Casting Braided Pen Blanks

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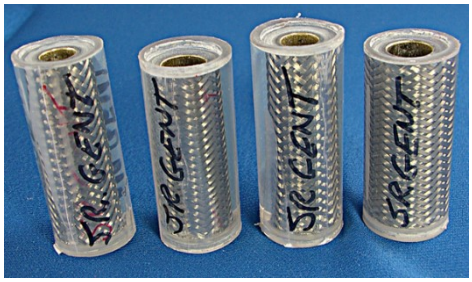
First and foremost, safety is paramount when doing pressure. Do your homework on preparing a pressure tank. Never ever go over 20 lbs. close to rating. In other words, if the tank is rated for 80lbs. never go over 60lbs. I cast at 50lbs, but have been doing it for a while and have a proven tank. Make sure the blowoff valve is intact and when tightening the thumb knobs alternate the sequence. Like you would be putting a tire on a car.

The resin that I use is Silmar41 but most resin will work. I always use pressure when casting to ensure total saturation and removal of bubbles. Even when using epoxy resins. I find myself using a lot of epoxy resin for things I have been doing lately.

I do not use mold release because I do vertical casting. I use clear plastic tubes that become part of the blank and get turned away when turning to size. To me it is so much easier than the pvc pipes but that is just my method which I have been doing for many years.



Metal Braids:

The blanks I'm showing on the left are some of my earlier versions. I made changes due to newer materials which are now available.

When I was making these years ago, the braiding was a tighter weave and tougher to work. I used a 4-cutter carbide trimmer to square the ends and it worked well. You may want to use a disk sander to remove the overhang.

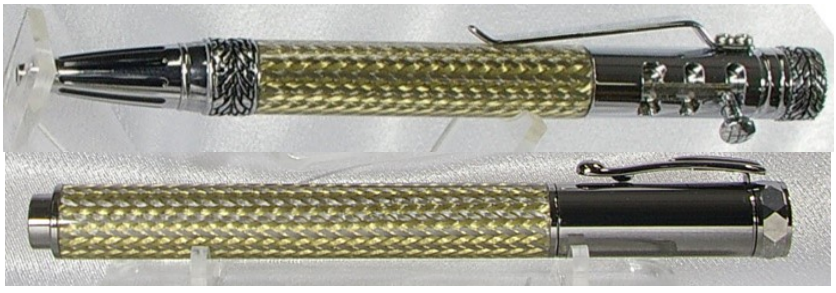
Now fast forward to recently, Home Depot and other plumbing vendors carry flexible hoses and have a stainless braiding cover on it. They were used for washing machines but have gotten into other areas such as sinks and toilets connections. This stuff is lighter but still stainless steel and is not such a tight weave so easier to work.
https://www.homedepot.com/b/Plumbin...Stainless/N-5yc1vZbqjnZ2bcueaZ1z138lgZ1z13d4d

I use Norton blue paper made to sand metals.
https://www.amazon.com/Norton-23610-Long-Longboard-Sandpaper/dp/B000FKLWXE

I have found some snips to be perfect for us pen makers to cut many materials and they do cut this stainless easily. https://www.amazon.com/gp/product/B0006O5KEG/ref=ppx_yo_dt_b_asin_title_o04_s00?ie=UTF8&psc=1

Here are 4 braided pens I made from Brass, stainless, copper and chrome braids.

Copper is an easier material to work with. Here are a couple I did not long ago that has stainless and brass woven together. They really look sharp in person.



Here is a stainless pen using the old-style braid. The new braid from Home Depot has a coating on it and you can easily see a different weave.

Rope Braids:

If anyone has ever thought about casting braided rope, it probably was cast. Here are my attempts at using double weave nylon braided boat rope in different colors.

I teased this idea when I posted some blanks that I have on my work bench for future pens. Some I completed and others not. I went with a plan of trying to match a colored acrylic cap for them with the same angled segmented insert.

Following the **Preparation:** instructions starting at the bottom of this page.

For Ref: I cut the rope approximately 1 to 2 inches longer than the tube.

I removed the white inner core of the rope, and it left the colored braiding.

No need to do anything to the rope, just rough up the tube and possibly paint it.

What I did find is that you need to use a color preservative such as those used in thread tying for fishing poles to keep the colors vibrant or else the resin turns them too dark and muddies the whites with the color.

