Gridfinity Storage Box by Pred (now parametric)

Pred

VIEW IN BROWSER

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Summary

Parametric (almost) fully printed storage box for Gridfinity bins. Organize your organizers!

Hobby & Makers > Organizers

Tags: parametric fusion360 stackable storagebox storagecontainer gridfinity

IMPORTANT!

The hinges for the original model and the new parametric one are not compatible due to the hardware used for the screw-hinge in the parametric version. The new hinge is wider. I uploaded a smaller version for the original model, which uses an M3x25 bolt, the new one uses M3x30.

IMPORTANT

The new and the old models are not stackable to each other (people reported, there are differences in dimensions). I don't know from where those differences are coming from, the two models in Fusion are seemingly identical. Since the old model

was printed by several people already I decided to not change/ fix it.

Prusa Mini version: https://www.printables.com/model/556604-gridfinity-storage-box-by-pred-for-prusamini

Forethought

The original model got so much love from you guys, I am overwhelmed and very thankful! I would like to thank you all! Now, after some life events and a broken thermistor cable and bricked laptop (salvaged ;)), I finally managed to finish the first version of the parametric model.

Please keep in mind that this is my very first (complex and serious) parametric model, if you are a Fusion360 or other CAD/CAM pro, but please be fair. I am a still learning and happy to get any constructive criticism and feedback!

Now PARAMETRIC

Find the f3d file in the common folder below.

I did some changes compared to the original model.

- It is now parametric with bunch of options
- The base lost some weight and now can accept 6x2 magnets (if that is your thing)
- It got a front handle (optional) *
- Redesigned label holder
- Option for a hinge with an M3x30 screw

I don't like the handle, but that was a commonly requested feature. It for sure change or might even be removed in the next iteration. Also it steals a lot of space from the label, so it got smaller.

What can you change?

Dimensions

Of course the dimensions (number of bins in X and Y and height in Gridfinity units)

- X is limited to minimum 4 bins (the label and handle are barely usable in this size)
- Y is limited to minimum 3 bins
- Z is limited to minimum 6 units

Lower values will break the model!

Hinge size

You can now change how long the hinge is and also the Y position from the back of the box and the size of the axel. The wider the hinge axel the stronger it is, but also gets harder and harder to print without support.

The options are limited for the screw hinge!

Label size

Within reason :) For smaller boxes, this does not add much, but for bigger ones there is some room for customization.

Whats next?

I don't know :) I have some ideas, but none of them are 100% clear at the moment. Smaller fixes will come based on your feedback for sure.

Since I don't really like the handle, that might go away at some point and will be replaced with something else.

I don't know how the base works in bigger sizes, there is a fairly long straight wall at the back, which might cause some issues, that hopefully can be mitigated in later versions, but I don't have bigger printers, so can't really test.

Most complaints were related to the hinge and the latches. I did not really change those now, but have some ideas what I would like to try at some point.

What I really would like to add is a smaller version which fits on the Mini (practically 3x3), but to do that, some features will need to go, it might only be a set of 3MF files.

Description (original model)

Let me introduce you the newest and shiniest iteration of Gridfinity storage box.

A 5x4 Gridfinity baseplate hidden in a 230 x 188 x 55mm box (Z+1.5mm stacking tab on top), secured by a grid of Gridfinity container bottom profiles in the lid, complete with a label holder.

The boxes are stackable and also can be secured to eachother by the catches.

To use it as a standalone box, you'll need 2 catches (on the front), to fully stack and secure multiple boxes together, I recommend 6 catches in total,

but optionally can be used with only 4 (however just for the looks, I prefer to have 6).

All parts are fully printed, no need to use any bolts and nuts.

Inspired by the Gridfinity Project Case and Rugged Box (Parametric) and several other commercially available boxes, like Makita's MakPac and Festool Systainer.

Print instructions

I printed all parts in (Prusament) PETG using a 0.4mm nozzle and 2 walls and strongly recommend PETG.

You can increase the wall thickness if you want, in exchange of more material usage and slightly longer print time. The Base, lid and the hinge can benefit from the more thicker walls.

Base

- Recommended profile: 0.3mm DRAFT
- I recommend adding supports to the bottom of the locking tabs and the label catch*. (~2m filament) (* only in the original model)
- Place it right side up

Lid

- Recommended profile: 0.3mm DRAFT
- I recommend adding supports to the hinge slot for the long bridging
- Place it right side up

Hinge (printed)

- Recommended profile: 0.2mm QUALITY
- Should print fine without supports but if it fuses completely, add supports to the bottom of the cylinders.
- Place it standing on the bed

Hinge (screw)

- You can print it the same way the printed version (bolt head part facing down), or print the two parts separately and use appropriate support for cleaner result.
- You'll need an M3x30 bolt and an M3 nut per hinge.

Latch

- Recommended profile: 0.2mm QUALITY
- Supports might be needed on the bottom of the tabs on the side
- Place it flat face down

Label

- Recommended profile: 0.2mm QUALITY
- Place it flat face down
- You can add text or other modifiers in the slicer or edit the model in your choice of mesh massager
- Keep a 2-3mm border untouched on the face around the perimeter

Handle (optional)

- Parametric only
- Print flat
- No supports needed (the filet might be ugly on one side, but that does not affect functionality if printed on a reasonably calibrated printer)
- You'll need 2 pieces of M3x14-16 bolts, no nut, screws into the plastic

Bins inside

- Those are stackable 6U high Gridfinity bins, use recommended settings of your choice of bins
- See the Gridfinity section below.

BOM (to print):

Print time is based on the MK4 0.4mm nozzle profile in the latest PrusaSlicer

Filament requirement is based on the same machine profile and on the default Prusament PETG 0.2mm QUALITY and 0.3mm DRAFT filament profiles with organic supports enabled.

