

Step-by-Step Guide to Segmented Woodturning

Central Virginia Woodturners

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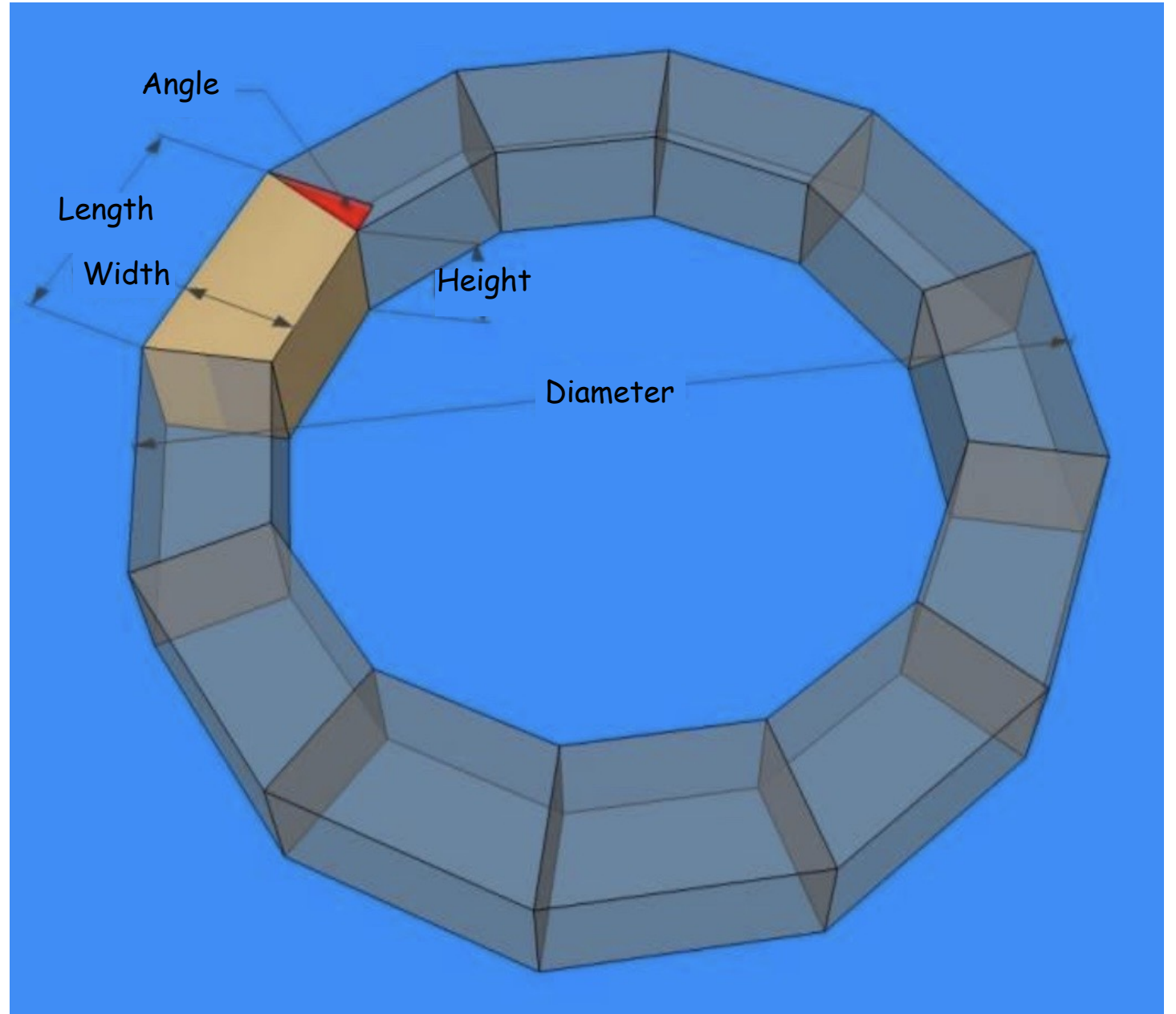
What is Segmented Woodturning?

