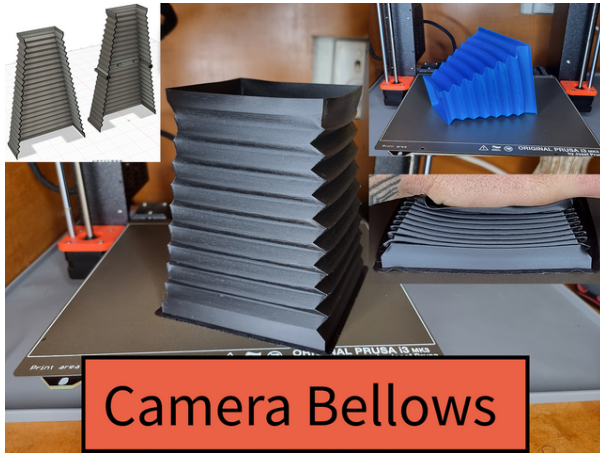




Camera Bellows - Collapsible & Customizable - TPU Vase Mode - F3d Files included



Kiwi Tinkerer

[VIEW IN BROWSER](#)

updated 31. 7. 2022 | published 23. 7. 2022

Summary

Camera Bellows in flexible filament, Collapsible - Vase Mode - angles < 45 degrees - Customizable - F3d Files included



4.37 hrs



1 pcs



0.10 mm



0.40 mm



Flex



23 g



Prusa
MK3/S/S+

[Gadgets](#) > [Photo & Video](#)

Tags: [camera](#) [camerabellows](#) [bellowscustom](#)

[diycamerabellows](#)

[bellowsvasemode](#)

[bellowsvase](#)

Update 30/07/22;

I have Uploaded V3.4, This generates a Single Custom Bellows without throwing any errors.

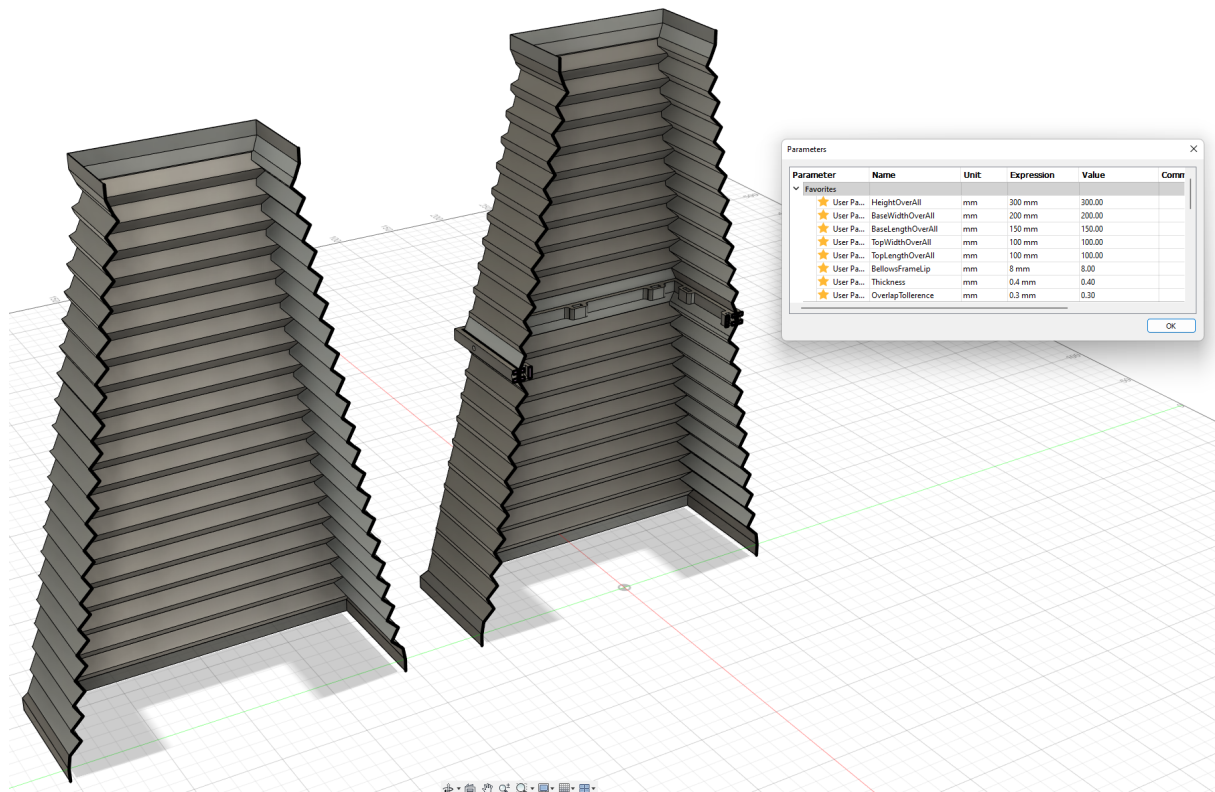
V3.4 also includes an automatic two stage bellows generator. You can now print the bellows in two parts allowing for longer bellows than a single one

would allow on the build height of your printer.

