

Penmaking Basics and Core Equipment

by Kurt Hertzog



Basic 7mm pen, cherry wood.

The world of penturning on our wood lathes began back in the mid-1980s. Pen kits appear to have been pioneered by the folks at Craft Supplies in the U.K. The late Dale Nish saw a turned pen kit at a craft fair in 1984 in London, purchased pen kits from Craft Supplies U.K., and began offering pen kits, photo **1**, in the Woodturners Catalog in 1985. With the availability of these kits, it became possible for the woodturner to easily create a pen on the lathe.

Costing about \$4 in 1985 dollars, pen kits have evolved a long way to today's offerings of far superior design and quality. There are many kits available from a myriad of resellers and they're now about \$2 for a basic 7mm kit.

As with many woodturning projects, a big attraction is immediate gratification. People just love being able to start and complete a project in a short time, often in one trip to the lathe, producing something usable and personalized that will last for years and years.



1 Regardless of the manufacturer/reseller, virtually every kit pen starts life as a bag of parts that you will clad, turn, and assemble. Most kits include instruction sheets. From left, ink cartridge, brass tubes, nib, end cap, transmission, center band, and clip.

Penturning requires only a few special items, beyond what the typical woodturner already has in the workshop. Newcomers to penturning might begin with several lower-priced 7mm kits. Their technical simplicity helps you learn the basics easily and inexpensively. ↗



2 Pens can be made of any material that you can turn and glue — woods, plastics, antler, polymer clay, and



metals. Since most pens are carried, weight can be a consideration.

Kits and materials

Regardless of cost or apparent elegance, kit pens consist simply of one or more pieces of brass, clad by the turner with wood or any other lathe-turnable material (**2**). The turner fashions wood parts to shape and dimension, so that the kit parts can be pressed into the turned tube(s).

There are many types of pen kits available from the various woodturning retailers, **3**, ranging from the very basic \$2 kit through the high-end exotic designs in the \$40-\$50 range. Prices are driven by special design, fancy clips, durable coatings, and of course production volumes. With the inner working parts of most kits being commodity components, vendors make their offerings unique with their own designs and custom clips, center bands, and other adornments.

The kit size, 7mm, refers to the hole that needs to be bored to fit the metal parts of the pen. Other common sizes are 8, 10, and 11mm, plus a variety of Imperial sizes.

Creating a pen using a kit is relatively easy, the turning aspects are simple and straightforward. You'll need any size lathe, your favorite cutting tool, a method to bore a hole, and some adhesive (**4**).



3 Component designs and quality levels vary from kit to kit but the fundamental process remains the same. Pens are assembled and held together by hard-pressing and gluing the turned parts with kit contents.



4 To bond the brass tube to the pen body, choose the glue that best suits the material. ↗



5 These are the special tools needed for basic pen turning, from left: mandrel with bushings, chamfer tool, pen mill, and properly sized drill bit.

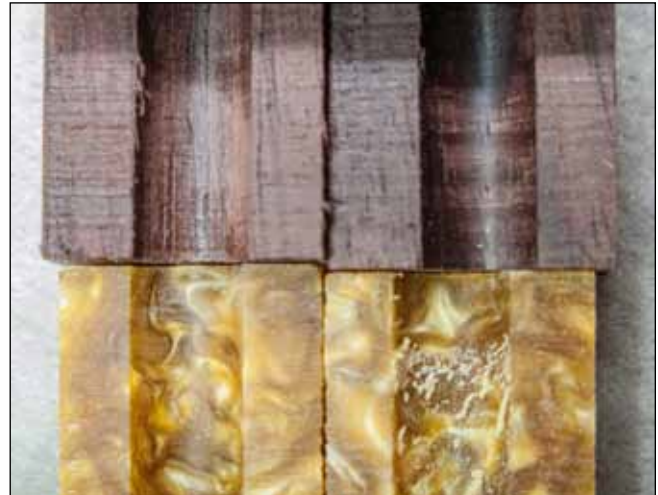
Penmaking tools

Special tools that make penturning easier and more accurate, **5**, include a drill bit sized to your kit, a squaring and facing tool called a pen mill, and an adjustable pen mandrel with the appropriate bushings for the kit you've chosen.

There are ways to prepare and turn pens without them, but these tools are inexpensive, flexibly used among pen styles and sizes, and do a good clean job, **6** and **7**. If you'll only make one pen, you may be able to devise work-arounds to avoid the expense, **13**. If you envision more pens in your future, these are very modest expenses that can be used for the duration of your pen-turning career.

Current retail price for the drill bit is \$3. A 7mm pen blank facing mill and an adjustable pen turning mandrel with 7mm bushings cost \$17 and \$18, respectively. This \$40 investment will allow you to make all 7mm pen kits.

