

## Guide To Lofting Sketch Splines to Create a Solid Model

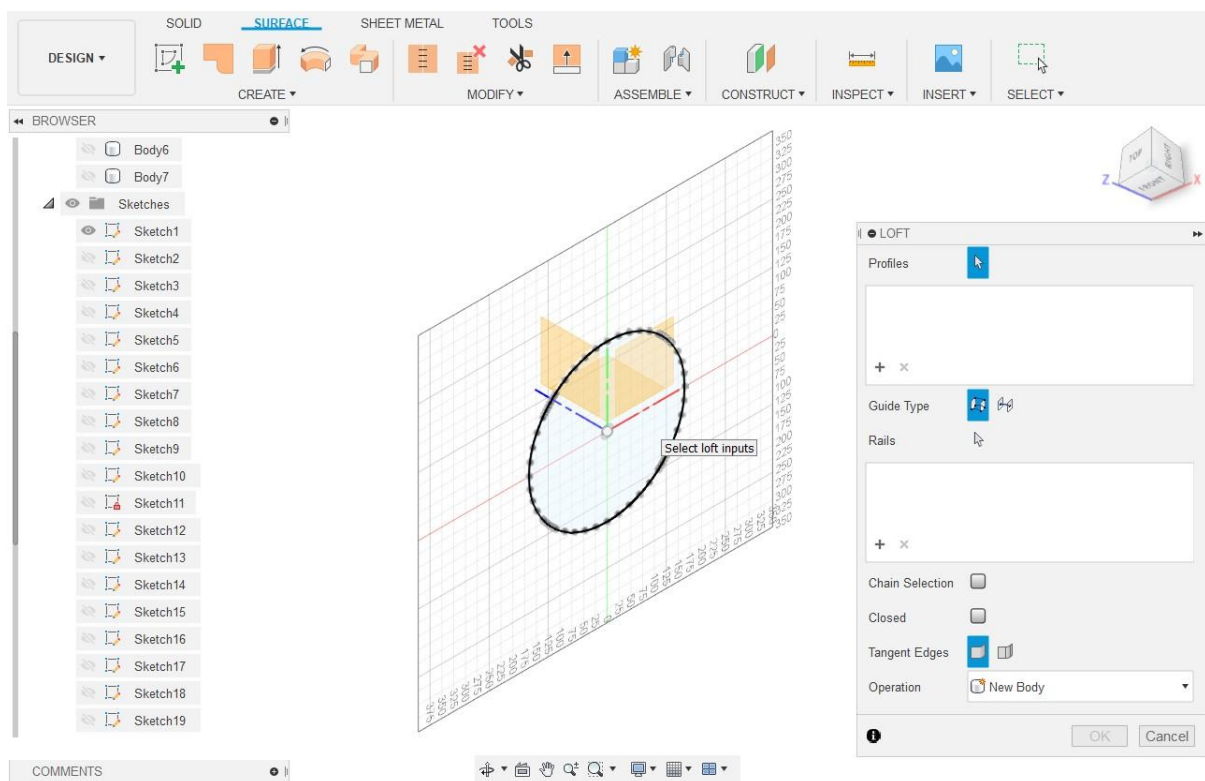
This information is based on Mabat's spline test fusion archives.

Open the Fusion file all the sketches will be shown.

You can work in the direct modelling environment if you like to be able to have all the commands appear in the tree or have the history captured in the timeline, either way works. Direct modelling is activated by right clicking on the projects name and choosing do not capture design history.

To create a surface loft begin by hiding all the sketches except for Sketch 1. Click on sketch 2 in the design tree then press and hold shift and click on the last sketch to select them all together. Then right click and press show/hide this will hide all the sketches at once apart from the first one which is a circle.

