

# Cindy Drozda

“The Fine Art of Woodturning”

P.O. Box 19065 - Boulder, CO 80308 - 303-449-7170 - cindy@cindydrozda.com - www.cindydrozda.com

## Tips for Successful Hand Thread Chasing

### 1 - Choose good wood (or other material).

- It should be tight grained, and fairly hard, to hold a good thread.
- Exotics such as Cocobolo, Blackwood, Pink Ivory, etc. are good. English Boxwood is the best.
- Hard Maple, Dogwood, Privet, and other North American domestics might work also. Try them and see!
- Other materials take a thread, too. PVC and other plastic, resins, Corian, and Stabilized wood are good.
- Consistent density is important. Soft spots, open grain, hybrid materials, knots, or cracks can be more difficult.

### 2 - Choose a good lathe spindle speed.

- A faster speed makes it easier to get a good thread started.
- Slower speed is easier to follow the thread, but is more likely to start a “drunken” thread.
- Some turners like a faster spindle speed on smaller diameter threads.
- Pick a speed that works for you, and keep using it on the project at hand, so that you keep the same rhythm. Experiment to see what works for you.
- Get used to the marching speed of your pitch of thread. Put a bolt or chased thread in the lathe and watch it. Adjust the spindle speed until you see the thread “marching”. It should not be a blur. Make a note of that speed so you can come back to it.
- Between 200 and 500 rpm is the commonly used range. I like about 500 rpm to strike a thread, and might slow it down to 300 - 350 to follow.

### 3 - Prepare the surface to be threaded.

- It should be smooth, true, and cylindrical.
- Make a chamfer, round-over, or ramp on the end to help start the thread.
- Remove dust and chips.

### 4 - Adjustments to the surface should be made at normal (higher) turning speeds.

- At chasing speed, the tool will sometimes try and follow the thread.

### 5 - Strike the thread.

- Practise the circular movement with the chaser before touching the wood.
- Start with the chaser at an angle to the surface.
- Plan to touch onto the wood at the 2nd or 3rd tooth of the chaser, not on its end.
- Strike with confidence and enough pressure for the teeth of the chaser to cut into the wood.
- Try to match what you know to be the marching speed of that pitch.

### 6 - Follow the thread.

- Use pressure into the thread, but let the chaser follow it without trying to push it along. Technically, you only need one hand on the tool to follow the thread. Don't let the other hand interfere. The chaser will follow the pitch on its own.
- Gradually move the chaser around until it is chasing parallel to the lathe bed.

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- For the female thread, keep the chaser level or it will change the pitch.
- Stop before the small flat on the tips of the threads is all gone. Going too far can result in tearout or catches.
- Before you get to the shoulder, cut a relief groove so the chaser doesn't crash into the wall. That will usually ruin the thread.
- Remove chips and dust frequently.
- Application of paste wax with a brush (toothbrush works well) makes the chaser cut better.
- Reduce (or increase) the diameter by turning it down with a scraper or parting tool, then following with the chaser.
- Excessive following (such as reducing the diameter a lot by using the chaser) can make the thread become “drunk”.
- When you're done, clean up the start of the thread and chamfer it to make fitting easier.

## 7 - Fit the mating thread.

- Some turners find the male thread easier to do, and will do the female first and fit the male to it. Others will do the opposite. Or your project might ask for one method or the other. Either one works.
- When the fit is close, take off a little at a time.
- Holding off on cutting a relief groove at the shoulder allows you to extend the thread if you mess up and take off too much.
- For grain match, take off material from the shoulder. I like to stop just short of grain match and let the wood settle in for a few days. A perfect fit can be tuned by sanding the female half on a board with a piece of fine sandpaper glued to it.
- To make a threaded jam chuck, a tapered thread works well and is faster to fit.

Coarse pitch works better for softer wood. Fine pitch asks for a fine grained hard wood like Boxwood or Exotics. 16 tpi is a good all around pitch.

Coarser pitch is more difficult to chase.

Sharpen the top of the chasers on a fine grinding wheel, bench hone, or a piece of fine sandpaper on the lathe bed.

If your chasers don't have a full tooth on the leading edge, grind it until the first tooth is a complete one.

A relief angle on the leading edge of the chasers helps chase close to a shoulder.