Hexagonal One-Hand Bottle Opener (Updated!)
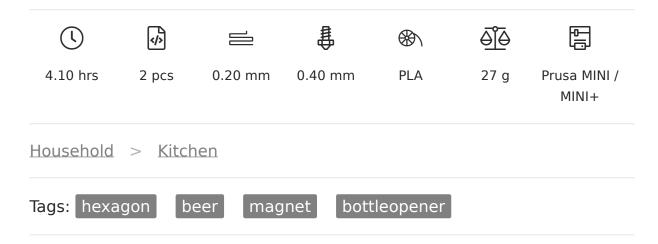
quattro

VIEW IN BROWSER

updated 9. 8. 2023 | published 9. 8. 2023

Summary

Even more improved Version of the classic design. Now Coinless and with Hexagons for all slicers out there.

4.10 hrs	2 pcs	0.20 mm	0.40 mm	PLA	27 g	Prusa MINI / MINI+

Household > Kitchen

Tags: hexagon   beer   magnet   bottleopener

Another one-handed bottle opener? Yes, but wait, there's **more** to it!

Update June 2023

I got several reports from people that their print broke. Also not every slicer has the hexagon infill. This was bothering and I was searching for a way to fix this. After my thoroughly tested prototype broke (I had left it in the bright sun, it heated up and got soft and broke as I tried to use it in that state) I knew it was time to do another all nighter.

So, here are the results:

No more coins! The coins, large as they are, present a huge lever to the force transferred to the cap. Instead I created a mechanical interface to the cap and the bottle that grabs the cap on a large area. Time will tell how well this holds up to the attrition caused my the metal.

Built in hexagons! Sorry to all Cura (and other slicers that don't have this type of infill) users for keeping you waiting. Getting those hexagons in there was not easy. There is no "insert pattern" type of function in any of the CAD programs I use.

I read the comments and included alternative versions for different sized magnets that people said they used.

- 10x2mm
- 8x3mm
- 6x2.5mm

Printing

Nothing special. Perhaps use some more perimeters. 4-6 depending on your nozzle, layer height and printer. For good measure there should not be any infill in the hull. It may just work at standard settings. I have to try this.

If you want to add some custom text, just use the 3mf file for Prusa Slicer and edit the text to your needs.

Assembly

Just pop in a fitting magnet1, perhaps add some CA glue if the fit is too loose.

Source / CAD

OnShape Link

If anyone knows a better way to do the honeycomb pattern, please let me know down in the comments!

Original Text

I left the original text below and the models in for you to play around.

History

The original design over at thingiverse was one of the first models I printed with my MINI. And it failed after I opened a couple of bottles. Because of that I decided to **improve the design**, make it more rigid where it counts. It worked ever since. I also made the hole for the magnet bigger so those I already had would fit.

New Design

Then comes along this contest. And less than 24h before the end I had an idea to make the design not only working better but also cooler. My aim was to make it at least 20% cooler.

My solution: **hexagons**! Everyone loves hexagons, right?

So, here's what I did: I made a CAD model from scratch to match the dimensions at the key points and use bezier curves to create a design that could distribute the stress well in order for it to not break after a few opened bottles even if fine motor skills are gone after a **couple of beers**.

I left the hexagon part to **Prusa Slicer** as this created exactly what I was aiming for. All the insides of the shells are visible, showing the bulge created by the cutout for the magnet and so on.

Preparations

So, if you are not using the provided 3mf files for **Prusa Slicer** use these settings in your Slicer of choice:

- 0 Top and bottom shells
- Hexagonal / Honeycomb infill with about 15%
- 5 perimeters (they bear all the load)
- Paint on some supports for the little hole

My design is for the **One Euro Cent** coin but I have also included a version for the **U.S. Dime**.

The 3mf files use the Euro version but you can swap the STL out for the Dime version to get your desired combination.

You will need a 10x2mm **Magnet** for this. The magnet ensures tha cap does not fall to the floor. Please dispose of it responsibly.

If you want to use other coins or different sized magnets you can alter the design in Onshape using this link: One-Handed Bottle Opener on Onshape. There is a variables tab where you can set the dimensions of the coin and the magnet.

There are 3 3mf files:

- 15% infill hexagons
- 15% infill hexagons with reinforced (100% infill) coin holder
- 20% infill hexagons

Printing

I have only used PLA so far but it should work with most materials.

Assembly

Glue the coin and the magnet in their positions.

Gluing the coin into place **is very important** especially for the 15% infill version as this is the weakest (but also the coolest) one. The glue helps to transfer some of the force to the upper side and also keeps the structure intact. I saw some people complaining about early breakage in the reviews and from the pictures it seems that the coin was not glued into the slot.

