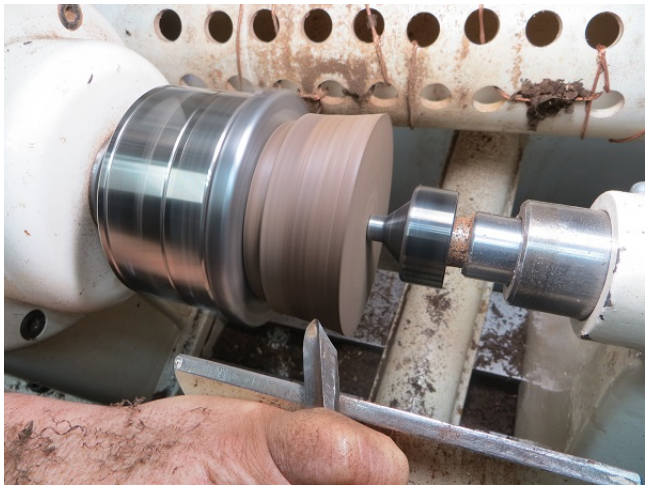
Turning a Lidded Box



Eric L. Krum

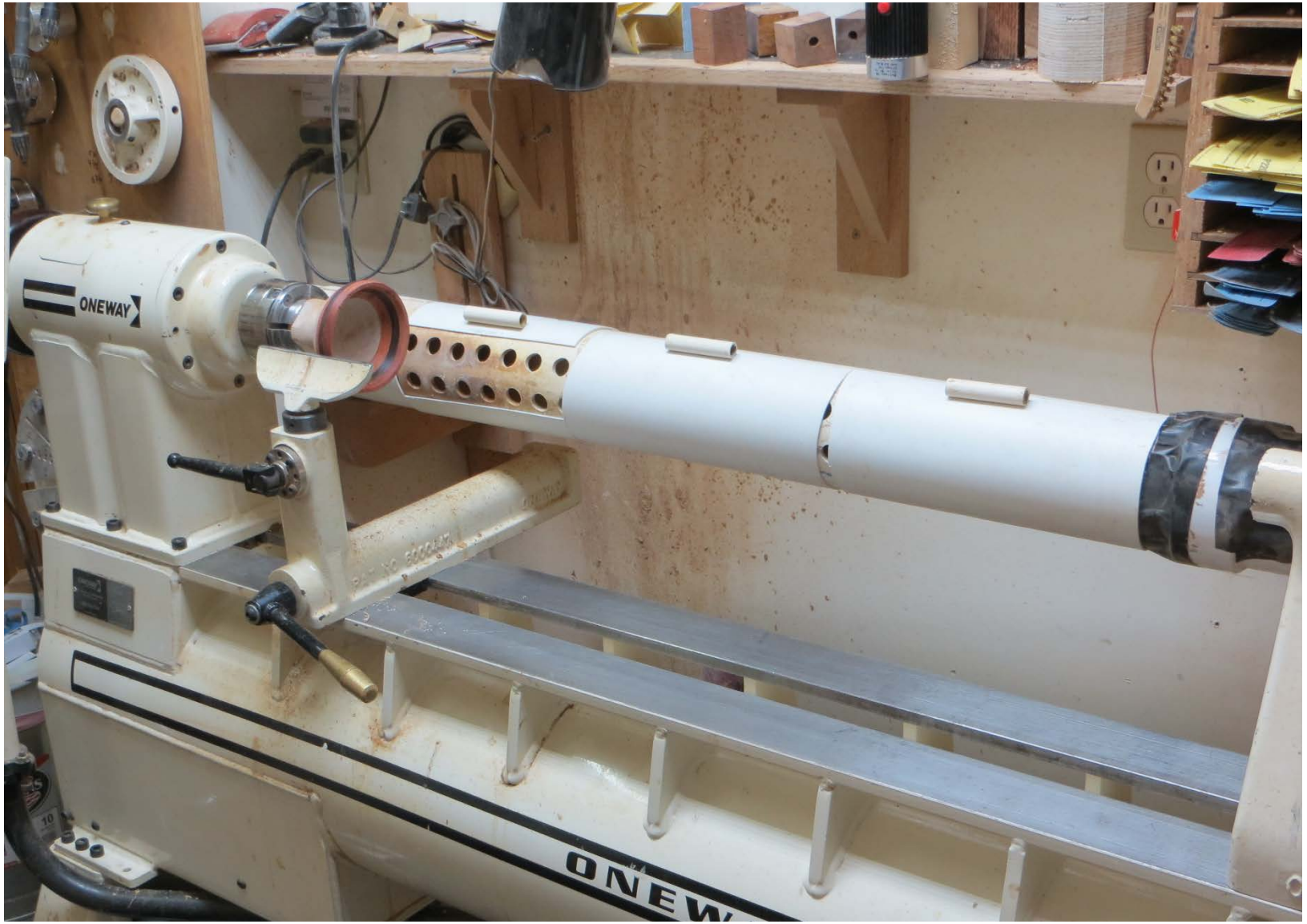
Safety

An accident at the lathe can happen with blinding suddenness; respiratory and other problems can build over years.

Take appropriate precautions when you turn. Safety guidelines are published online at tiny.cc/turnsafe*. Following them will help you continue to enjoy woodturning.

There are several ways to make just about any cut. If it does not feel safe don't do it. Use another way.

My Best Buddy (clean air)



Lidded Boxes

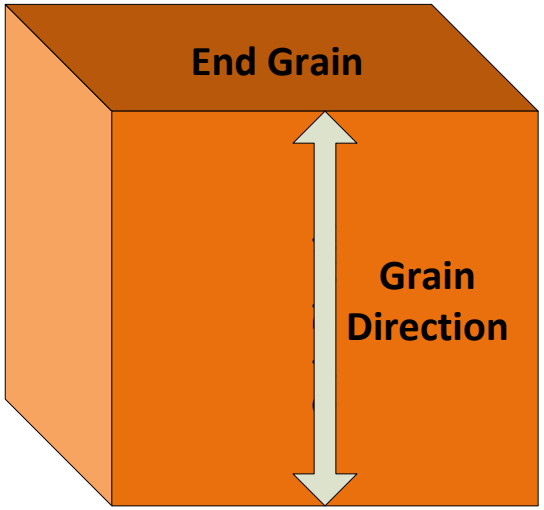
- Lidded boxes are different from many turnings
  - Sense of mystery on what is inside
  - How it opens