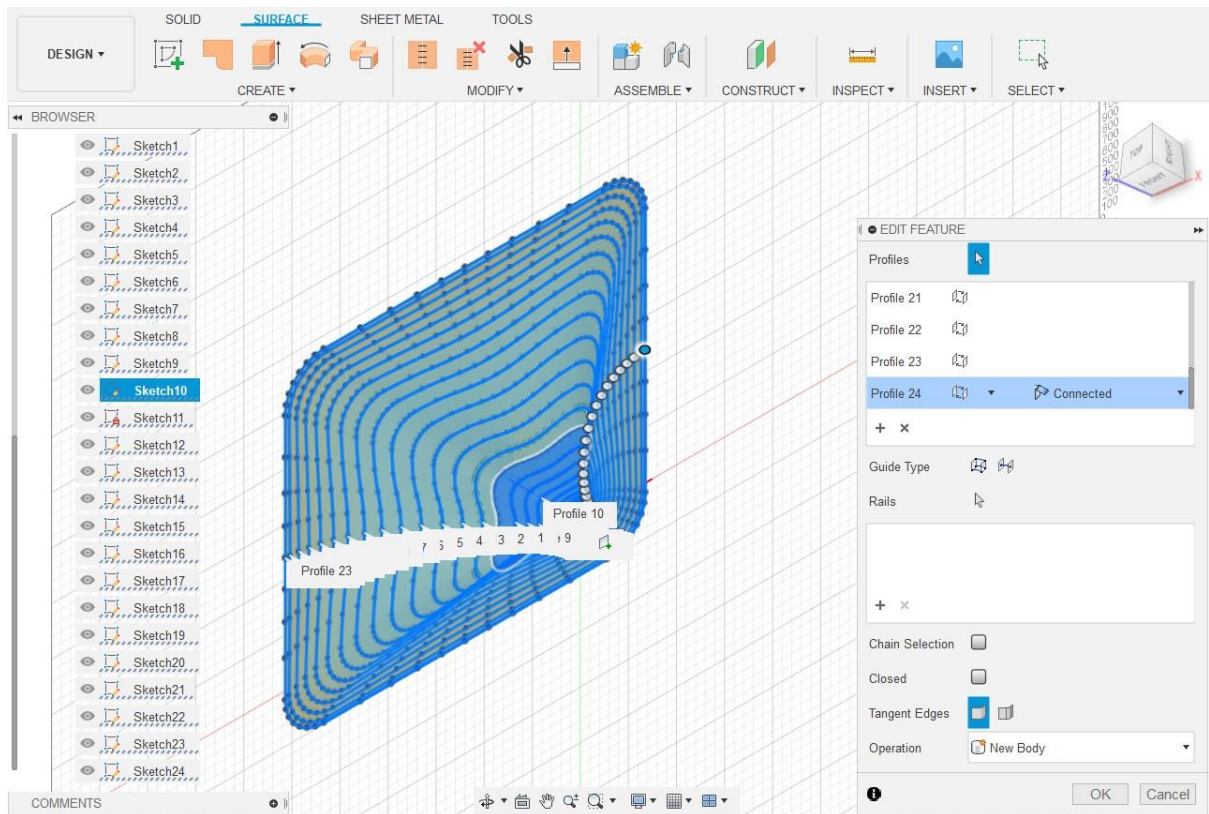
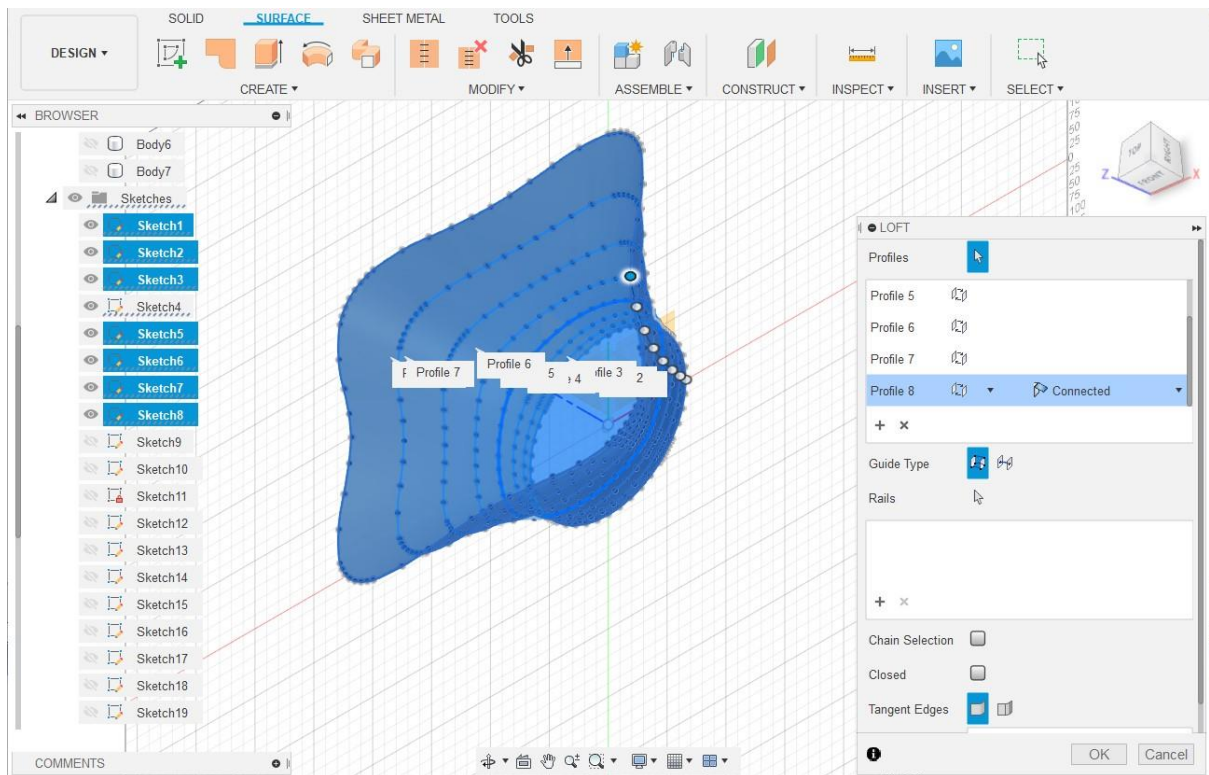
Go to the surface tools (orange colour) and select loft it should look like this