More Bottle Openers

If you like unconventional bottle openers, check out this award winning design: https://www.printables.com/model/137030-overengineered-bottle-opener-and-cap-thrower-oboct

[1] Note: some links in this text are "affiliate links", that means, if you follow them and then purchase something, I may get a few coins from that. That does not affect your purchase in any way.
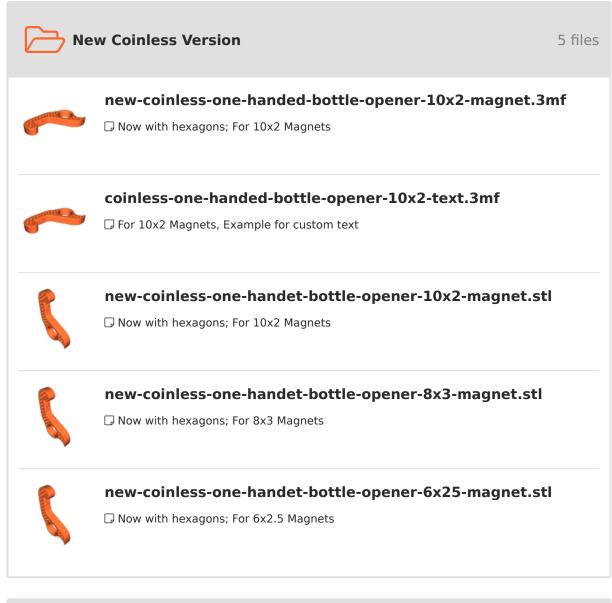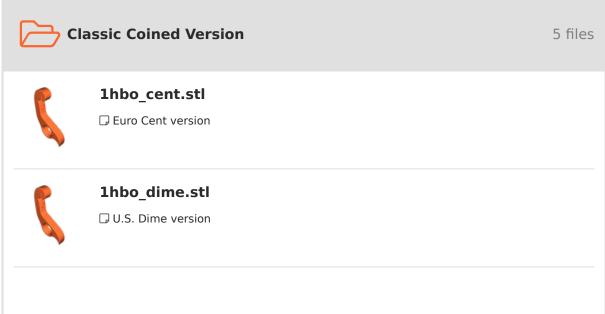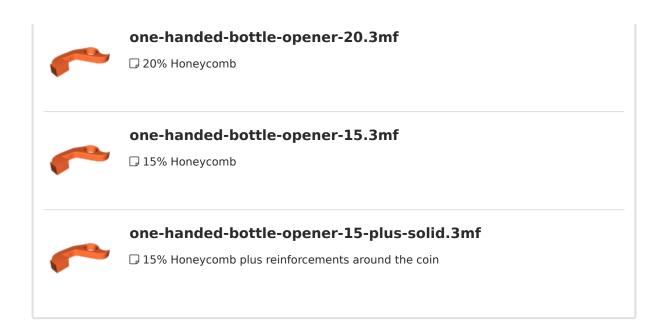
This remix is based on

Smart One Handed Bottle Opener

by Kart5a

Model files

New Coinless Version 　　5 files

new-coinless-one-handed-bottle-opener-10x2-magnet.3mf
Now with hexagons; For 10x2 Magnets

coinless-one-handed-bottle-opener-10x2-text.3mf
For 10x2 Magnets, Example for custom text

new-coinless-one-handet-bottle-opener-10x2-magnet.stl
Now with hexagons; For 10x2 Magnets

new-coinless-one-handet-bottle-opener-8x3-magnet.stl
Now with hexagons; For 8x3 Magnets

new-coinless-one-handet-bottle-opener-6x25-magnet.stl
Now with hexagons; For 6x2.5 Magnets

Classic Coined Version 　　5 files

1hbo_cent.stl
Euro Cent version

1hbo_dime.stl
U.S. Dime version

one-handed-bottle-opener-20.3mf

🗋 20% Honeycomb

one-handed-bottle-opener-15.3mf

🗋 15% Honeycomb

one-handed-bottle-opener-15-plus-solid.3mf

🗋 15% Honeycomb plus reinforcements around the coin

Print files

coinless-one-handed-bottle-opener-10x2_02mm_pla_min… .gcode

⚙ PLA ⬇ 0.40 mm ≣ 0.20 mm ⏱ 4.10 hrs ⚖ 27 g 🖫 Prusa MINI / MINI+

coined-one-handed-bottle-opener-15_02mm_pla_mini_1h… .gcode

⚙ PLA ⬇ 0.40 mm ≣ 0.20 mm ⏱ 1.73 hrs ⚖ 21 g 🖫 Prusa MINI / MINI+

🗋 Sample Printfile for 15% Honeycomb Euro Cent

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