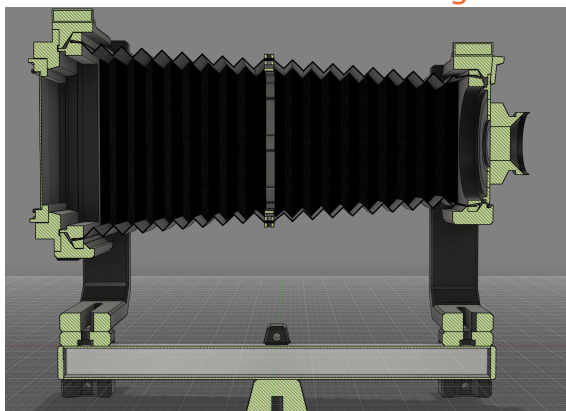
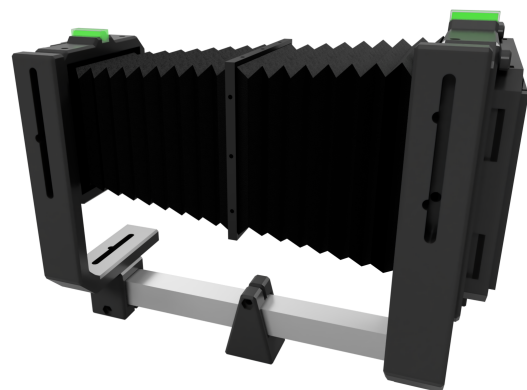
Now the model is generated with 0.8 mm Thick walls. You can print in Vase mode with a

0.8 mm Nozzle, 0.6mm, 0.5 mm or even 0.4 mm if needed OR print Normally with a 0.4 mm Nozzle extruding two perimeters with the Model having 0.6 mm thickness to allow for extrusion Overlap of 25%.

All the Sketches / Planes etc.. are clearly labeled for you to see how it's made.



Here is a perfect example of an end use case, I have added The Multi Part Version to Kaishou's [Vega 4x5 View Camera](#) Find it [here on Printables!](#)



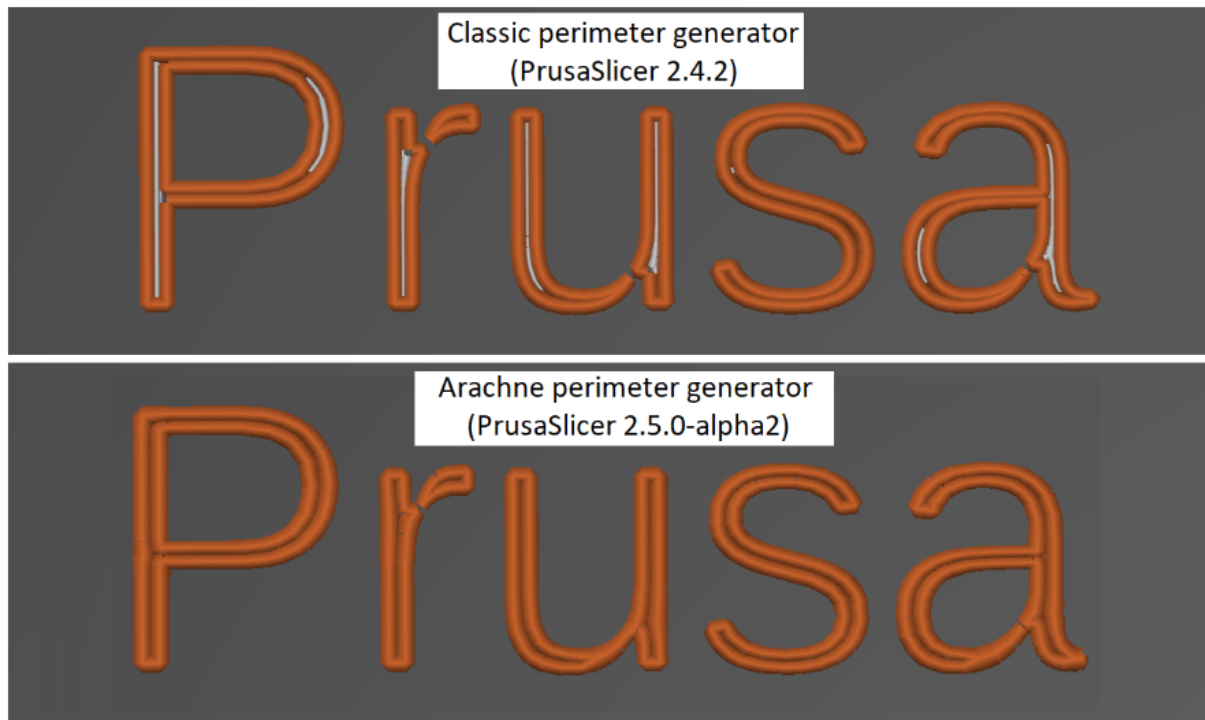
I have Performed a light test by printing the Light test model in Black TPU and 0.8 mm, it has the same thickness as the Bellows. I can Confirm no light leak in the test model (at least to the eye), have a try for yourself. I have also test printed all the connections with the test print models and they have a good tight fit.

