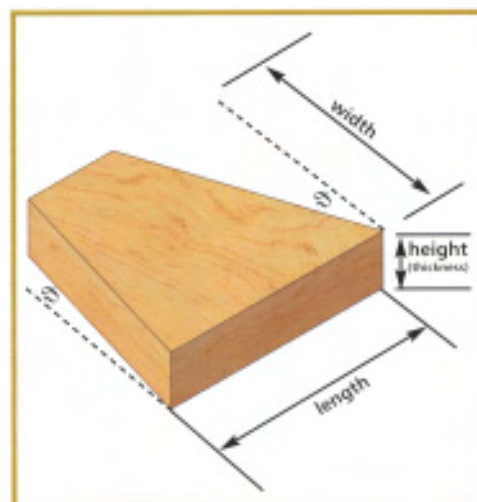
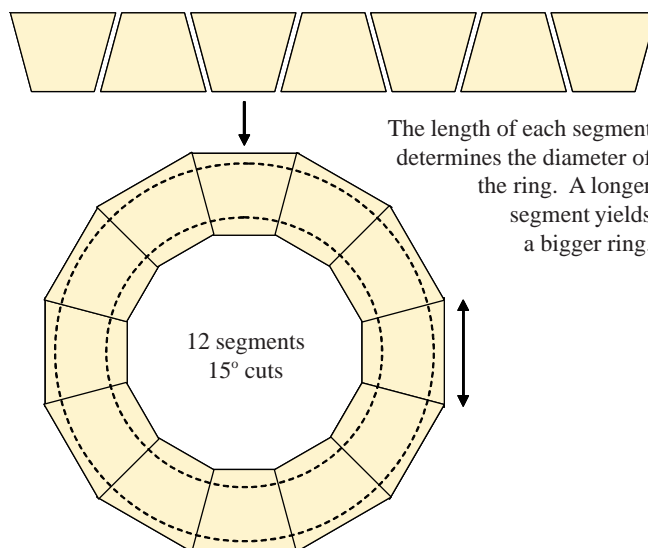


Basic Segmenting

1. Lay out a plan and design the piece on paper first! You must decide the basics before cutting ... the number of segments and the diameter of each ring.
2. Now, how long do you cut each segment? Here is the basic formula:

$$\text{segment length} = \text{tangent} \times \text{diameter}$$

# of segments	Miter angle ϑ (°)	Tan ϑ	# of segments	Miter angle ϑ (°)	Tan ϑ
6	30	0.57735	24	7.5	0.13165
8	22.5	0.41421	26	6.923	0.12142
10	18	0.32492	28	6.428	0.11267
12	15	0.26795	30	6	0.10510
14	12.857	0.22824	32	5.625	0.09849
16	11.25	0.19891	34	5.294	0.09266
18	10	0.17632	36	5	0.08749
20	9	0.15838	38	4.737	0.08286
22	8.182	0.14378	40	4.5	0.07870



Let's run through a few examples:

You want an **18**-segment ring that is 10" in diameter ...

$$.17632 \times 10'' = 1.7632'' \text{ length (miter angle } 10^\circ)$$

You want a **12**-segment ring that is 10" in diameter ...

$$.26795 \times 10'' = 2.6795'' \text{ length (miter angle } 15^\circ)$$

You want a **16**-segment ring that is 18" in diameter ...

$$.19891 \times 18'' = 3.58038'' \text{ length (miter angle } 11.25^\circ)$$

3. Make the width deep enough, based on your drawing, to have room to turn the inside and outside of your piece.

Recommended Resources

Books

Hampton, Ron. (2003). Segmented turning: A complete guide. East Sussex, England: Guild of Master Craftsman Publications.

Nish, Dale. (2004). Woodturning with Ray Allen: A master's designs & techniques for segmented bowls & vessels. East Petersburg PA: Fox Chapel Publishing.

Smith, William. (2002). Segmented wood turning. Atglen PA: Schiffer Publishing.

