



Parametric Hinged Box - Onshape - Pencil Box



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updated 25. 7. 2024 | published 25. 7. 2024

Summary

An Onshape Parametric box with top.

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My wife wanted a box which had top flaps for her pencils, so that she could easily get to the pencils inside. While many very good pencil storage solutions exist, she wanted it to have a lid to avoid dust.

I've produced this as an Onshape parametric design, which is relatively adjustable.

The design includes 3d printed hinge pins, this will need to be scaled a little (~97%) if you do want to print them, however I recommend that you purchase metal dowels instead, they provide much smoother opening and are less likely to get stuck. The default parameters are for a 40mm x 5mm dowel.

The front of the case is designed not to have any openings for the hinge pins. This means that the distance between the two hinges must be at most $0.5 \times \text{dowel length}$. Otherwise you wouldn't be able to get the dowel in.

2mm thickness makes a box which feels "OK" in terms of solidness, it won't fall apart when used, but will flex for larger boxes. This should be configurable.

A divider is intended to be printed as a separate part which friction fits. You may wish to fillet the divider for increased strength, I don't see a great way of doing this automatically.

Tolerances. For smaller designs, the tolerances were good and the box closes nicely. The larger build means small errors are magnified, I had to do a little sanding around the top edges for the leaves to close well.

The STLs are 250h x 120w x 200h. This was my final print, and took about 11 hours of printing with efficient multicolour with a Bambu P1S. PLA worked well.

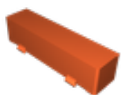
The expectation is that you'll probably need to adjust the dimensions via Onshape. I'd appreciate if you could download the sample files and leave makes if you do use the templates.

<https://cad.onshape.com/documents/b9670ce1f534bebf11b6206f/w/0f7ae8893282791757e01639/e/ff199ae134240dc050943e3c?renderMode=0&uiState=66a2af2da3fc406434226359>

Model files



box-base.stl



box-leftflap.stl



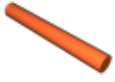
box-rightflap.stl



box-divider.stl



box-pincover.stl



box-pin.stl

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