By hovering the mouse over the circle there will be a point where the whole circle turns black click the mouse without selecting any specific point. This will select the whole profile. If you choose a specific point the loft may well fail later. Once clicked Profile 1 will be added to the loft command.

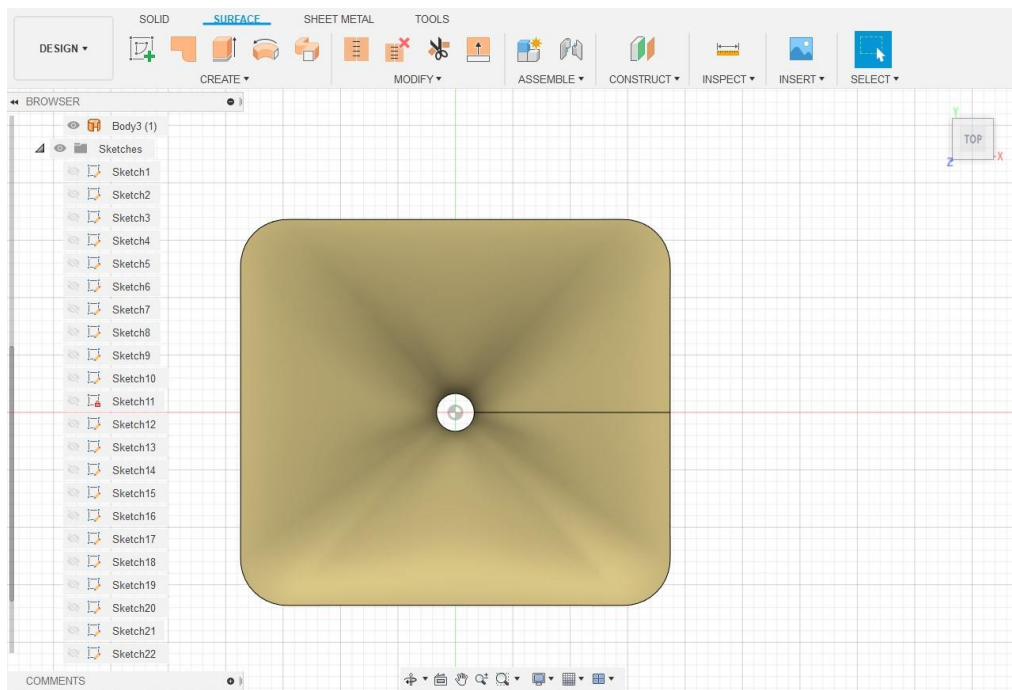
Make sketch 2 visible and do the same thing to add the profile. Continue with this until you have selected all profiles.

This is what it should look like as you go along



When all profiles are added Choose New Body and press OK.

