

Parametric Rack for small bottles

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Summary

Fully parametric Rack for small Bottles This is my very first openscad project, so don't expect beautiful code ;-) I...

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Tags: [bottle](#) [parametric](#) [rack](#) [openscad](#) [vapingaccessories](#)
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Fully parametric Rack for small Bottles

This is my very first openscad project, so don't expect beautiful code ;-) I guess it could be optimized, because it takes some time to render, more than I would expect for such a simple shape.

I am a Vaper and I like to mix my own liquids, so there are a ton of small flavor bottles which need to be stored somewhere, preferably in an air-tight plastic box. So I designed this parametric bottle rack to keep every bottle at its place.

The rack is heavily customizable. You can change about anything but the number of bottles. The approach is to set the desired width and length of the rack and the diameter of a bottle (add a bit for tolerance) and then the maximum possible amount of bottle slots is computed and they are spread evenly across the plate.

Ground plate and upper plate are connected by pillars. You can choose the amount of them (2,4,6,8) and the offset to avoid the placement in a bottle hole. The depth of the bottle holes can also be changed as well as the depth of the pillar holes in the upper plate. You can either glue the upper plate to the pillars, or if you don't make the pillar holes too small, it is enough to just clip the pillars in the holes of the upper plate.

Layer height does not matter, I printed fine with 0.3 mm PLA. Don't print the whole rack at once, or you will need a hell of a lot of support! Print the upper plate with the pillar holes facing up.

Parameters:

- Length and Width of the plates, Height of the rack
- Individual Thickness for lower and upper plate
- Diameter of Bottles
- Minimal Gap between bottle slots
- Depth of Bottle slots in the ground plate
- Number of Pillars to connect upper plate with lower plate
- Diameter of pillars
- Depth of pillar holes in the upper plate
- X and Y Offset for pillar positions to avoid placing pillars in bottle holes
- Height of stacking pillars
- Handle Height and Diameter

****Updates: ******

Stacking!

If you enable "Stack mode", the lower plate will have pillar holes on the under side and the upper Plate respectively on the upper side. Be sure to set the Thicknesses of the upper plate bigger than two times the pillar penetration depth!

You can then print a set of pillars (choose "Pillars only") to clip or glue in and build the stack. Depending on the pillar diameter, you will have to enable supports on build plate when printing the plates.

The height of the pillars for stacking can (and probably should) be set to a different value than the rack height. You should print the stacking pillars all together, standing on the build plate, interconnected by a brim!

So to build a stack of two racks, you would print a set of lower and upper plates in normal mode, another set in stacking mode and a set of stacking pillars.

Update: Handles

New option to print the upper part with four simple handles attached, at the four corners. The handles are composed of a small sphere sitting on a

cylinder. Diameter of the cylinder and height of the handles are parametric.

Other changes:

Rearrangement of and reasonable ranges and defaults for parameters

If you like the rack or have any feedback, please leave a comment!

Print Settings

Printer Brand:

Prusa

Printer:

I3 MK3S

Rafts:

No

Supports:

No

Resolution:

doesn't matter

Infill:

10

Filament:

PLA or PETG

How I Designed This:

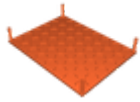
The first attempts and model I did in Tinkercad, to get an idea of the design and to be sure that it works. After having successfully printed one rack, I soon got tired of adjusting the model to different box sizes, so I needed everything to be parametric.

Category: Other

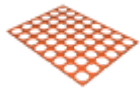
Model files



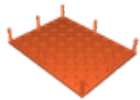
bottlerack.scad



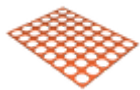
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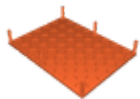
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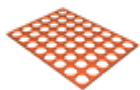
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upperpart_15x20x034cm_2175mmbottle_6pillars.stl



stackinglowerpart_15x20x034cm_2175mmbottle_4pilla.stl



stackingupperpart_15x20x034cm_2175mmbottle_4pilla.stl



stackingpillars.stl

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