Tibbetts, Malcolm. (2005). The art of segmented woodturning: A step-by-step guide. Fresno CA: Linden Publishing.

Optional Software

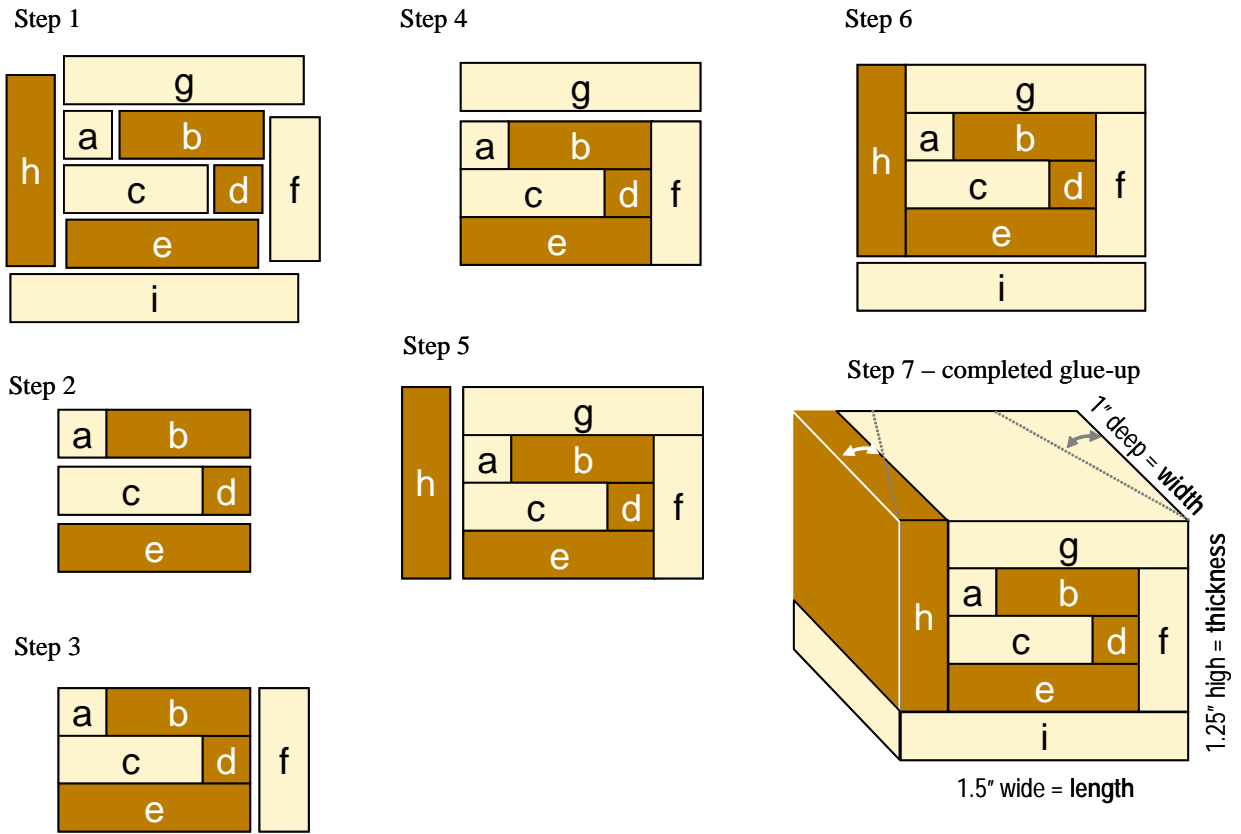
For basic rings - Woodturner Pro, available from woodturnerpro.com

For feature rings - Lamination Pro, available from woodturnerpro.com

Feature Ring

Ray Allen's "Fish Hook" design, adapted from Nish (2004, p. 132).

Make two sets with contrasting woods, such as maple-mahogany and maple-bloodwood.



To finish – (1) Cut each segment to the desired angle. (2) When inserting feature ring into project, ring the maple-mahogany set with mahogany and the maple-bloodwood set with bloodwood to complete the illusion.

