

What do you need to begin segmented turning?

- Patience, a degree of perfectionism and liking a challenge
- Planer - thicknesser
- Bandsaw that cuts reasonably accurately
- Belt and disc sander with good mitre fence
- Engineers square
- Very flat work surface
- Digital electronic callipers
- A digital angle finder
- Well-seasoned wood in planks
- PVA and Titebond II wood glue
- Needle files for open segmented work
- Soft pencil

For designing

- 3D Design PRO – buy with...
- Woodturner PRO – does the maths - \$99
- Also comes with Lamination PRO - <http://woodturnerpro.com/>

For open segmented turning

- SegEasy plates, 8, 12, 16, 18, 24 segments - £35 each, inc postage and VAT
- Large diameter plates, 18, 24 segments - £45 each, inc postage and VAT
- Buy from <http://www.dkeeling.com/index.php?/shop/segeasy-templates/>

On the lathe

- Sharp tools
- Perfect alignment of head stock and tail stock
- Dummy block for paper joints to composite base
- Centering cones to centre rings and reverse turning
- Gentle tool action, shear scraping
- Fixed 3 point steady for longer and larger work

Types of segmented turning

1. Closed segments
2. Open segments
3. Stave segments

1. Closed Segmented Turning

Segmented process

- Machine flat strips of timber
- Cut into segments
- Glue them together
- Build a composite vessel
- Turn the vessel

The Maths

12 segments

- = $360 / 12$
- = 30 degree segments
- = 15 degree mitre angle

18 segments

- = $360 / 18$
- = 20 degree segments
- = 10 degree mitre angle

24 segments

- = $360 / 24$
- = 15 degree segments
- = 7.5 degree mitre angle

Preparing the wood

- Cut strips of wood
- Size all to width and thickness using a planer-thicknesser
- Rough-cut the segments - band-saw or mitre saw
- Dimension the segments - sanding disk

Gluing the segments

- Remove any burr from the edges
- Line up grain-pattern
- End-grain difficult to glue - Titebond II
- Glue segments into a semi-circle
- Face and glue semi-circles
- Sand faces of glued-up ring

Building the composite

- Face the base
- Glue first level – centre – clamp
- Sand intermediate levels – centre – clamp

Turning the composite bowl

- Remove sharp edges inside & out
- Shear-scrape inside
- Sand and finish
- Shear-scrape outside - top half
- Part-off and reverse bowl
- Shear scrape outside
- Sand and finish sides and base

How long to make

- Building - 8 days @ 1 hour per day
- Turning - 2 hours
- Finishing - 2 hours
- Elapsed time - 9 days - 12 hours work

2. Open Segmented Turning

- Became more popular after segmented templates were introduced
- No end-grain gluing - only side-grain
- Gap from 4 - 10 degrees
- Simpler to build than solid segmented bowls
- Wow factor!

The Maths

12 segments, 4 degree spacer

$$= 360 / 12$$

$$= 30 \text{ degree segments}$$

Less 4 degree spacer

$$= 26 \text{ degrees}$$

$$= 13 \text{ degree mitre angle}$$

18 segments, 4 degree spacer

$$= 360 / 18$$

$$= 20 \text{ degree segments}$$

Less 4 degree spacer

$$= 16 \text{ degrees}$$

$$= 8 \text{ degree mitre angle}$$

24 segments, 4 degree spacer

$$= 360 / 24$$

$$= 15 \text{ degree segments}$$

Less 4 degree spacer

$$= 11 \text{ degrees}$$

$$= 5.5 \text{ degree mitre angle}$$

Open segmented turning process

- Cut the segments
- Build the composite using the template
- Turn and finish the inside
- Turn the outside rim and side
- Reverse the bowl and turn the base
- Sand, deburr edges and finish

How long to make

- Building - 8 days @ 1 hour per day
- Turning - 2 hours
- Finishing - 2 hours
- Elapsed time - 9 days - 12 hours work

3. Stave Segmented Turning

- Staves are tall thin sections of wood, giving quite a different look
- Quicker to assemble when basic design
- Can become complex making finished turning look impressive
- Can be based on closed or open segmenting

Stave segmented turning process

- Cut long segments along the grain
- Cut thin fillets to go between the staves (if in the design)
- Build the composite, depending on the design
- Turn the inside and finish
- Turn the outside rim and side
- Reverse the bowl and turn the base
- Sand and finish

How long to make

- Building – 4-6 days @ 1 hour per day
- Turning - 2 hours
- Finishing - 2 hours
- Elapsed time – 5-7 days – 8-10 hours work

Other materials

Corian

- Man-made for kitchen and bathroom surfaces
- Buy from kitchen fitters left-over's or Ebay
- Glues with CA glue
- Waterproof finish
- No movement from varying humidity
- Cuts with standard tools, needs slower lathe speeds
- Polish with burnishing cream or T-cut and then car wax.