- Design and development of a turning blank
- turning and finishing the blank on a lathe

We will focus on preparing a segmented turning blank

Terminology

- Segment length
- Segment width
- Segment height
- Segment miter angle
- Ring diameter



Tools

- Table or miter saw
- Planer or drum sander
- Lathe with a faceplate and chuck
- Lathe gouges and scrapers

Materials

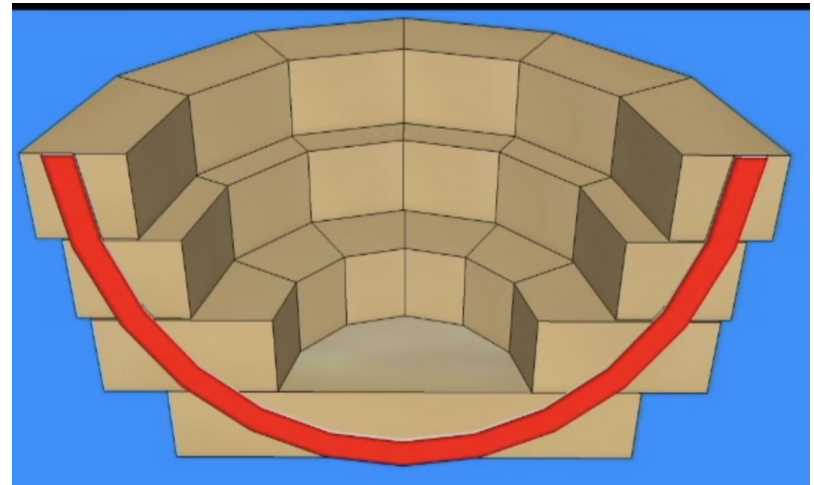
- Various species, colors and textures of wood
- Quick drying water resistant wood glue
- Finishing materials

Jigs

- Angle Cutting
- Adjustable Segment Length Stopblock
- Zero Clearance Tablesaw Insert
- Ring/Bowl Clamping

Step 1: Bowl Blank Design

- Sketch the bowl profile
- Determine:
 - Ring diameters (D)
 - Segment Lengths ($L = (D * 3.14) / \# \text{ of segments}$)
 - Segment Angles ($A = 360 / (\# \text{ of Segments} * 2 \text{ ends})$)
- We recommend you use Ken Horner's Table to look up D, L and A



Step 2: Select and Prepare Wood

- Selecting wood species
- How to prepare the wood

Step 3: Cut Segments Using a Recommended Method

- Angles
 - Protractor single-arm sled
 - Wedgie dual-arm sled
- Length
 - Use a stop block
- Safety
 - Use a zero clearance tablesaw insert

Step 4: Assemble Rings

- Lay out segments creating dry rings to ensure precision
- As rings are glued, use clamps, bands, etc. to hold each securely
- Remove excess glue using a sharp bench chisel and/or a wet cloth

Step 5: Smooth the rings

- Create a bowl blank without horizontal gaps by smoothing each ring's height after its assembly, but before gluing the rings into a turning blank, by milling or sanding it

Step 6: Repeat and Stack Rings

- Create rings needed in your design
- Ensure proper ring alignment
- Glue rings ensuring realignment before the glue begins to dry
- Compress the ring stack while the glue dries and cures

Step 7: Mount the Blank and Develop its Outside Shape

- Mount the stacked ring bowl blank
- Attach the faceplate to your lathe and secure it firmly
- Use your tools to shape the exterior of the bowl

Step 8: Hollow and Shape the Bowl

Hollow the interior of the bowl

Maintain a consistent wall thickness
and a smooth curve

Step 9: Sand and Finish

Shaft rotation is in line with the side grain of the wood

Progress through different grits of sandpaper, lower to higher

Apply the desired finish to enhance the wood's natural beauty and provide protection

Step 10: Final Touches

Inspect the bowl for imperfections and rough spots

Perform any necessary touch-ups or repairs

Apply a final coat of finish and buff the surface to achieve a smooth, polished appearance

Conclusion:

Segmented bowl woodturning is a rewarding and creative woodworking technique that allows you to craft unique and visually stunning bowls and other pieces

By following this step-by-step guide, you can begin to use your woodshop scraps to create additional pieces, saving them from your firewood pile or dust collector, and possibly saving money on materials as a windfall of your new skillset!