Resellers individualize the kits with different clips, end caps, center bands, etc., but they use many commodity core components. To my knowledge, the tubes, transmissions, and sometimes nibs and end caps for the lower priced kits are mass produced by suppliers and used by most of the kit sellers. Pick the supplier you favor for their particular kit appearance and seller reputation.



6 Proper sized holes with good gluing surfaces, left, require sensible speeds and feeds. Slower is better than too fast. Overheating the material or burnishing the hole, right, will cause inaccurate sizing or poor gluing.



7 Getting the proper sized drill, most often metric sized, will allow for the proper amount of clearance for adhesive. Too much space, left hole, or too little space, right, are both problematic.

Boring the blank

Use wood for your first forays; wood you already have is fine to begin with, or buy a wooden blank if you feel the need. Save the pricier exotic wood, plastic, special material, and unique designer pen blanks for the future.

Every pen kit will include an instruction sheet detailing the tools and equipment needed, dimensions of the various components, and listing the manufacturer's suggested process. Follow the instructions to successfully complete your first kit; with experience, you'll be able to deviate. Your first task will be to bore the holes for the brass tubes into your pen blank.

Select a piece of straight-grained, dry wood with the grain running long ways, that is, running in the direction of the pen tube (8). This will provide an easily turned and finished pen without having to fight gnarly endgrain or crossgrain. Later on, you can create interesting chatoyant looks by orienting the grain off axis from parallel.

Whether you've purchased a blank or found a good piece in your own stock, cut the blank to be slightly longer than the brass tube(s). You can measure with a ruler if you wish but it is quite easy to lay the brass tube next to the wood and mark the cut point 1/4" (6mm) or so longer, 8. The little bit of extra length simplifies the drilling process.



8 Pen bodies are very modest in size and measuring is easy. The blank needs to be slightly longer than the tube and large enough in diameter to be turned to the desired shape. Mark to maintain grain orientation.



9 Scuff the brass tubes with coarse sandpaper to provide a toothed surface for good gluing. The brass tubes in many modern pen kits are now being textured by the manufacturer.

Bore the correct sized hole per the pen instructions, holding the workpiece in a vise. Prepare the brass tubes for gluing by cleaning and scuffing their surface (9).

EXPLORE!

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PENS

A Memoir
Patrick Dioguardi

tiny.cc/penmemoir

BULLETPROOF

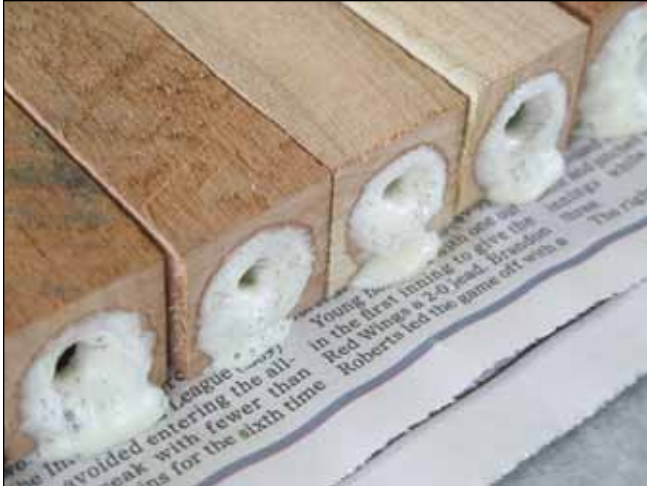
Pen Finishes

tiny.cc/Bulletproof

RETURNING RIMMER

Kurt Herzog

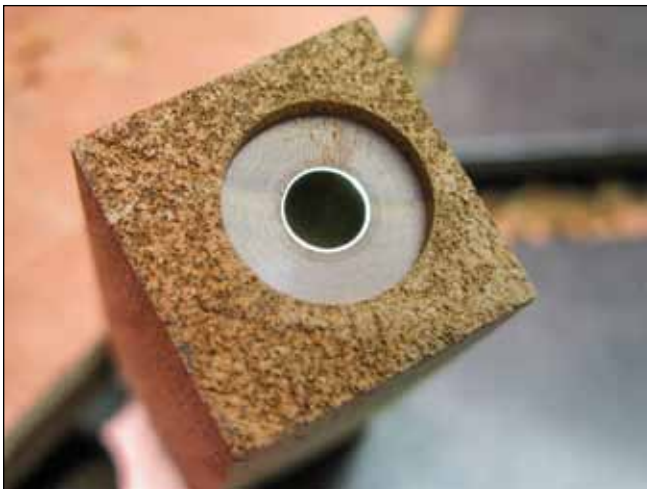
tiny.cc/penprimer



10 Coat the metal tube with enough glue to spread over the entire surface as you slide it into the drilled pen blank. This polyurethane adhesive foams on curing.