More information

Segmented turning very popular in N America

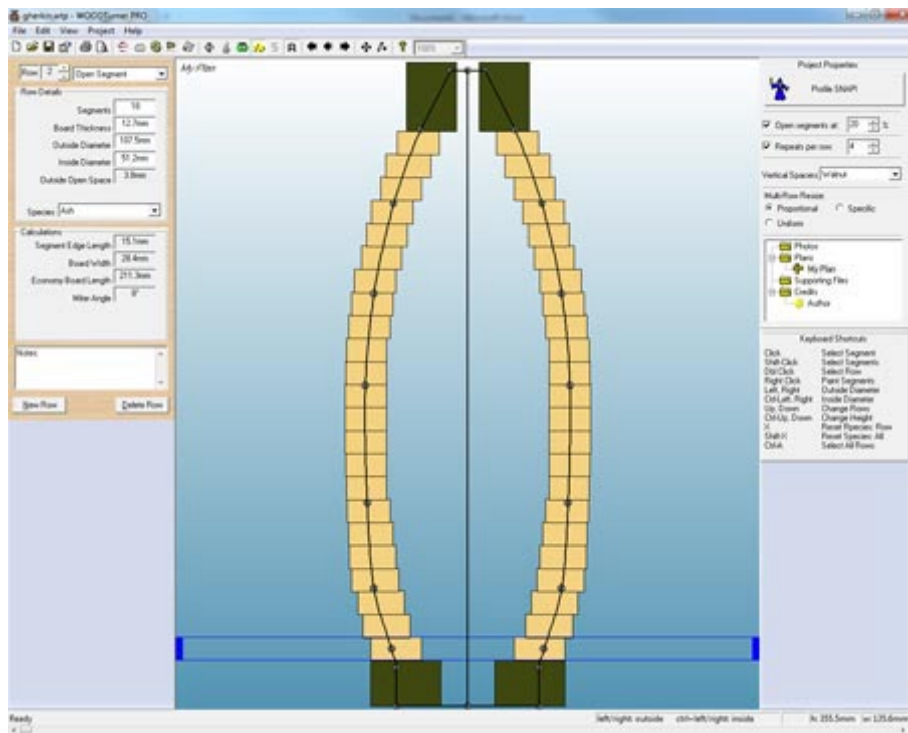
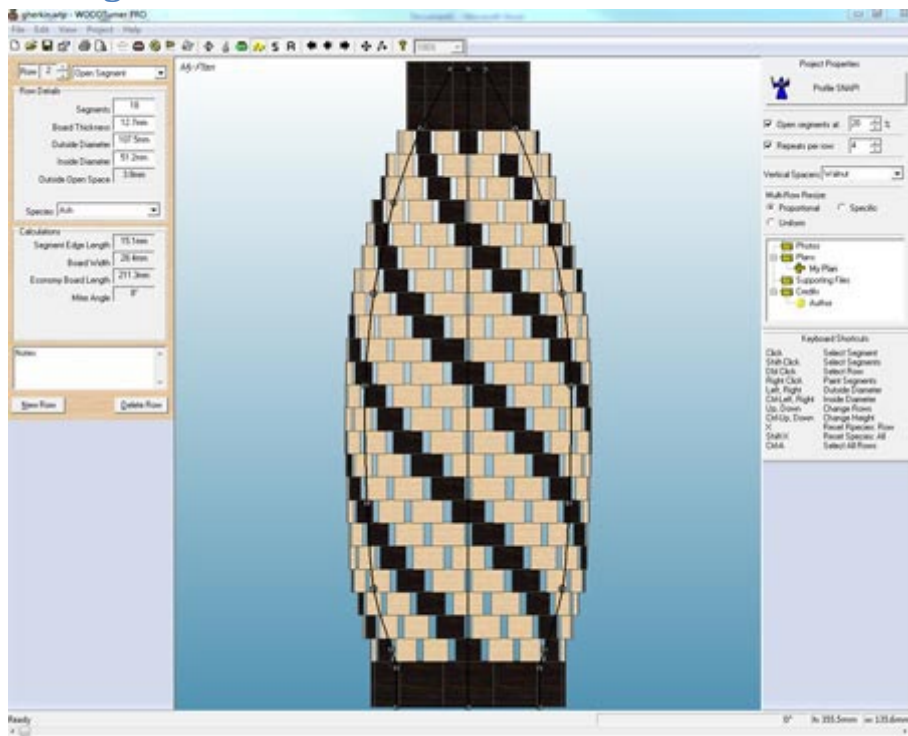
Association of Segmented Turners <http://www.segmentedwoodturners.org/> - over 1000 members - \$15 pa membership, forum-based website.