- A box's design needs to incorporate several considerations
  - Dimensions and overall shape
  - Overcoming wood's inherent movement
  - Type of lid
  - Type of lid fit
- A successful box makes people want to pick it up and open it to see what is inside

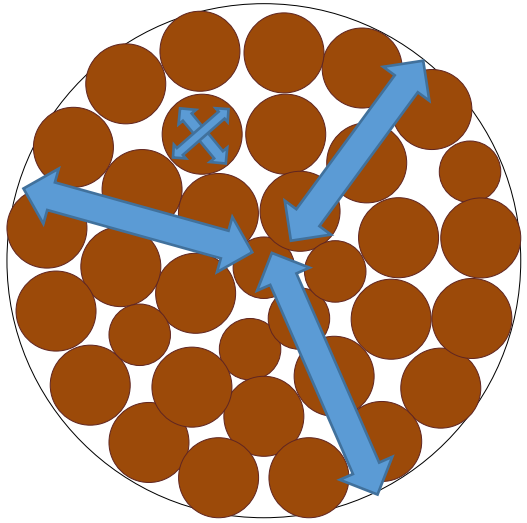
Considerations Before Turning

- Select stock with low moisture content or rough cut and let dry to around 8-10%
- Orientation of grain impacts type of lid fit
  - End grain orientation – can make a tight fit
  - Side grain orientation – make a loose fit
- Keep lid diameter around 3 inches to allow lid to be easily handled and removed
- Larger than 4 inches in diameter consider adding a handle to allow removal of the lid