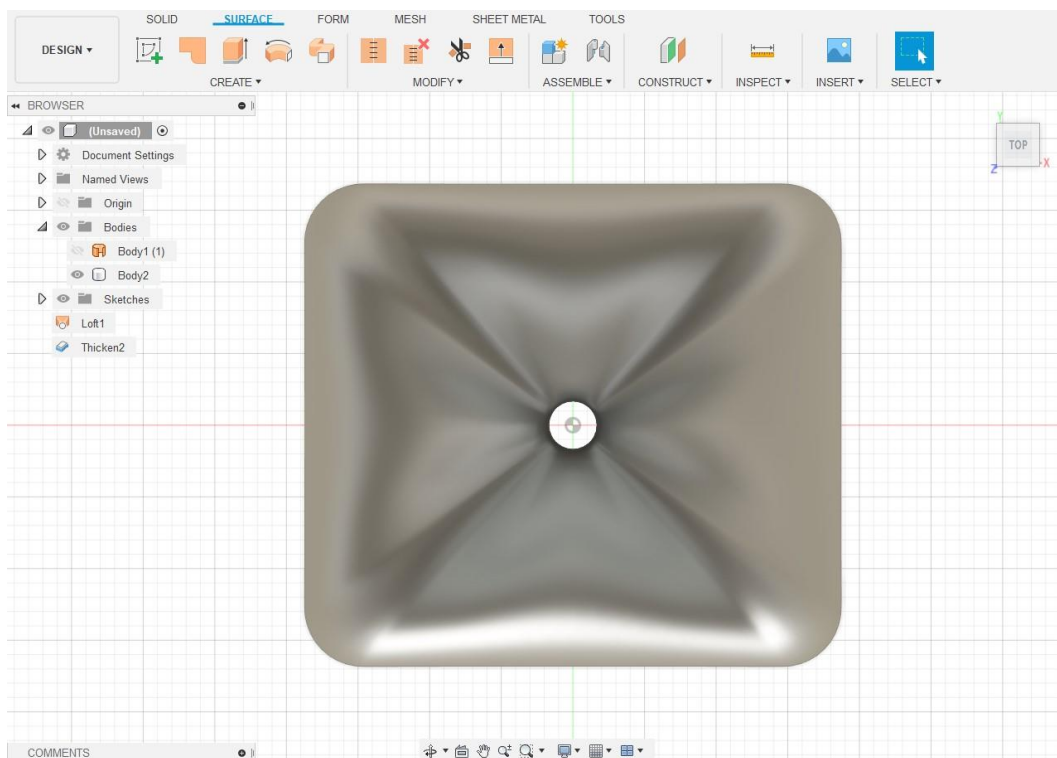
You should get something like this



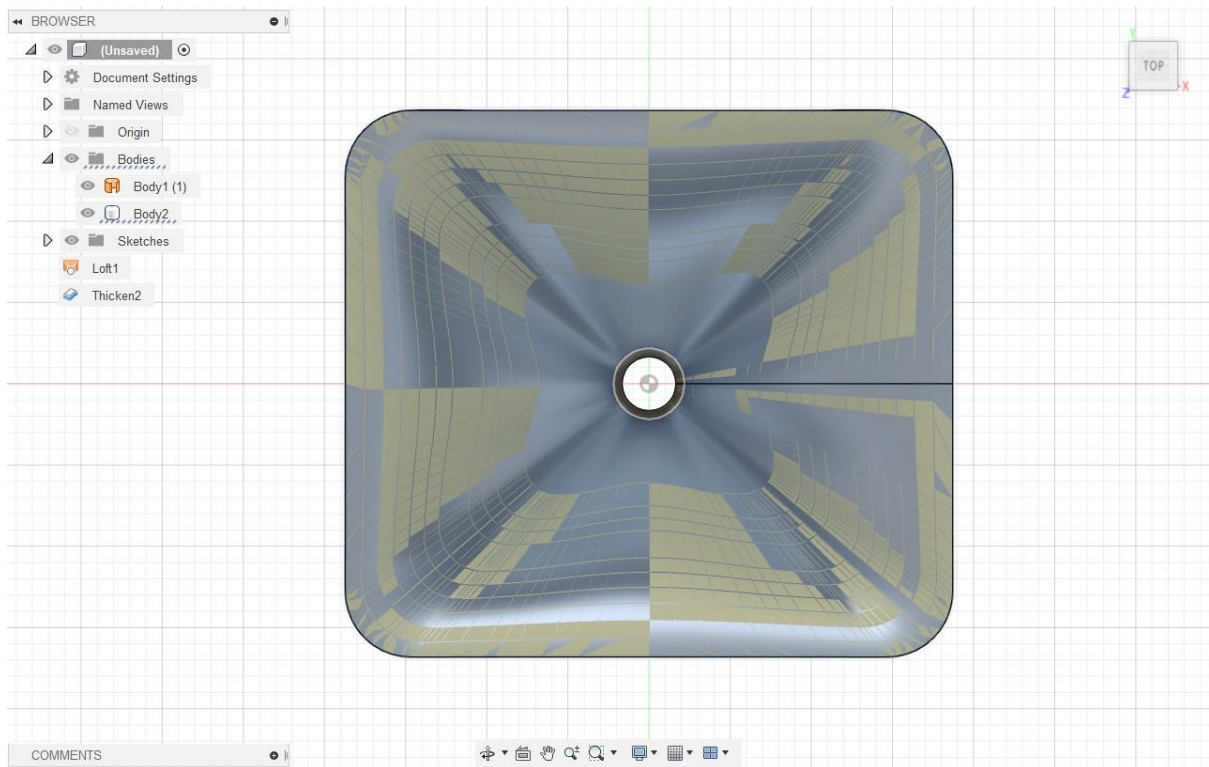
At this point you have two choices to proceed to make a solid, you can thicken the surface to create something similar to a commercial moulded horn or make a mould to cut from a baffle surface.

To thicken select the Body that was created or select the loft that appears at the bottom of the design tree if you did not capture design history.

Go to surface create and choose thicken. Set the amount you want to thicken by as a positive number. 6mm works well but trying 10mm or higher resulted in Fusion Crashing for me.