11 After the adhesive has cured, the pen blank ends need to be faced flush and square to the axis of the brass tube using the pen mill.



12 A properly faced pen blank is critical to allow the finished components to be assembled without gaps.



13 The disk sander can be used as an alternative to the pen mill, but without a special fixture to pilot on the tube, a truly square end is difficult to achieve.

Glue and mill ...

Coat the tube with the specified adhesive in sufficient quantity to spread over the entire surface. Slide the tube into the drilled pen blank with a twisting motion until the tube is centered between the ends. Repeat for the other tube and let the adhesive cure, **10**. Far better to wait too long than to rush before full strength.

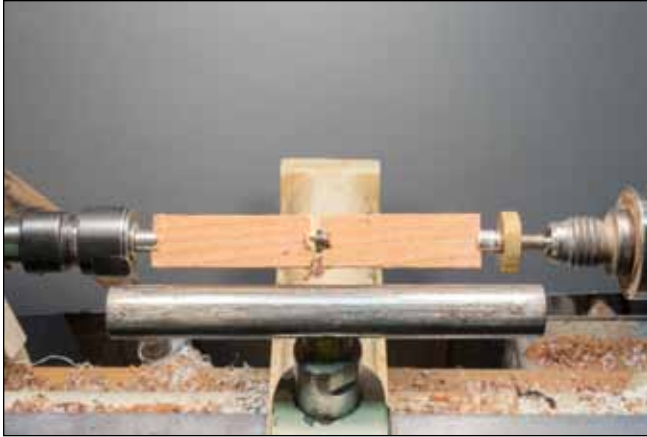
The pen mill, mounted in the drill press, neatly trims and squares the wood, **11**, until the brass

end of the tube just emerges, **12**. The pen mill pilots on the inner diameter of the tube. Both ends of both tubes need to be milled this way.

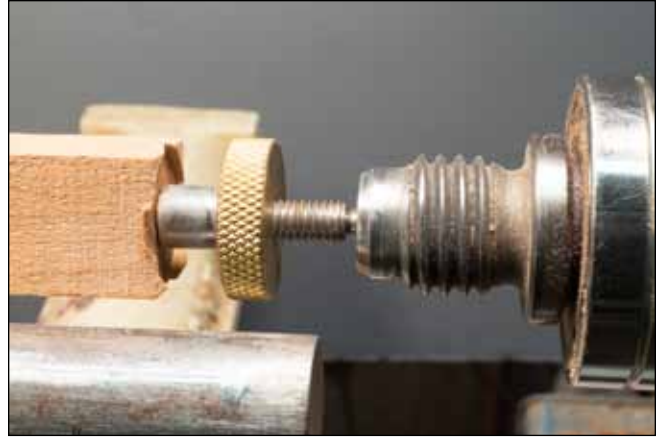
...and turn

With the milled blank mounted on the mandrel, the turning is fast and easy (**14 to 19**). The bushings provide the sizing needed to fit the other parts properly: turn, sand, and finish to those sizes.





14 The pen mandrel uses bushings to separate the blanks and hold them tightly for turning.



15 Bushings help size the turned blank ends for fitting to the metal kit parts.



16 Pens can be turned with almost any tool; one of the best for the task is a spindle roughing gouge.



17 Turn and sand right to the bushing dimension at the ends of all of the 7mm pen barrels.



18 Even with the simple 7mm kit, sanding on the mandrel can create a pleasant flowing shape.



19 Almost any finish can be used on pens. Friction finishes are fast and easy for starters.





20 With the pen barrels completed, the pen is ready for final assembly.



21 Kit instructions typically include the best assembly sequence, using a bench vise or woodworking clamp. Tape will protect parts from assembly damage.

Assemble

Assemble per the instructions using a bench vise or woodworking clamp (**20, 21**). Voila, a new pen is created.

Welcome to penmaking

The pen world you've opened is filled with new materials, different designs, unique after-treatments, and more (**22, 23**). So try a simple first pen and you'll open the door to this fascinating realm.

Kurt Hertzog is past president of the American Association of Woodturners, one of the three council members of the Pen Makers Guild, and past chairman of the Rochester Woodworkers Society. He has had nearly 175 woodturning related articles published internationally since 2012. An avid turner in all areas, Kurt is particularly interested in pens and ornaments. You can see his work and published articles at kurthertzog.com.

The AAW has a virtual penturning chapter that is a Star Chapter. The chapter holds one face-to-face meeting each year, on Special Interest Night at the AAW Symposium. For more information on the chapter, visit principallypens.com.



22 As your skills progress, you'll want to branch out into more complicated designs and different materials.



23 *Mariner*, by the late Rich Kleinhenz, is an example of advanced signature penmaking that still uses a few core kit components to design and make. □