End Grain Box

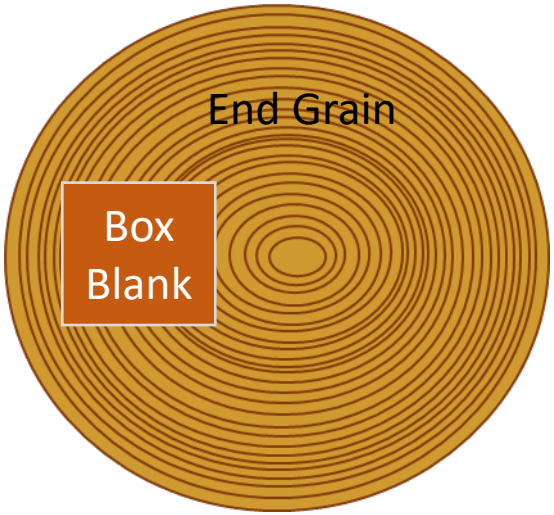
- As wood absorbs or losses moisture it expands and contracts across the cells and pores (grain)
- Little movement up and down the pores
- You can make the lid fit tight as the lid and base of the box have the cells and pores oriented in the same direction resulting in equal movement in both components
- Box body and lid remain round

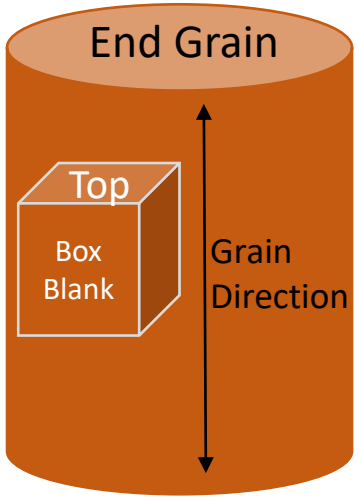




End Grain Box Blank Orientation

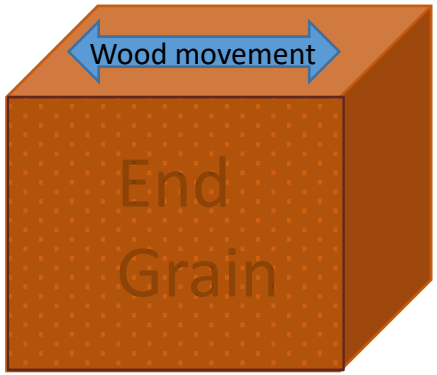
- Box blank is oriented so the growth rings and end grain are at the top and bottom of the blank
- Can be part of the log or take up the entire diameter if the log is small
- As wood absorbs or losses moisture it expands and contracts across the cells and pores (grain) producing an oval shape

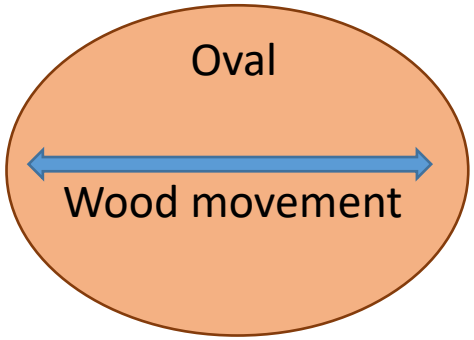




Side Grain Box

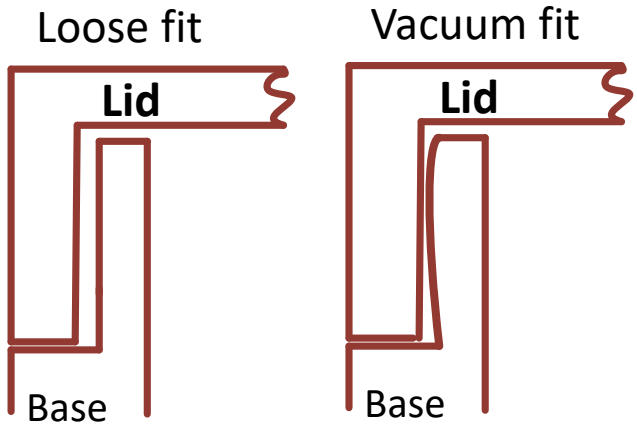
- A side grain box has the end grain running from side to side
- As the cells and pores absorb moisture the blank will expand or contract in only two of the four directions creating an oval
- Lid and base both turn oval making the lid fit only on the axis of the oval
- Make the lid fit loose, as the wood moves, the lid can still be easily removed or replaced