There does seem to be a slight difference between the surface and the thickened model if they are overlaid. It's not much but it is there.

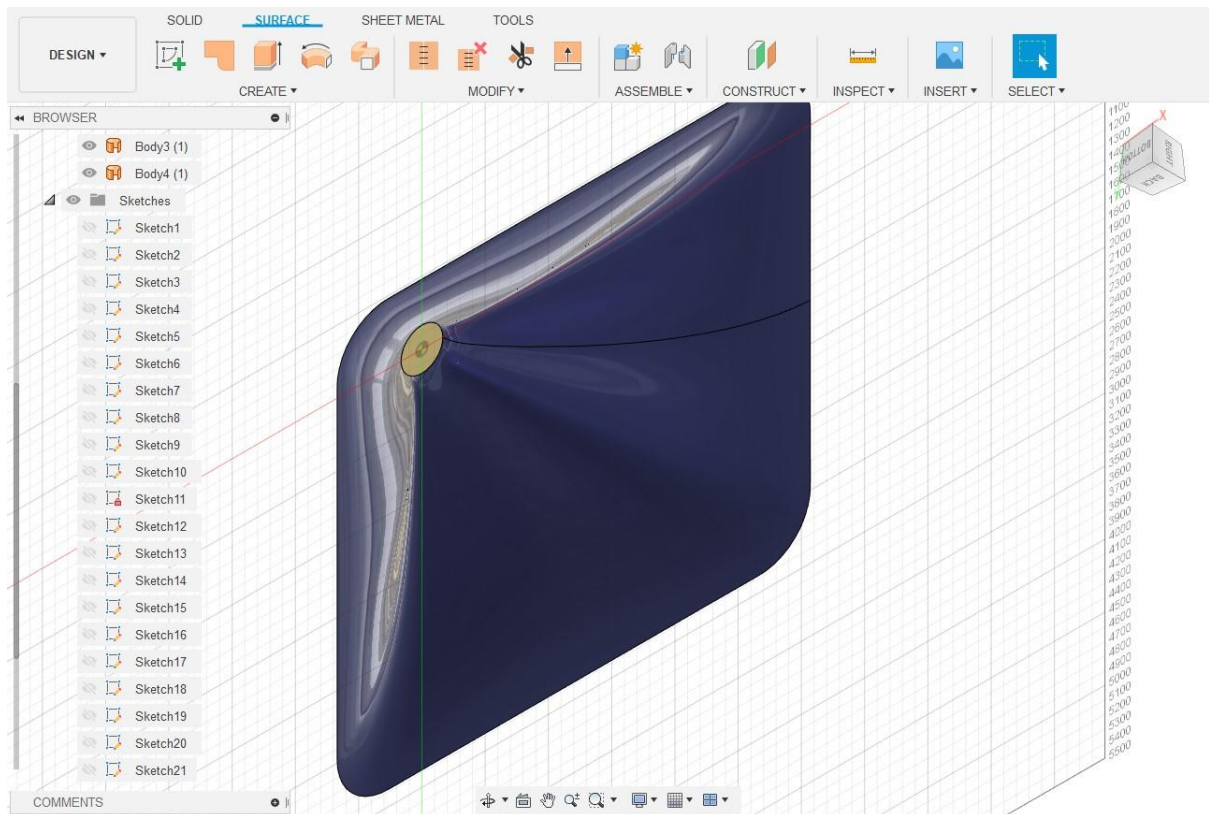


To create a negative mould to cut out of a solid block there is a different procedure to follow.

