

Quick Lathe

User Guide 1.1.0

What is Quick Lathe

Quick lathe is a Sketchup plugin designed to make 'turned' shapes, such as a woodworker or metalworker would make on a lathe much simpler – and overcomes some of the difficulties doing this using the native "Follow me" tool.

Installation

- Download the "Quick Lathe.rbz" file from the SketchUcation forum (save it to disk).
- Open Sketchup
- Go to the "*Plugins Menu*" and choose *Install -> RBZ Package*
- In the browser that pops up, navigate to the saved download.
- Confirm installation when you see the next pop-up window.
- You should now see a "*Quick Lathe*" entry in your '*Tools*' folder

Using Quick Lathe

Making a selection

Before starting the quick lathe plugin, you need to make an appropriate selection from the geometry in your model. The selection must include..

- One or more faces that you want to turn around the lathe axis – choose only the faces without their edges.
- One edge or one construction line to use as the lathe axis. The chosen edge is allowed to be an edge of one of the chosen faces.

Note that the chosen faces must be co-planar with the chosen axis line, any which are not co-planar will be de-selected when you run the tool. If the selection is not appropriate, you will see a warning on screen.

Start the tool

Choose the '*Quick Lathe*' item from your '*Tools*' menu. You could also set up a shortcut key for faster access (see the Sketchup documentation for how to do this). If the plugin is correctly installed, you will see a dialogue box appear on screen – the title will indicate how many valid co-planar faces have been selected.

Settings

In order to best suit the way you work with turned forms, there are many options that you can change. So that you can work quickly, all options are remembered between uses of the plugin and across different Sketchup sessions. If you are happy with your current settings, you can just

confirm the dialogue by pressing '*Enter*'

Here is a summary of what the dialogue options do...

Number of Segments

This decides how many flat faces are used around the angle of the lathe to build the curved face. You must choose a number greater than two!

Lathe Angle

The total angle that the lathe will turn around the axis. Measured in degrees – 360, will give you a complete turn that closes the loop. The angle must always be positive, and for arcs less than 360degrees, will always turn in the direction that the back face of the profile is facing.

Smooth Angle

This angle determines the angle used when smoothing the faces of the lathed form – if the profile changes direction by more than this angle, a solid line is drawn, otherwise it will be smoothed and softened.

Axis C-line

If you choose "Yes", an infinite construction line will be drawn along the lathe axis that you can use later to help line up other geometry and tools.

Entity Type

The form made by the lather can be one of three types...

- **Loose Geometry** – note that this will 'stick' to any other geometry that the lather form happens to intersect, so should be rarely used.
- **Group** – the lathed form will be a Sketchup group entity.
- **Component** – the lathed form will be made as a component, so that you can use multiple instances from the component browser.

Subdivide Components

This option only takes effect if you choose 'Component' for the Entity Type.

At the default setting of one, the whole lathed form will be a single component – which could have rather a lot of geometry!

If you put in a higher number, the component will be made as a smaller segment of the overall form, and multiple instances will be joined together to give the appearance of a single object.

As each component only has a single definition, no matter how many times it is used, this can save a lot of memory and make your files smaller. It also means that when you have a symmetrical object, you can model only part of it – for example, type '4' to make a quarter of your object a single component – then when you edit the component, the other three symmetrical faces will automatically follow the edits.

Note that the value of "Number of Segments" is a total for the whole lathe angle – when you subdivide, the component part created will have proportionally fewer faces, and the number of segments may be automatically adjusted if the division does not give a whole number.

Erase Profile

"Yes" here means that the original faces and line used to define the profile and axis will be deleted after the lathing is done. (except for construction lines, which are always preserved).

Keep Coplanar Edges

If the final lathed form has faces which are co-planar, the faces are usually merged into a single face. Choose "Yes" for this option if you would rather keep the extra edges and faces for later editing.

Name

A name for your new object used when you make Groups or Components. Component names will have a suffix added if the name would otherwise duplicate one that already exists.

Arc End Style

If you lathe less than 360degrees, or use the 'Component Sub-divide' option, you can choose here what should happen to the 'end faces' of the arc. There are three options...

- **None** – the lathed form will be an open surface rather than a solid.
- **Capped** – end caps will be drawn on to make the form into a solid object.
- **Hidden** – an open surface again, but with the terminal edges hidden. This is useful when using 'Component Sub-divide' to avoid visible joins between adjacent component instances.

Arc Ends Perpendicular

When using the 'Component Subdivide' setting, you can sometimes see strange artefacts where the segments join – this is because the joins can't be smoothed and softened properly due to them being separate surfaces. Turning on 'Arc Ends Perpendicular' will solve this problem by putting the joins mid-way along co-planar faces rather than at the angles.

Note that this displaces the lathed form – rather than all being on the 'back face' side of the original profile, it will be symmetrical about the original face. This helps to keep the final form aligned correctly along the original axes.

Other Advantages

'Quick Lathe' also has a couple of other advantages over the follow me tool...

- Proper arc ends – the follow me tool is infamous for leaving weird little stubs at the end of lathed arcs. This doesn't happen with 'Quick Lathe'
- Editable curves – the curved 'ribs' that go around the lathe axis will be preserved as arcs – or circles in the case of a 360degree closed form. So you are able to treat the ribs as single objects, including using 'cardinal points' to grow and shrink circular cross-sections. 'Follow me' doesn't do this either!