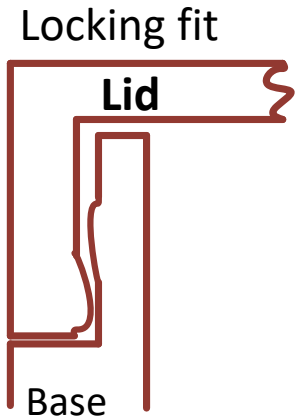




Box Lid Fit Options

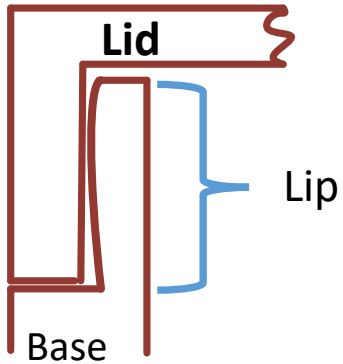
- Lid fit also depends on planned use of the box
  - Loose fit for jewelry/storage box
  - Close fit for display box
- Lid edge and base lip can be formed to lock the lid on
- Rough turn and then let the wood relax and adjust to the ambient moisture levels
  - Turn lid and base close to size
  - Let pieces sit for a day or more
  - Final turn





Lip Size

- The height of the lip determines how well the lid stays on
- The height of the lip is the amount of wood that will be removed from the side of the box
- A high lip can impact how the box looks because the grain may not line up
- Too low and the lid falls off when the box is moved
- Lip height of ¼ to 3/8th works well

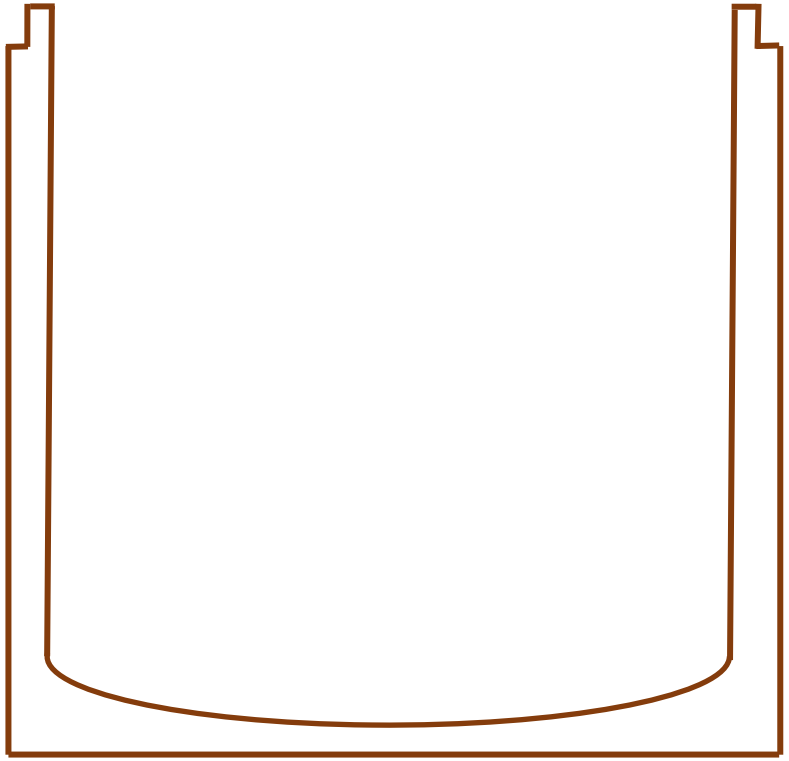


The Lid

- The line between the lid and box body will always show up
- Rather than try to hide the line, make it a design feature
- Options
  - Add one of more lines to the lid and/or body to make the person looking at the box wonder about which line separates the lid & body
  - Trim the lid and body edges to highlight the line
  - Add a bead to the lid, box body or both
  - Make the lid diameter larger then the box body
  - Indent the lid sides to give an indention to lift it with