Useful Segmented Woodturning References

Segmented Woodturning Videos

Jerry Bennett “Segmentology” Videos on YouTube:

The Basics:

<https://youtu.be/6Yl-qDN1HtI>

Beyond the Basics:

https://youtu.be/Rw31oNcFI_Y

Tilting the Blade:

<https://youtu.be/R-ZxTnnv0aY>

Making Jerry Bennett’s Wedgie Sled with Dave Mueller:

<https://youtu.be/hpFNE1CHsc4>

Jerry Bennett Segeasy wedgies and plates:

<https://segeasy.com/>

Wedgie-Less Sled Video:

<https://youtu.be/wTTwoyCTyRU>

Gluing Jig for Segmented Turning:

<https://youtu.be/powiXnZF0qg>

Segmented Woodturning Books

Art of Segmented Woodturning: A Step-by-Step Guide

Malcolm Tibbetts

The Fundamentals of Segmented Woodturning

James Rodgers

Segmented Wood Turning

William Smith

Segmented Turning: A Practical Guide

Segmented Turning: Design, Techniques, Projects

Dennis Keeling

Segmented Turning: A complete Guide

Ron Hampton

Segmented Turning...A Good Start

Bill Kandler

Turning Segmented Lamps

Ralph Buckland

Woodturning with Ray Allan: A Master's Designs and Techniques for Segmented Bowls and Vessels

Dale L. Nish

Designing a Segmented Vessel (Online tutorial)

<https://www.instructables.com/Designing-a-Segmented-Vessel/>

Segmented Woodturning DVDs

An Introduction to Segmented Turning
Segmented Patterns
Curt Theobald

Segmented Woodturning Hardcopy Charts

From: More Woodworkers' Essential Facts, Formulas and Short-cuts

Ken Horner

<https://lookaside.GBSx.Com/file/segment%20cutting%20chart.pdf>

Segmented Woodturning Software

WoodturnerPro with 3D Design Pro

<https://www.woodturnerpro.com/software/woodturnerpro.htm>

Segmented Turning Project Planner:

<https://www.woodturnerscatalog.com/p/70/6269/segmented-turning-Project-Planner-Software>

<http://www.segmentedturning.com/>

Segmented Ring Maker

<http://www.turnedwood.com/>

Design spark (software for segmented turning design)

<https://www.rs-online.com/designspark/mechanical-download-and-installation>

Segment Calculator 2 - has issues with segment lengths 2x what's correct

Segmented Project Planner

<http://www.segmentedturning.com/>

Freecad

Lloyd Johnson's Segment Pro

Autocad

Blocklayer.Com Segmented Turning Calculator

Pro e

Solid works

Segmented Woodturning Tool and Material Product Links

- 3M Sandpaper: <https://amzn.to/32nxi61>
- Ack's Sanding Sealer and Polishing Paste: <http://www.ackswoodpaste.com>
- Alliance Rubber Company, 27075 Advantage Rubber Bands Size #107, 7" x 5/8", <https://www.rubberband.com>
- Denatured alcohol: <https://amzn.to/3vAyqgw>
- Longworth Chuck, <http://www.Rockler.com>
- One Way Wolverine Sharpening and Grinding Jigs <https://oneway.ca/products-category/sharpening-grinding-jigs/>
- Pony Jorgensen 6712, 12 in. Heavy Duty Press Screw <https://ponyjorgensen.com/product/pony-press-screws/>
- Titebond II Water Resistant Glue: [Titebond](#)
- Total Boat Resin: <https://www.totalboat.com>
- Zinssers Sanding Sealer: <https://amzn.to/3EGcOV6>

External Attribution

We would like to express our thanks to the following woodturners and organizations for providing examples of work which we selected to display in this presentation because it inspired us in some way:

<u>Slide</u>	<u>Source</u>
3	“Segmented Ring Parts,” posted on Facebook.com as the Segmented Bowl Turning Group’s defining image “Segment and Stave,” Suncatcherstudios.com article entitled ‘Segmented WoodTurning (Secrets and Tips for the Beginner)’
7	“Bowl Profile,” Larry Marley Art Ken Horner, “Failsafe Dimensions Look-up List,” More Woodworkers’ Essentials
14	Kent Weakley, “Wood Bowl Turning Trouble Zone,” TurnAWoodBowl.com