

Bobbins and Adapter

To Use With
The Royal New Wool Ball Winder

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You can get a better deal on yarn when you buy it on large cones. Sometimes though you need several smaller spools instead of one large one. For example when you do sectional warping, you need one spool for each EPI (Ends per Inch). For 12 EPI you would need 12 spools of yarn. Or even 24 spools if you have 2" sections on your sectional beam.

There are a number of ways to approach this repackaging task. How you choose to do it will be affected largely by the equipment you have on hand. Many of us fiber people already own one of the ball winders made by Royal Industries. Here is how I made a simple bobbin adapter and bobbins from PVC pipe to fit the Royal ball winder. Refer to the illustrations as you read.

Remove the center post from the ball winder. A quarter turn clockwise; then pull should get it out. (Put it where you can find it the next time you need it!)

Supplies: 1" diameter PVC pipe Schedule 40
3/4" diameter PVC pipe SDR 21 (thin wall)
2 O-Rings 1 1/2" x 1 1/4" x 1/8"

The O-Rings are a generic size. I purchased these from an Ace Hardware; SKU4100418. You only need a small ring slice of the 1" pvc pipe. Sweet talk the hardware clerk then ask if they will cut and sell you a short piece of the 1" pvc. You'll use the 3/4" pvc to make bobbins. At 3 1/4" long, a ten foot piece will yield over 30 bobbins.

Tools: Hack saw Miter box and saw
Ruler Pencil/Marker
Small vise, File/Sandpaper

The Adapter Ring

- ◆ Cut a ring from the 1" dia. pvc pipe. This ring needs to be about 3/8" thick. Remove burrs and rough edges. (*refer to Illustration 1*)
- ◆ Place the two O-Rings on the 1" pvc pipe piece you just cut. (*refer to Illustration 2*)
- ◆ Press this assembly into the top hole of the ball winder. It should fit firmly. If it is not a snug fit, remove the o-rings, wrap a layer or two of



Illustration 1

masking tape around the pipe ring to build it up a little. Replace o-rings and try again. It just needs to fit snugly in the winder, but not so tight that it breaks the plastic. (refer to *Illustration 3*)



Illustration 3

After the adapter is fitted up, you may want to remove it and tack the o-rings in place with a dab of polyurethane glue. That takes care of making the adapter.

Note: A crochet hook or a bent paper clip will help in removing the adapter ring. Once the rings are glued the adapter fits quite securely.



Illustration 2

The Bobbins

The bobbins are simple, but they are time consuming to make. You'll need sandpaper and/or a file to remove the burrs that are created when making the cuts. I used a miter box and saw to cut the pieces to length. Use a C-clamp to position a stop. That way you won't have to measure and mark each piece before cutting.

- ◆ Use the $\frac{3}{4}$ " dia. PVC pipe; cut several bobbins $3\frac{1}{4}$ " long. (As many as you need.) The $\frac{3}{4}$ " PVC pipe is a little over sized to fit the inside of the 1" dia. PVC pipe. But that's a good thing. Next you'll make a few slits in one end of each bobbin. This will allow the end to compress a little and press firmly into the adapter ring.
- ◆ Stand the bobbin ($\frac{3}{4}$ " diameter pvc) on end.
- ◆ Draw a letter "T" such that the *bottom* of the "T" is flush with the bottom of the bobbin. (refer to *Illustration 1*)
- ◆ Draw the top bar of the "T" such that it is about $\frac{5}{8}$ " wide.
- ◆ Turn the bobbin around and mark it the same on the opposite side. (same end) (refer to *Illustration 2*)
- ◆ Hold the bobbin in a vise. Using a hacksaw, or something similar. Cut the top of the "T", cutting across the bobbin, as if you were cutting off a small ring. But don't cut any deeper than the mark for the top bar of the "T". Turn over bobbin and cut the top of the "T" on the other side.
- ◆ Turn bobbin on end. Cut the vertical part of the "T", both sides.
- ◆ Smooth off the burrs.

Your bobbin now has four little "spring fingers" that will compress and hold the bobbin securely in the adapter ring. (refer to *Illustration 2*) If the bobbin fits too tight,

widen the vertical part of the “T” cut. This will allow it to compress a bit more.

I used a clove hitch to attach the warp/yarn to the bobbin. A small slit could also be cut in the top of the bobbin to hold the end of the yarn before starting to wind.

Now you can wind as many spools of yarn as you want. Depending on the type and size of yarn, you can use a fishing line counter to measure as you wind. Barring that, count the number of turns of the crank and repeat for each bobbin. That should keep the yarn on each spool close to the same length. (*refer to Illustration 4*)



Illustration 4

Note: For the first set of bobbins wound, I used my tension box and fish line counter. The bobbins held fine with light to medium tension. Too heavy a tension and they would pop out. I observed that as long as the same tension was used, the number of crank turns was reasonably consistent. If I changed the tension box or ran the yarn through my closed finger and thumb, the number of turns relative to the footage changed quite a bit.

Here is an option if a larger diameter bobbin would work for you. All you would have to do is cut 3 1/4” long pieces of the 1” dia. pvc pipe. Then swap the o-rings between bobbins as you wind them.

Adapter spindles could be made to work with bobbin winders or even cordless drills. I like the way that the ball winder winds a nice, even and consistent package.

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According to information from their web site, the Royal “New Wool Winder” was first produced by Royal Industries in 1964. <http://www.royal-kk.co.jp/e-gaiyou.html>

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Observe all safety precautions while making these pieces. Wear eye protection. PVC plastic has a half life of a couple million years or so. Wear a dust mask while cutting, filing, sanding, or any process that creates dust or shavings.

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Dimensions are in inches. For the metric burdened, multiply the inch dimensions by 2.54 to convert to centimeters.

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