

Sweep Bottle

Complement to
[Beginner's Guide to SolidWorks](#) 2010 Book



This document is meant as a complement for the *Beginner's Guide to SolidWorks* book for the thread in the bottle. Other projects are available from the download section of our website.

Disclaimer: These models and drawings are not meant for manufacturing but as a teaching aid to practice SolidWorks modeling.

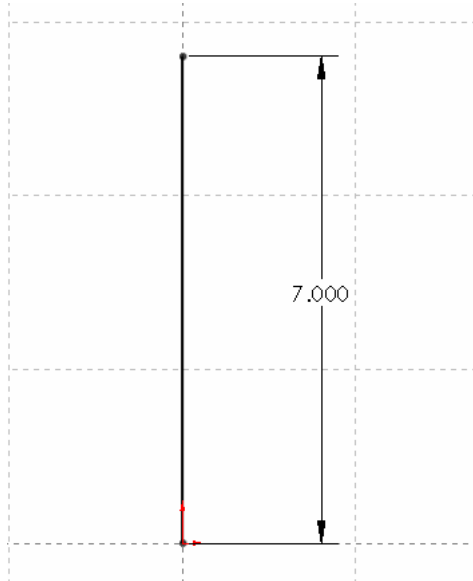
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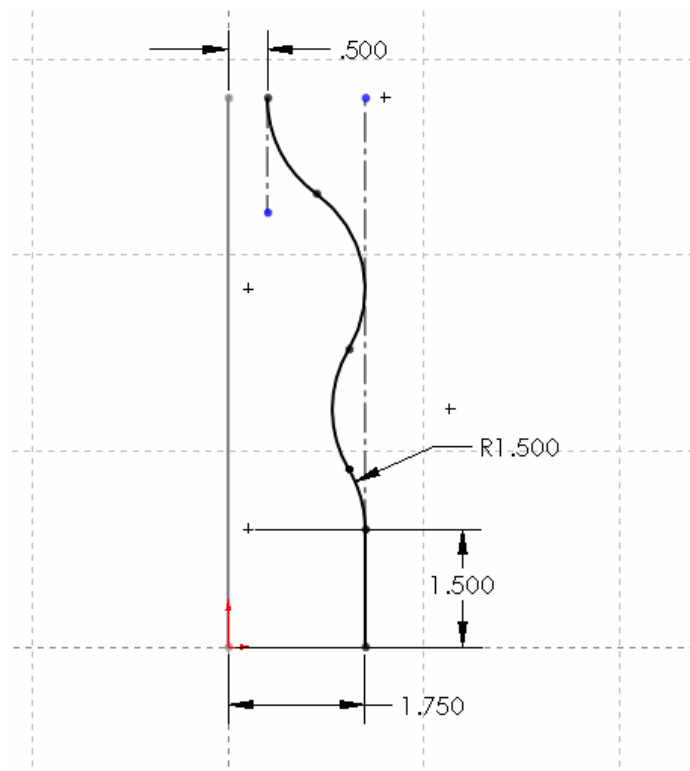
areyes@mechanicad.com

Bottle Body:

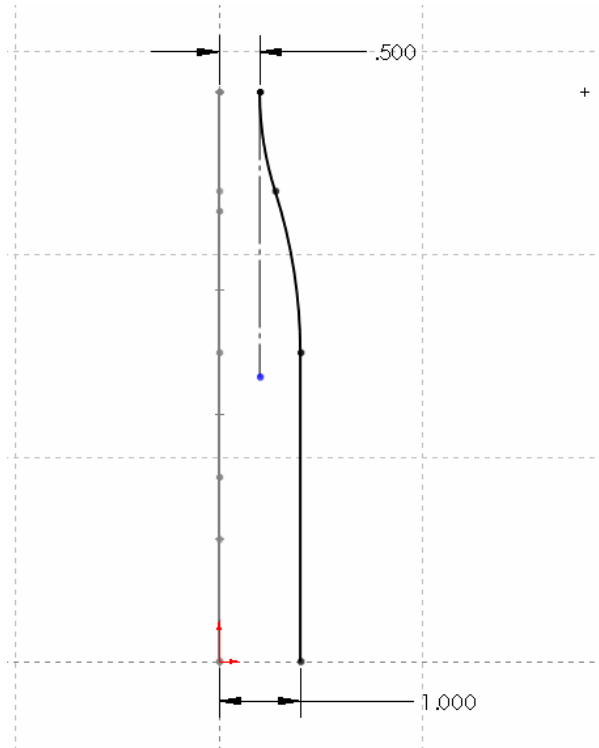
The bottle will be made using 2 guide curves. Make sketch on Front Plane. Rename *Path*. Exit sketch.



