the brass color through the paper, you will need to paint the tube first. I have found that white acrylic paint works well with the resin I use, but I suggest you test the paint first by painting a sample on aluminum foil, letting it dry thoroughly, then mixing up your resin and pouring it on the foil. There is nothing more disappointing than spending hours working on a group of pen tubes and then having to throw them out because of a reaction between the paint and resin. You will know when the resin cures if there has been a reaction: the paint will look wrinkled and will have peeled if they aren't compatible. If the paint stays smooth and stuck to the foil, then you should not have a problem with that combination.

Once you have the pen tubes painted and completely dry, it is time ►

to cut the paper. The secret is to hide the seam. Your eye will always find a straight line, so when cutting the paper, you should follow the printed design; remember to cut both seams—starting and ending—by following the design (Photos 2, 3).

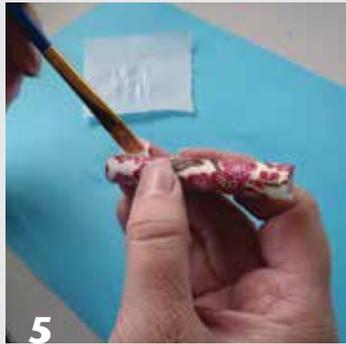
Using an artist brush, spread white glue onto the back of the paper and

then roll it onto the tubes (Photos 4, 5). The paper becomes fragile when wet, so be careful not to tear it. The covered tubes will need literally hours to days to completely dry, depending on the humidity; this is a good time to have a warming oven to put the tubes in to dry. My blank warmer is simply a waffle maker opened up and placed in a metal

drawer. I can control the temperature of the waffle maker but generally use it on the “warm” setting. Plus, using it in the metal drawer isn’t a fire hazard.

Once the glued-on paper is dry, it needs to be sealed since the paper is very porous and will release air into the resin as it cures, causing bubbles. Cover the paper with thin CA glue (Photo 6) and allow it to dry and off-gas before casting, at least 24 hours.

Apply glue, roll onto tube



Apply white glue onto the back of the paper and roll it onto the pen tube.

Seal paper before casting



After the white glue has dried thoroughly, apply thin CA glue to seal the paper. This is necessary because paper is porous and could release air bubbles into the resin during casting.

Set blanks in mold



After the CA glue has cured, set the blanks into the mold in preparation for pouring. A silicone mold has separate compartments for each pen tube. End plugs center and suspend the tubes so the resin can flow all the way around them.

The finished product



Casting your own pen blanks is an easy way to make your work stand out.

Cast your pen blanks

With your mold on a flat and level surface, put the tubes into your mold and affix the silicone plugs. These plugs center and suspend the tubes, and ensure no resin leaks out of the mold or into the tubes (Photo 7). Measure the resin, add the catalyst, stir gently so you don’t introduce bubbles, and gently pour over the tubes all the way to the top, as shown in the opening image.

Put the mold in the pressure pot if you are using one and 24 hours later you can release the pressure. I prefer to leave the blanks in the pressure pot for 24 hours because if you pull them out before the resin is hard, you can end up with the resin separating from the ends of the tubes as you remove them from the mold. If the resin is still tacky, you can put the tubes in the blank warmer if you have one. The actual cure time of the resin without the use of a pressure pot or warming oven depends on the local temperature in which you are casting. It is also affected by the amount of catalyst you have added.

Now you have a unique pen blank that is ready to be turned. The possibilities are endless—what will you cast in your next pen? ■

Marla (Mills) Christensen lives in Saskatoon, Saskatchewan, with her husband Peter. She has been making pens and pen blanks for nine years. Her blanks can be purchased at penblanks.ca, classicnib.com, and timberbits.com. Marla can be reached at fineturnings@gmail.com.