I am in the camp of always using pressure even with Epoxy resins and have followed the procedure over the years and have had no failures. I use clear plastic tubes and also cast vertically and never had any problems. I cast in a basement shop all year round. Here is the process that I use.

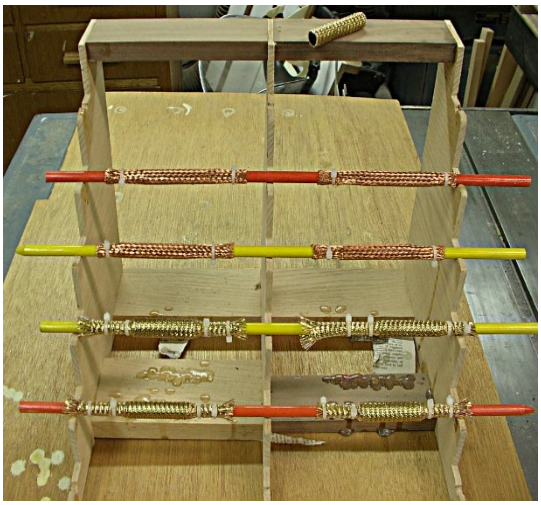
Preparation:

Before applying the braid on the tube, you may want to paint the tube with a color to match or accent the braid.

I cut the braid approximately 1 to 2 inches longer than the tube with a pair of tin snips. Slide the braiding over the tube, feed a waxed fiberglass dowel through the blanks. Stretch the braid with equal overhang on each end of the tube. Secure it to the tube with the wire tie wraps on each end of the blank to tighten the braid ends on the tube. Hang them on the rack. Brush on Silmar41 epoxy resin to adhere the braiding to the tube.

Let the blanks hang on the rack until they are dry.

Below is the rack I use which shows how I hang my braiding till dry. Notice the wire tie wraps that I use to secure the ends of the tube. This will allow the braid to tighten up at the end of the tubes.



When the braided blank is dry, remove the blank from the rack and cut off the excess of the braid really close to the tube with snips.

I set my blank in a plastic tube with the stoppers in and I'm ready to pour as soon as I mix the resin. I have done anywhere from one blank to about 12 at one time.

I preheat the resin in a toaster oven between 200 degrees to 250 degrees. I heat it for approximately 15 minutes.

Now when I make a larger number of blanks, I have to increase the time in the toaster because of the extra resin. This is important because when all is said and done there will be no bubbles in the resin seen in a thin cast.

I then mix about 5 drops of catalyst per ounce of resin and add a few extra. Though this is not critical with Silmar41. I mix for 4 minutes or 5 minutes if I am using a lot of resin. I then pour the mixed resin in the tubes making sure to pour against the side of the tube. This eliminates any bubbles developing. If there are any, they will rise to the top immediately.

Casting:

The objects being cast need to be cleaned from oils or other contaminates that will interact with the resin. I learned this with my casting of the different braided materials I use. That is why I have mentioned before why I adhere my braiding with the same resin and put a light coat on it before I cast them. This seals any byproducts.

I cast the braiding in Silmar41 resin. I always use a pressure pot. Silmar41 needs that.

I do vertical casting using clear plastic tubes that become part of the blank. Now with my method the plastic tube stays on the blank and is removed when turned down to the bushing size. There is no need for a mold release agent which can cause havoc with poly resins.

I then place them in the pressure pot. Here is where I say it is *important* to (**NOT**) add pressure too fast. You want to slowly build up pressure because for one, you run the risk of adding water droplets if you do not have a water filter on the pot. Water in resin is not good. I build to 50lbs and leave 24 hours. I usually have some resin left over and leave it in the cup and I can tell the next day if it has cured. My pot seals well and does not lose pressure.

Now cracks can come from the resin being too old or the catalyst. There is a shelf life, and it can be extended if kept in a cool dark place.

I have used 2-year-old resin with no problems. Another reason for cracking is if air is escaping from under the object that is adhered to the pen tube. Things such as carbon fiber or other sleeves, even labels will emit air from under.

After 24 hours in the pot release the vacuum slowly and take the blanks out of the pot. Now sand each blank down close to the plastic tube. Then put one on the lathe to finish sanding. I sand the ends down on the lathe as I do with all my blanks. Regular sandpaper will not cut stainless steel. When I get down to the plastic tube, I use 150 grit wood paper to polish the ends some. Then just sand the resin. If I need to sand the metal braid, I use the Norton blue stuff.

Turn as always.