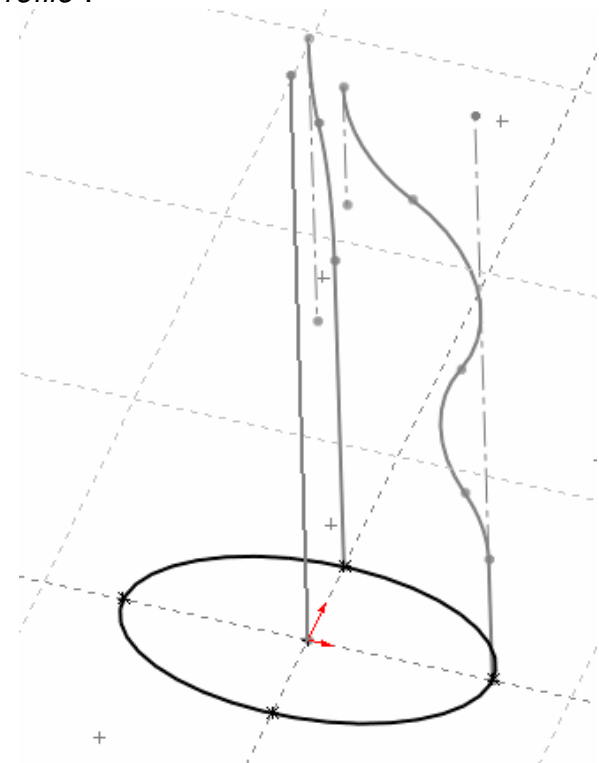
Make First Guide curve. Make sketch on Front Plane. Rename "Guide 1". All arcs are equal radii. Add geometric relations as needed to fully define it. Exit sketch



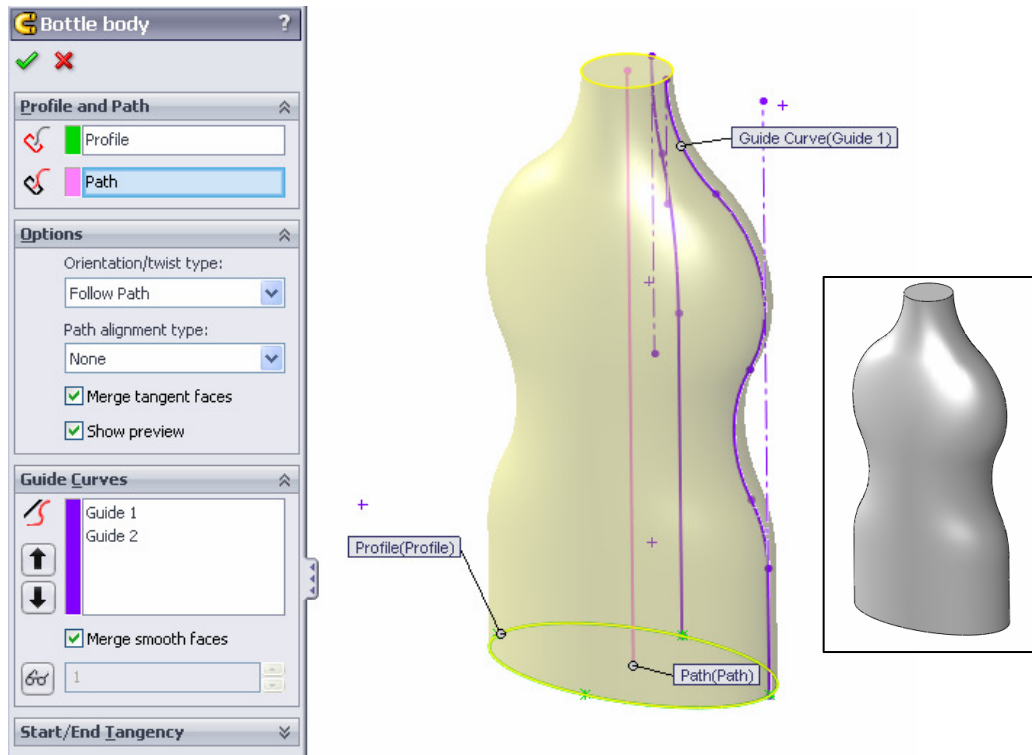
Make second Guide on Right Plane. Arcs begin and end at the same height as the arcs in the first guide curve. Use horizontal relation to endpoints in first guide. Exit sketch. Rename "Guide 2"



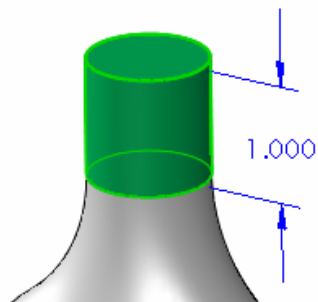
Make profile in Top Plane. Add relations to Path and both Guide Curves. Exit sketch. Rename "Profile".