If your Bellows are too Stiff (Depends on the hardness of the TPU you have) at 0.8 mm thickness, try printing the Light test model in Vase mode (**0.8 mm Nozzle**, **0.6mm**, **0.5 mm** or even **0.4 mm** if needed) with Black TPU. From my testing all model tolerances should allow it as the 0.8 mm version is nice and tight.

I printed mine with a TPU Shore hardness of 95a

Prints in Vase Mode with the big side on the bed and a 0.1 mm layer height when using a 0.4 mm Nozzle and 0.4 mm layer width. Scale up the settings from there for bigger nozzle sizes. I also recommend printing with a brim(outer and inner).

This Printable really benefits from the **PrusaSlicer 2.5** release, due to the vast improvements in generating perimeters. **Picture Source Reference.**



Showcase and Durability Test;

I must say I am amazed with the layer adhesion of TPU!

How To Customize and Edit My F3d File V3.4

If anything else the .f3d Fusion 360 file will show you how I did it and you could model up your own.

Clearly Labeled Sketches etc. Parameters included.

You'll need to adjust the model using Fusion 360 to fit your camera size specification,

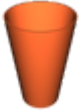
Vase Mode Overhang Printing Tips by Maker's Muse;

I used this to learn how to print this model.

Model files

 **Current** 5 files

**v34-camera-bellows-single-and-multi-partf3d.stl**

**light-test-60x40-mm.stl**

**v34-camera-bellows-single-only.stl**

**v34-camera-bellows-multi.stl**

**v34-camera-bellows-single-and-multi-part.f3d**

 **Example Build - 147.5 x 97 x 286.5 Multi Part** 6 files

**camera-bellows-multi-complete.stl**
☐ DO NOT Print This Specific Model. Assembled For Demonstration Purposes ONLY



bellows-split-top.stl



bellows-split-bottom.stl



outer-bracket-overlap.stl



inner-bracket-overlap-split-1.stl



inner-bracket-overlap-split-2.stl



Example Build - 0.6 mm Testing 0.4 Nozzle Infil Overlap 25% 3 files



bellows-split-top-06mm-thickness.stl



test-flexibility-bellows-06mm.stl



bellows-split-bottom-06mm-thickness.stl



Example Build - 0.8 mm Testing - Bellows Elbows Length x2

3 files



bellows-split-bottom-30mm-elbows.stl

☐ Under Testing.



bellows-split-top-30mm-elbows.stl

☐ Under Testing.



test-flexibility-bellows-split-top-30mm-elbows.stl

☐ Under Testing.



Example Build - Tolerance and Light test prints

9 files



test-fit-bellows-midle-connection-nut-trap.stl

☐ Not for use with the Final Build! For Testing Purposes.



test-fit-bellows-split-top-to-camera.stl

☐ Not for use with the Final Build! For Testing Purposes.



test-fit-bellows-split-bottom.stl

☐ Not for use with the Final Build! For Testing Purposes.



test-fit-bellows-split-top.stl

☐ Not for use with the Final Build! For Testing Purposes.



test-print-camera-bellows-multi-bracket.stl

☐ Not for use with the Final Build! For Testing Purposes.



test-fit-bellows-middle-connection-bellows.stl

☐ Not for use with the Final Build! For Testing Purposes.



light-test-60x40-mm.stl

☐ Not for use with the Final Build! For Testing Purposes.



test-fit-bellows-split-bottom-to-camera.stl

☐ Not for use with the Final Build! For Testing Purposes.



test-flexibility-bellows-08mm.stl

☐ Not for use with the Final Build! For Testing Purposes.



Previous Versions

12 files



v31-camera-bellows-multi-only.stl

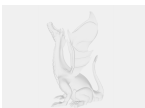
☐ Added split to internal connector frame for better fit



v31-camera-bellows-single-and-multi.stl

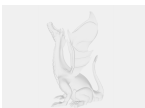


v31-camera-bellows-single-only.stl



v33-camera-bellows-single-and-multi-part.f3d

☐ Added automatic minimalist print fit test models generator for the multi part version.



v3-camera-bellows-single-and-multi-part.f3d

☐ Currently only supports square shapes for base and top.



v3-camera-bellows-multi.stl



v3-camera-bellows-single-and-multi.stl



camera-bellows-v2.stl

☐ Redesigned and Updated for easy Editing



camera-bellows-vas-mode-v2.f3d

☐ Redesigned and Updated for easy Editing



camera-bellows-vase-mode.stl



camera-bellows-vase-mode-profile.3mf



camera-bellows-vas-mode-fusion-360.f3d

☐ Had Two Sides Projected which limited customizing progress had to redesign.

Print files



camera-bellows-vasemode-profile_01mm_flex_mk3s_.gcode

 Flex  0.40 mm  0.10 mm  4.37 hrs  23 g  Prusa MK3/S/S+

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