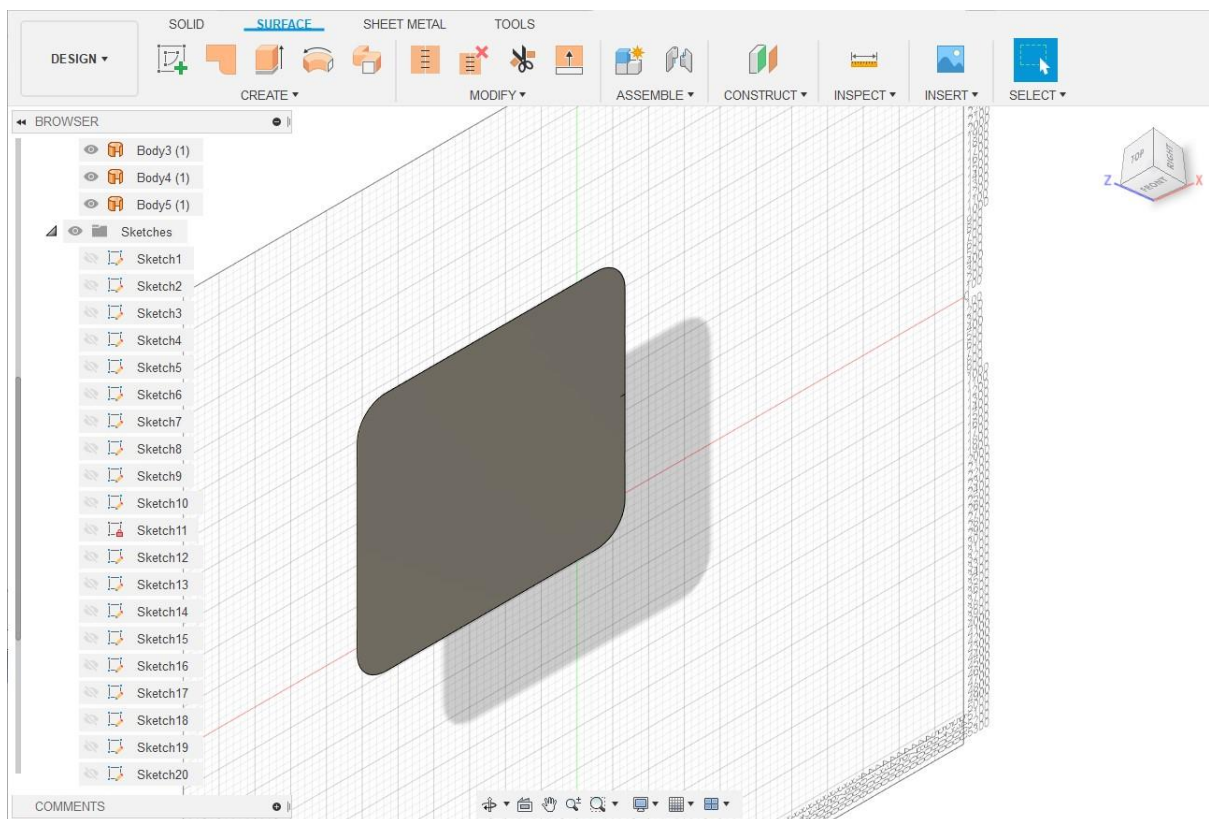
Start with the lofted surface from the first set of instructions.

To put a top and bottom on it use the patch command from create in surface tools.

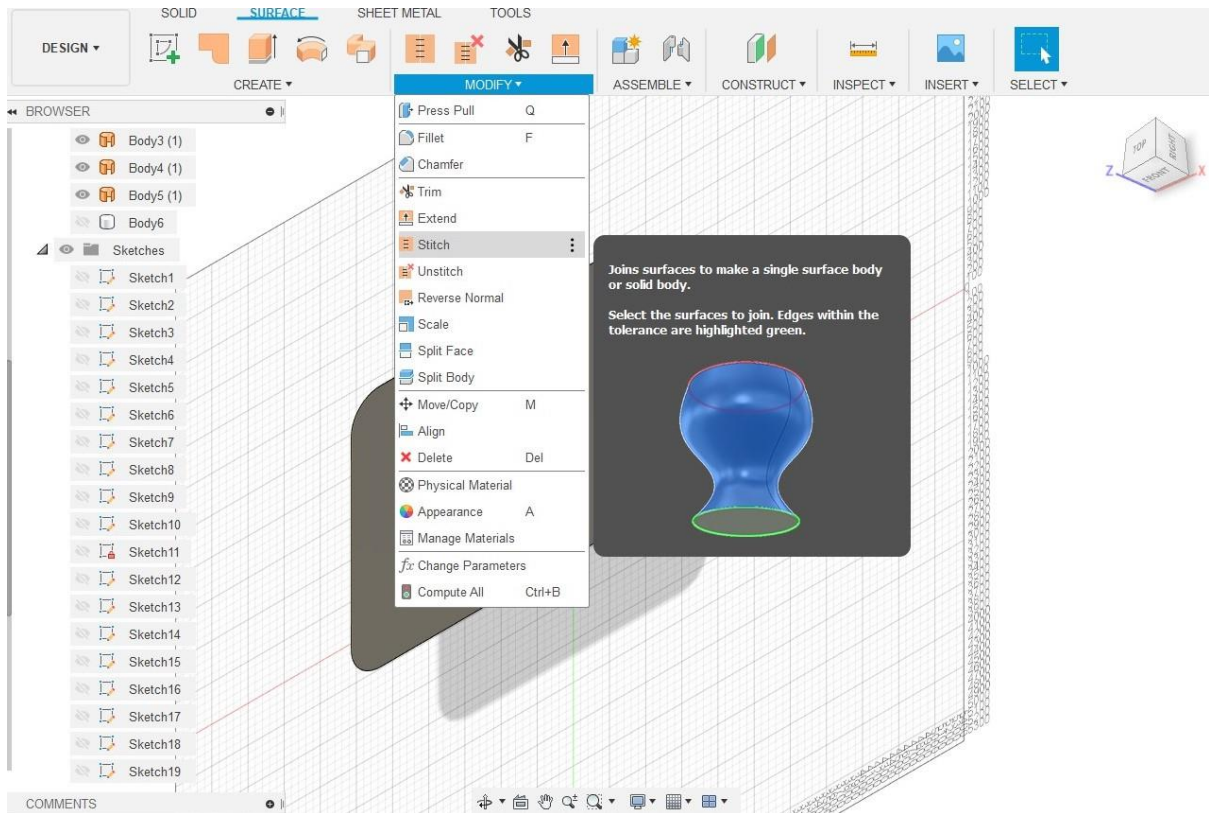
Flip the model over to the bottom and click in the open throat area, the circle bounding it will be selected then patch and a surface will be created over it.