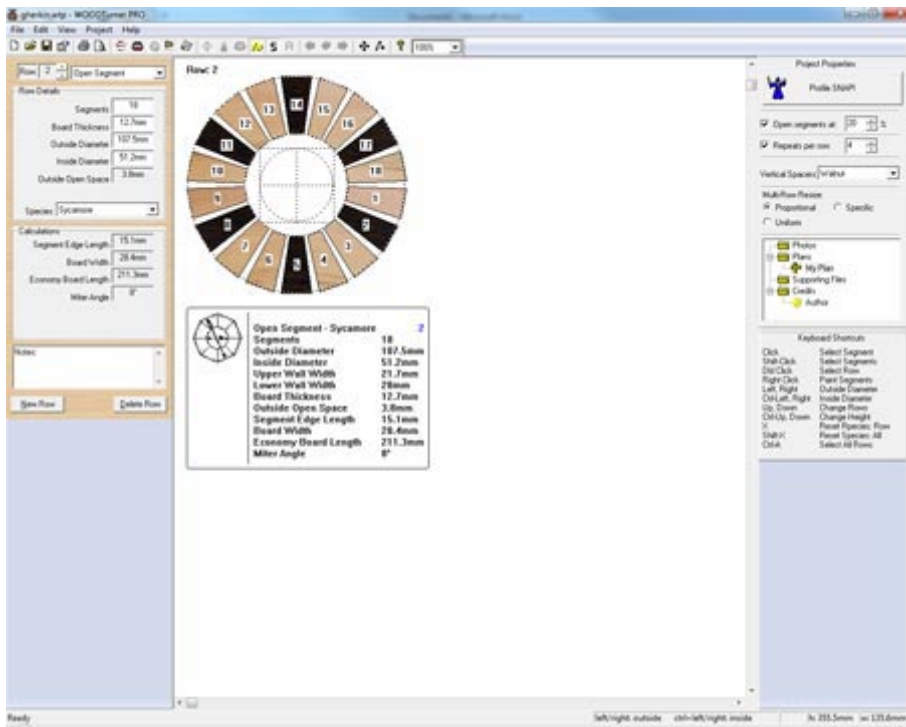
<http://www.segmentedturning.com/> also gives lots of information and software.

Dennis Keeling has been my inspiration, using his books on the subject, <http://www.dkeeling.com/>

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Sreen grabs from Woodturner PRO





gherkin.wtp - WOODTuner PRO

Cutting Summary gherkin.wtp

Row	Type	Segments	Board Thickness	Diameter (A)	Diameter (B)	Segment Edge Length	Vertical Spacer Width	Board Width	Economy Board Length	Miter Angle	Blade Tilt	Slope
25	White Ebony	12	38mm	67.8mm od	12.8mm id	18.2mm	0mm	27.7mm	141.1mm	15°		
24	Open Segment Sycamore	18	12.7mm	78.2mm od	32mm id	11mm	2.7mm	23.3mm	149.5mm	8°		
23	Open Segment Sycamore	18	12.7mm	91.1mm od	41.6mm id	12.8mm	3.2mm	25mm	178mm	8°		
22	Open Segment Sycamore	18	12.7mm	96.4mm od	51.2mm id	13.5mm	3.4mm	22.8mm	196.5mm	8°		
21	Open Segment Sycamore	18	12.7mm	106.3mm od	60.8mm id	14.9mm	3.7mm	23mm	221mm	8°		
20	Open Segment Sycamore	18	12.7mm	112.2mm od	67.2mm id	15.8mm	3.9mm	22.8mm	236.5mm	8°		
19	Open Segment Sycamore	18	12.7mm	117.8mm od	73.6mm id	16.5mm	4.1mm	22.3mm	251mm	8°		
18	Open Segment Sycamore	18	12.7mm	125mm od	80mm id	17.6mm	4.4mm	22.9mm	268.7mm	8°		
17	Open Segment Sycamore	18	12.7mm	128.7mm od	83.2mm id	18.1mm	4.5mm	23.2mm	277.5mm	8°		
16	Open Segment Sycamore	18	12.7mm	131.8mm od	86.4mm id	18.5mm	4.6mm	23.1mm	285.4mm	8°		
15	Open Segment Sycamore	18	12.7mm	134.1mm od	89.6mm id	18.8mm	4.7mm	22.7mm	292.2mm	8°		
14	Open Segment Sycamore	18	12.7mm	134.9mm od	89.6mm id	19mm	4.7mm	23.1mm	293.3mm	8°		
13	Open Segment Sycamore	18	12.7mm	135.6mm od	89.6mm id	19.1mm	4.7mm	23.4mm	294.2mm	8°		