

Anatomy of a Threaded Box

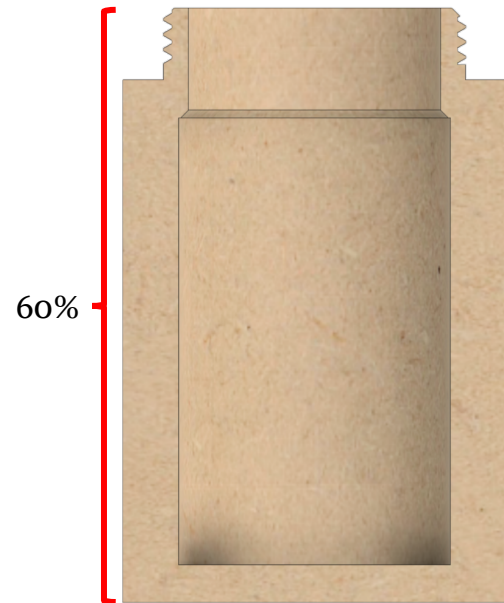
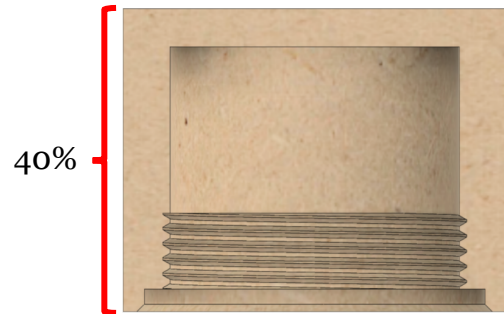
John Swanson's Turning Threaded Boxes is the best reference for this activity.

- 16 threads / inch (TPI) is the recommended pitch. Experienced turners have cited this as good for most woods.

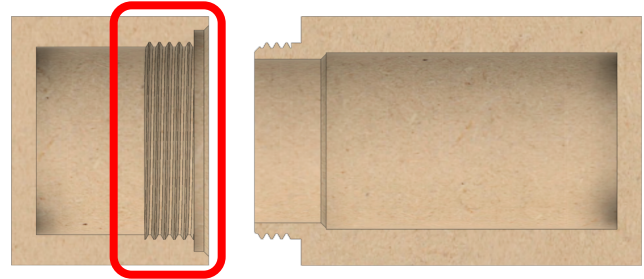
For 60° threads, the threads are

- 0.040" wide and
- 0.054" tall.

- The division between a box's base and lid as advocated by John is shown to the right.
- The recommended approach is to thread the lid 1st, and then thread the base. This allows the lid to be used to ensure the threading is proper on the base.
- Another recommendation is to turn a set of blocks with the same internal and external threads. These blocks can then be used to hold the mated parts whilst finishing the ends. This is particularly useful if the pieces are held by a tenon in a collet chuck.



Threaded Box's Lid



Hand-chased threads need a relief here. For threads cut with a jig or using a cutter held in a drilling spindle do not need such a relief.

Width needs to be greater for fragile woods like burls. Consider 1/8" to 1/4".

45° chamfer added to ease getting the lid on and off



One option for aligning the grain (after both pieces are threaded) is to remove some of this edge.

Be careful: if it is off by 90°, then the amount to be removed is only 25% of one thread's width.

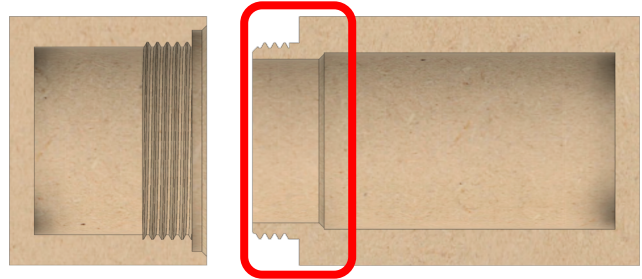
With 16 TPI, this is:

$$90^\circ / 360^\circ \times 1/16" = 1/64"$$

Width of threaded area needs to be 4-5 threads. This will hold sufficiently, and more would make attaching the lid too onerous to attach to the body.

Width of relief should equal width of one thread (Thread Pitch width)

Threaded Box's Base



A second option for aligning the grain (after both pieces are threaded) is to remove some of this shoulder. This is the preferred approach.

As noted above, be careful.

45° chamfer added to ease getting the lid on and off

Hand-chased threads need a relief here. For threads cut with a jig or using a cutter held in a drilling spindle do not need such a relief, except for space for the nose of the cutter.

Starting diameter for this tenon is 0.060" greater than the internal diameter of the lid.

Width needs to be greater for fragile woods like burls. Consider 1/8" to 1/4".

Width of threaded area needs to be 3-4 threads. This will hold sufficiently, and more would make attaching the lid too onerous to attach to the body.

If the fit of the lid is too tight, additional threads are needed.

Width of relief should equal width of one thread (Thread Pitch width)