Flip back and do the same to the mouth opening, a patch will be placed over the mouth.

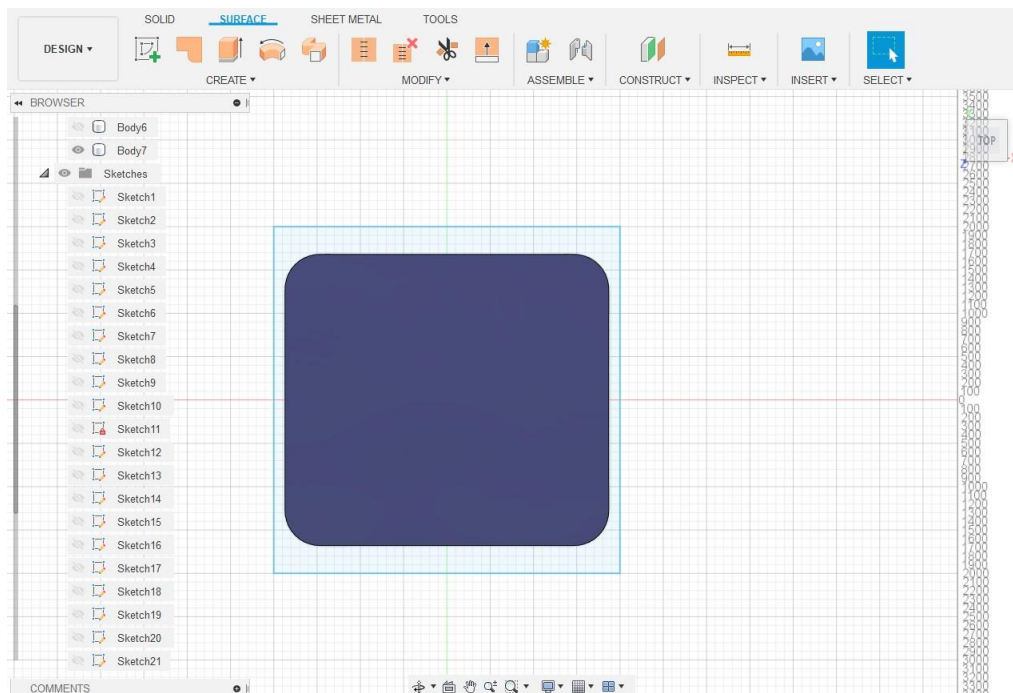


To join the two patches and waveguide profile together select the stitch command from modify in surface tools.

