

Making Magic Wands With A Twist

A presentation to the South Coast Woodturner's Club – August 13, 2016

Steve Adams

My wands are turned from 3 separate pieces

Handle

Tip

Acrylic center (using pen making acrylics)

Prepare the stock

Start with basic spindle turning

Cut 2 pieces of your selected wood to 8 - 9 inch lengths – about $\frac{3}{4}$ on a side

Round stock to a cylinder

Drill Holes

The drill bit is mounted in a chuck on the tail stock

A spindle rest is very helpful in keeping things centered

Drill a 1 inch deep, 7mm diameter hole in the end of the handle piece

A length of 7mm brass pen tube is used to secure the handle to the tip

Drill a 3 $\frac{1}{4}$ inches deep, 8mm (5/16) hole in the end of the tip piece for the acrylic insert

Prepare the drilled ends

Square off or slightly concave the drilled ends to ensure a good fit

A slightly tapered opening of the hole can help take up any extra glue

Turn the profile on the tip

Undulations in the twist area make for a more organic appearance in the twist

Decide on how many flutes you want and how much twist you want

2-Flutes works well when extending the work to the end of the tip

3 or more flutes OK when only going a short distance (3 inches or less) due to the narrowing of the tip

A twist of ratio 1:2 (one full twist over 2 inches) seems to work well) a tighter twist will necessitate very narrow flutes

Mark a grid for making the twist

Use the indexing feature on the lathe, mark a grid to help layout the spiral

12 index points/ 3 flutes = 4 index points between flutes

The top end of the grid should be $\frac{1}{4}$ " short of the drilled hole to hide the end of the acrylic shaft and to add stability to the final structure

The bottom end of the grid is about $\frac{1}{2}$ " from the joint with the acrylic

If you are not using an acrylic insert the twist can go as far up the tip as you desire

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Draw the twist

The rate of twist is determined by how many vertical and horizontal lines are in the grid
Pencil in a line by drawing between the corners of the grid

Setup the drill press

Use v-blocks to help hold the pieces centered under the drill bit
(I cut mine from pieces of 2x2)

A 1/8" brad point bit works well – smaller is OK – larger makes the flutes too narrow
Set the drill stop so the bit only goes deep enough to go into the hole in the center – any tear out will not be visible

Drill the twist lines

Follow the drawn lines and drill holes close together

Carving the flutes

Any rotary carving tool (Dremel) can be used – I do this in 3 steps

Coarse – A carbide rotary saw bit is used to follow the drilled holes and carve out the primary channels

Medium – A small spear shaped carving burr is used to finish out the flute channel and smooth the side walls

Fine – A large round carving burr is used to round over the top edges of the flutes

Sand the flutes

Narrow (1/4 to 1/2") strips of sandpaper are used to get inside and in-between the grooves
(grits: 80-120-220-320)

Finish the tip

Apply chosen finish to the tip – Pen's Plus finish works well

Use small strips of cloth to work finish between the flutes

Part-off the tip and finish the end of the tip.

(You can make a jig to hold the tip on the lathe by turning a piece with a shaft of the same diameter and length as hole in the tip (5/16"))

Turn & finish the handle

You are only limited by your imagination

A straight shaft is used when wrapping the handle with Paracord

Match diameters at joint end with that of the tip

Turn the acrylic center

Pen acrylics work great with lots of patterns and color choices

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Drill the acrylic

Drill a 5/8" deep by 7mm hole in one end

Pen jaws help on square stock

Turn the acrylic

The part between the tip and handle is about 3/4" long with a diameter to match the tip and handle ends

The shaft that goes into the tip is 3 1/4" long by 5/16" (8mm) wide

Turn acrylic at about 2000 rpm – use SHARP tools

Sand to at least 1000 grit

Use a plastic polish to shine it up and remove scratches

Assembly – Part 1

Cut the brass pen tube to fit between the handle and the acrylic center

Note that the pen tube is hollow and can be used to hold a Phoenix feather, Unicorn hair, or other magical items

Test fit all pieces

Epoxy the acrylic into the tip –

Put glue only on the base of the acrylic shaft to avoid getting glue on the shaft inside the twist

Assembly – Part 2

Glue on the handle using a 7mm pen tube cut to the proper length (1- 5/8").

Put a small amount of epoxy only on the inside of the holes in the handle and in the acrylic –not on the brass tube - and insert the brass pen tube. Be careful not to use too much to avoid ooze out

Press it all together and hold until the epoxy sets (5 min.)

Give the epoxy 24 hours to cure before casting any spells

Enjoy you magic wand with a twist!

Carving bit sources:

www.leevalley.com

Carbide rotary saw –Fine tooth - # 77J50.70 (\$21.40)

HHS carving burr-Small Spear - #77J05.03 (\$17.20)

HHS carving burr-Large ball - # 77J05.12 (\$30.00)

www.woodcraft.com

www.woodturnerscatalog.com (Craft Supplies)