The below stands only for the 5x4 original model, times and material usage for the parametric versions vary.

File	Pieces needed	Filament (1 piece)	Print time	
Base	1	81.59m	249.22g	11h 31m
Lid	1	48.34m	147.65g	6h 33m
Latch	2-6	1.06m	3.22g	18m

File	Pieces needed	Filament (1 piece)	Print time	
Label	1	1.15m	3.50g	14m
Hinge	2	0.68m	2.07g	25m

Assembly

1. Slide in the catches into the rails on the sides and the front of the base
2. Insert the 2 hinges into the holes on the back of the base
3. Carefully align the free ends of the hinges and secure the lid
4. Insert the label into the slot
5. Close the catches on the front
6. Optionally use 2 pieces of M3x14-16 bolts to secure the handle. The bolts screw into the plastic.

The tolerances are a bit tight for the catches, you might need to file off a bit of material from the tabs on the sides of the catches if they prove to be too hard to close. They should close without noticeably deforming the base or the lid while properly securing the lid and/or the box on top.

Notes

The model at the moment is not parametric and honestly is a huge mess. I plan to clean it up and make it parametric, but that will take some time. I plan to share it once it is in a shape I am happy to show to others.

Gridfinity

Zach Freedman laid the bases of this organization system and shared as is an open source project. To print the containers inside (or similar ones), search for “Gridfinity bins” or similar on almost any model sharing site.

In order to lock the bins with the lid in place (and prevent the items in the bins spilling out), fill the full height in each place you use. The lid accommodates for the stacking lip, which adds 4.4mm to the bin's height on top of the 42mm.

Gridfinity website: https://gridfinity.xyz

Updates

2023-08-05	STEP files added

2023-08-07	Added Gridfinity section to description Added a stronger hinge (Hinge_4mm), which has a wider inner axel (thus the whole axel is wider and can be printed with more walls (or infill 100%) for added strength.
2023-08-08	Removed the stronger hinge temporarily due to clearance issues. To make it work the base and lid also needs to be modified, thus it will be only available in the parametric fusion file later.
2023-08-17	The first public version of the parametric model (Parametric V1 folders) added with pre-generated 3mf models for some sizes
2023-08-20	Slight changes for the latch which makes it easier to open and close, also closes a bit more securely (use the 3MF file from the common files folder, the F3D will be updated later)

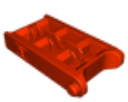
Model files

Parametric V1 - Common Files and F3D 12 files

gridfinitystoragebox_parametric_v1.f3d

gridfinitystoragebox_hinge.3mf

gridfinitystoragebox_screwhinge_m3x30.3mf



gridfinitystoragebox_latch.3mf

gridfinitystoragebox_4xy_handle.3mf

gridfinitystoragebox_5xy_handle.3mf

gridfinitystoragebox_6xy_handle.3mf

gridfinitystoragebox_7xy_handle.3mf

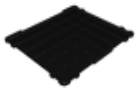
gridfinitystoragebox_4xy_label.3mf

gridfinitystoragebox_5xy_label.3mf

gridfinitystoragebox_6xy_label.3mf

gridfinitystoragebox_7xy_label.3mf

Parametric V1 - 7x6 3 files



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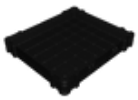
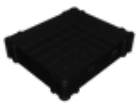


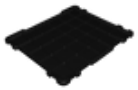
gridfinitystoragebox_7x6x6u_base.3mf



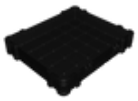
gridfinitystoragebox_7x6x9u_base.3mf

Parametric V1 - 6x5

3 files



gridfinitystoragebox_6x5_lid.3mf



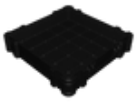
gridfinitystoragebox_6x5x6u_base.3mf

gridfinitystoragebox_6x5x9u_base.3mf

Parametric V1 - 5x5

3 files

gridfinitystoragebox_5x5_lid.3mf



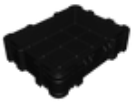
gridfinitystoragebox_5x5x6u_base.3mf

gridfinitystoragebox_5x5x9u_base.3mf

Parametric V1 - 4x3

3 files

gridfinitystoragebox_4x3_lid.3mf



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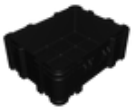
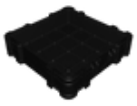


gridfinitystoragebox_4x3x9u_base.3mf

Parametric V1 - 4x4

3 files

gridfinitystoragebox_4x4x6u_lid.3mf



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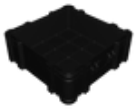
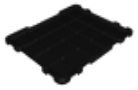


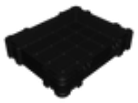
gridfinitystoragebox_4x4x9u_base.3mf

Parametric V1 - 5x4

3 files



gridfinitystoragebox_5x4x6u_lid.3mf



gridfinitystoragebox_5x4x6u_base.3mf

gridfinitystoragebox_5x4x9u_base.3mf

Original Design

11 files

label.3mf

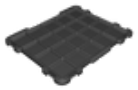
☐ Print flat on the bed and add text/graphics as needed. Leave a 3-5mm border on the side empty

catch.3mf

☐ Print with the flat side flat on the bed and you might need to add supports to tabs on the side

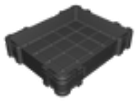
hinge.3mf

☐ Print-in-place by print standing on the bed



lid.3mf

☐ Print as is, you might need to add supports to the bridges on the back (where the hinge goes)



base.3mf

☐ Print as is, you might need to add supports to the bottom of the locking tabs and label catch

label.step

catch.step

hinge.step

lid.step

base.step

hinge_m3x25.3mf

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