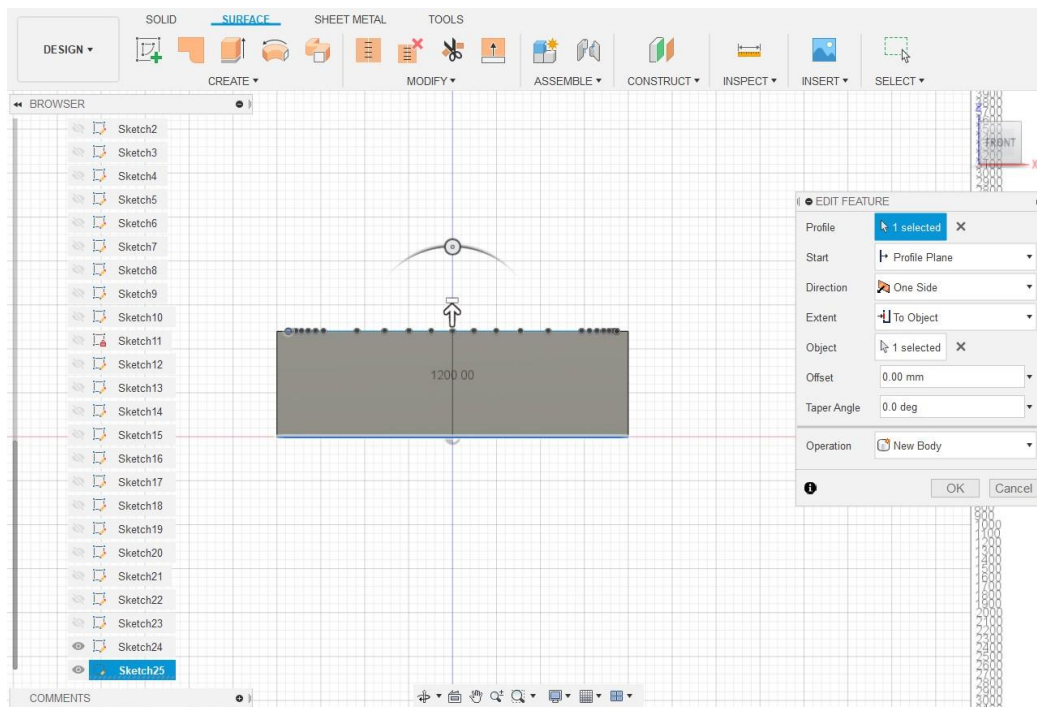


Select the three items to stitch and Fusion will produce a solid body.

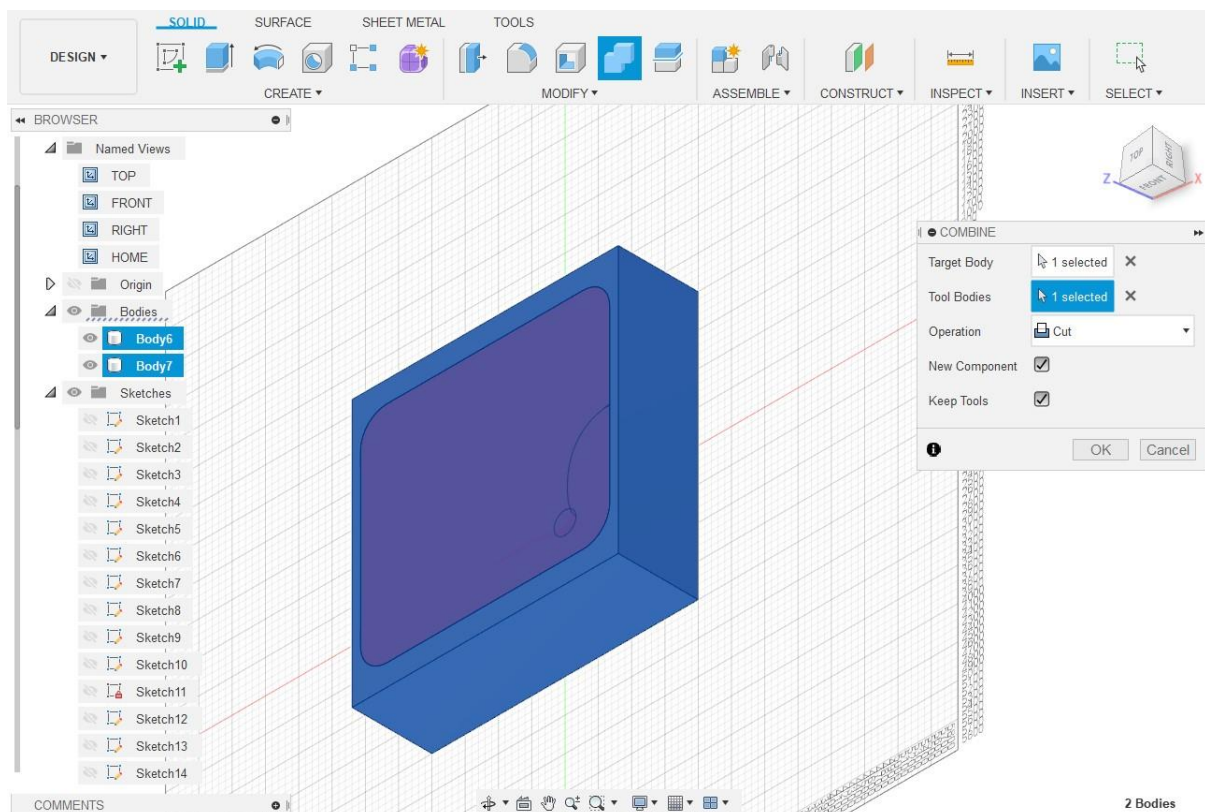
To make a baffle click on the base plane and create a sketch of a rectangle that is bigger than the waveguide.



Then click the extrude command from the solid tools. To extrude to the same height as the waveguide choose To Object and show the highest numbered sketch of the waveguide, rotate the view to the side and click on the top point of the waveguide. That will extrude to the same height as the waveguide.



To cut the mould from the baffle use the combine option from solid tools. Select the extruded baffle as the target body and the mould as the tool. Then choose cut and create new body or component, if you want to keep the mould click keep tool.



When rendered they look like this