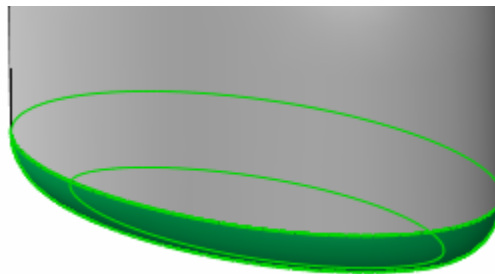
Make Sweep using Profile, Path and both Guides with the indicated options.



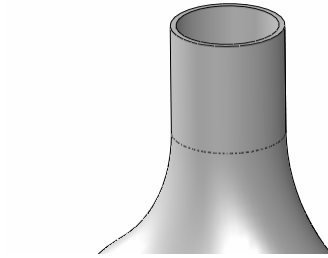
Make sketch on top flat face, extrude 1". (Tip: use "Convert Entities")



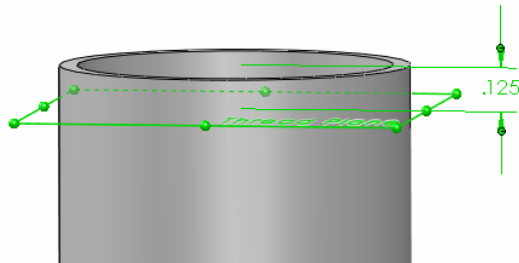
Add 0.375" fillet to bottom face.



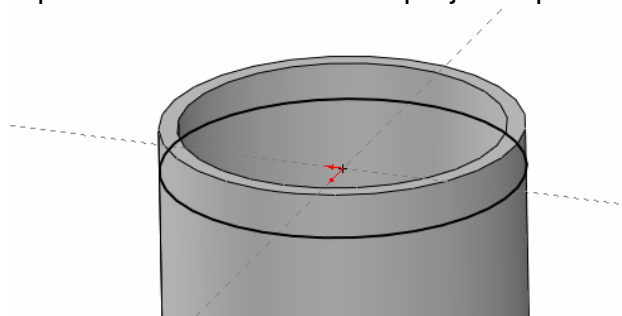
Shell part 0.05" removing top face.



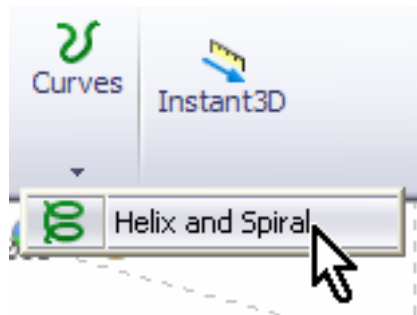
Make Parallel plane from the top face 0.125" below.



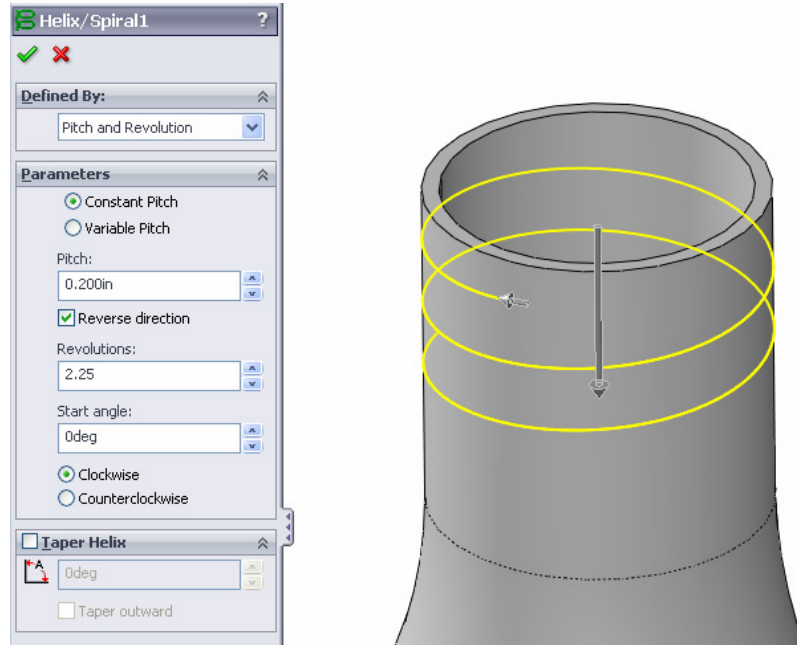
Make sketch on this plane. Convert Entities to project top outside edge.