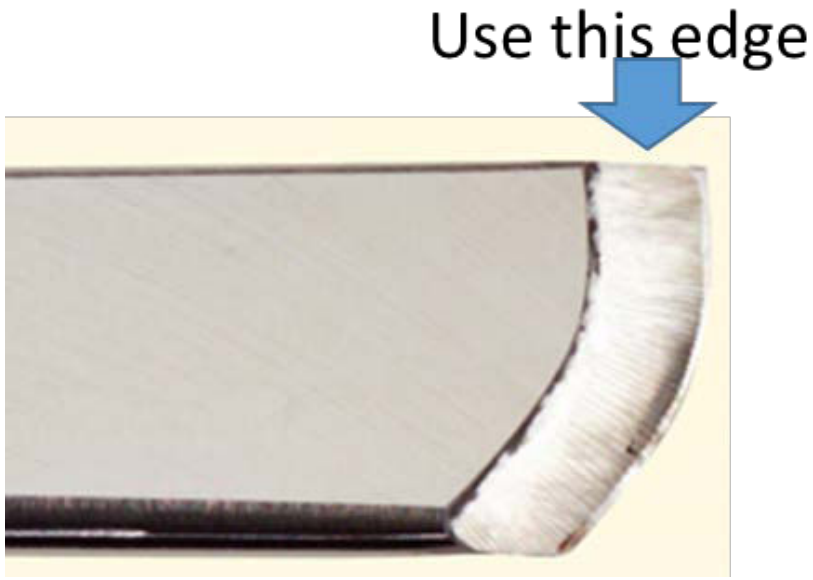
Box Interior Shape

- Make the bottom curved if the box will be used for small items like rings, makes it easier to get items out



Cutting Box Interior Sides

- Using square end scraper to hollow out box. Cut 1/8th to ¼ inch at a time. Remove bottom wood and make bottom flat.
- Use skew on inner sides to make them straight. Use skew, tip edge to make light cuts to smooth inner sides and lip.



Finishing

- Finish must hold up to being handled and be repairable
- Shellac based finishes do not wear well but are easy to repair
- Spray finishes like lacquer hold up well but are hard to apply and repair
- Varnish based finishes hold up well and are easier to apply but are hard to repair
- Polymerized Oil based finishes (Tung & Walnut oil) do not hold up well but are easy to apply and repair
- Polyurethane based finishes hold up well and are easy to repair
- Wax finishes provide little protection but are easy to repair

My Preferred Finish

- Have been asked numerous times to describe the finish used on the lidded boxes and wine stoppers

Answer to Question on My Finish

- KrumE Finish consists of two components
  - Minwax Wipe On Poly
  - Minwax Paste Finishing Wax

Process of Creating Finish

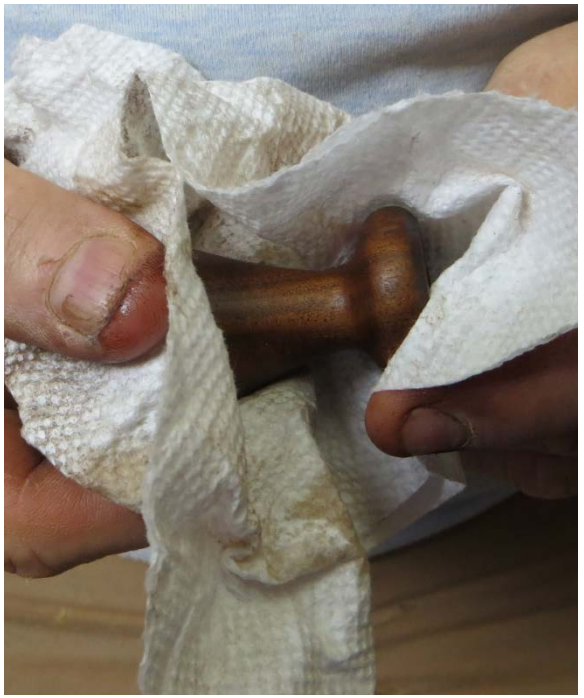
- Five Steps
  - Wipe on Polyurethane
  - Wipe off Polyurethane
  - Apply one or more coats of Polyurethane
  - Wipe on wax
  - Cover wax in Polyurethane, wax will melt
  - Wipe off mix
- When finishing more than one wood item, recommend gloves should be worn

Step 1

- Wipe on Polyurethane with a cloth or paper towel
- Using Bounty paper towel in picture
- Let sit for a couple of minutes

Step 2

- Wipe off Polyurethane
- If tacky apply more Polyurethane to soften prior application before wiping off



Step 3

- Apply paste wax to surface
- For ultra fine surface apply wax with 0000 steel wool

Step 4

- Cover wax in Polyurethane, dissolving wax

Step 5

- Wipe off wax & Polyurethane mix
- Polish with cloth or soft paper towel