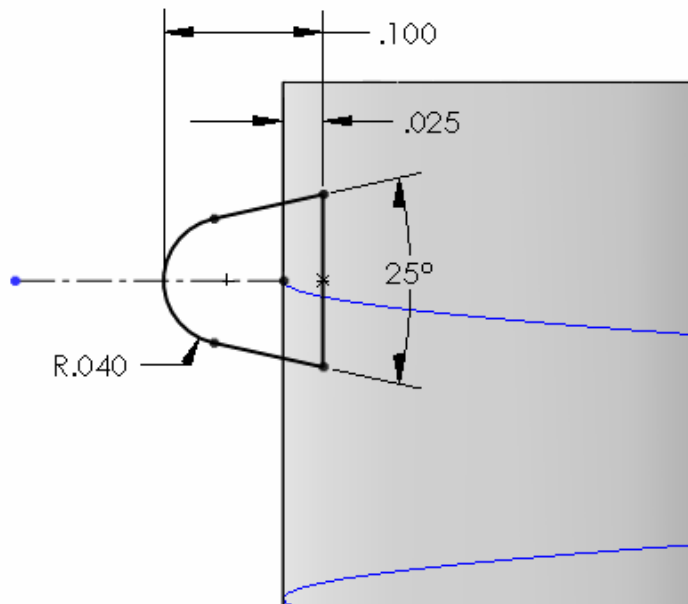
Select the "Helix and Spiral" command from the Features tab under the "Curves" icon while still editing the sketch.



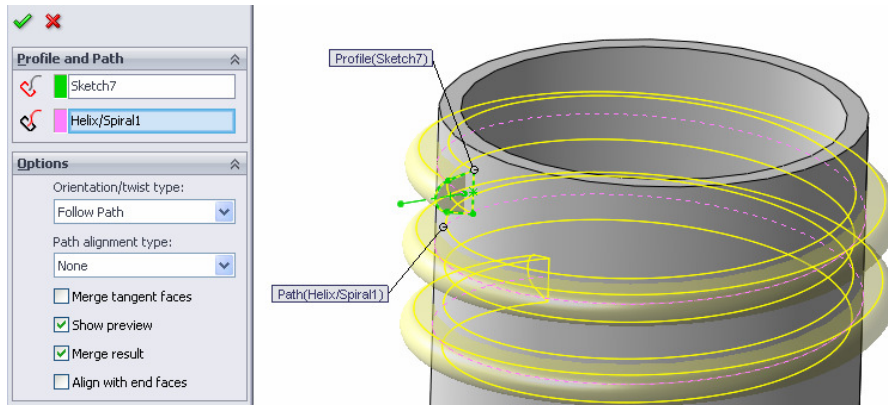
Select the options shown for the Helix. Change the "Start Angle" to 0deg to start the helix coincident with the Right Plane. Make the helix Clockwise to make a right hand thread. Define helix by "Pitch and Revolution" to exactly define the thread.



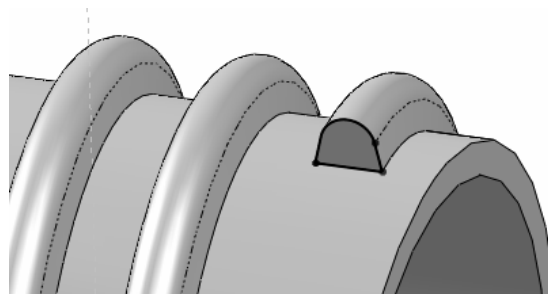
Change to Right view, make sketch on Right Plane. This is where we draw the true profile of the thread needed. Notice the profile 'bites' into the part, this is a good practice to make sure it merges correctly with the bottle and avoid geometry errors.



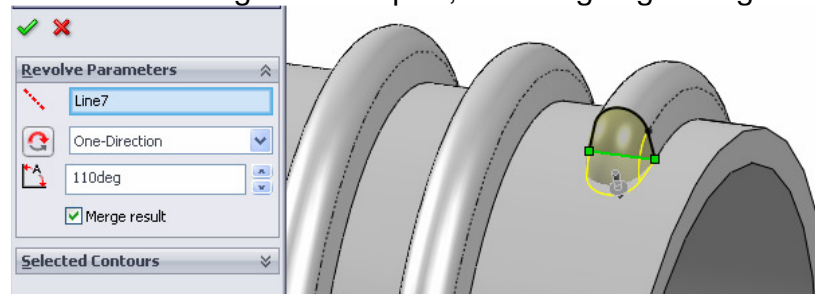
Make Sweep using previous sketch as profile and helix as path.



Make sketch on flat end of thread, select face and use convert entities to complete sketch.



Make Revolved boss using the bottom line as an axis of revolution. Make revolve 110deg to make the boss go *into* the part, without going through.



Repeat for other side of thread. Add 0.02" fillet to neck of bottle as a finishing touch.

