Instructions

MK2 Skateboard

1.0.1

*megalog_*

Introduction - Important

The Skateboard MK2 is an **experimental** project, I will continue to optimize things over time. In the following instructions I will share with you my approach and recommendations for building the skateboard. However, the board may not work for you, 3d printing is a complex process, depending on the material you use, the construction of the skateboard, the setting you make in the slicer and also your weight and many other factors.

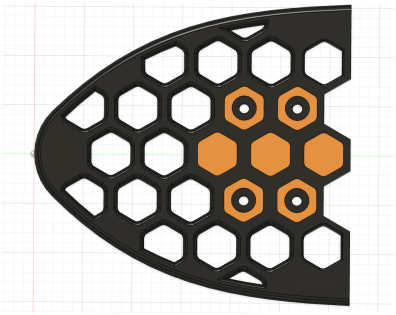
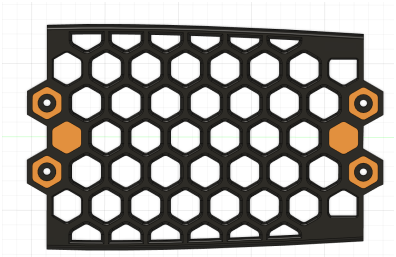
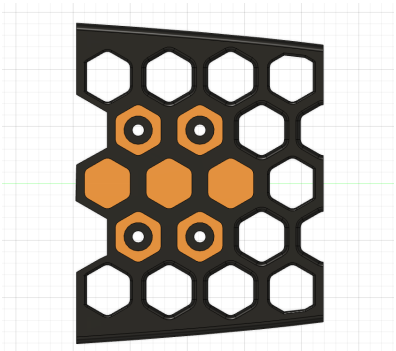
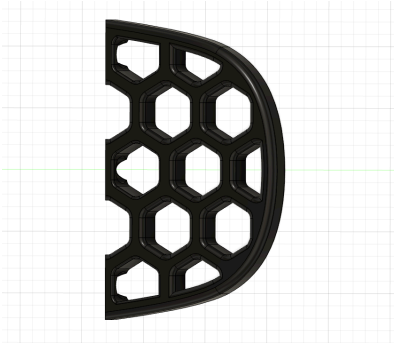
But of course I hope that it works and I will try to help you as much as possible with these instructions. If you have any problems, please write me a comment or a direct message on Printables.

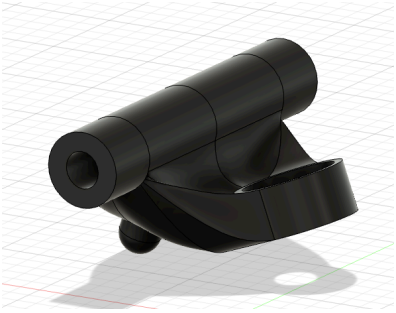
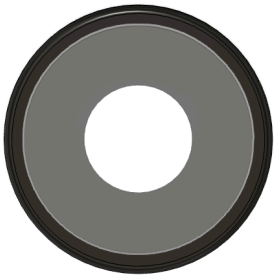
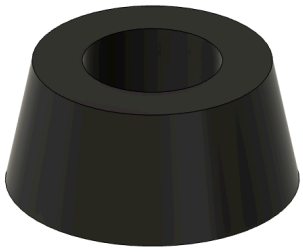
For parts are uploaded 3mf file, they also get all settings for PrusaSlicer (should work in other slicers too). Below you will find a table with all slicer settings, please check them with the 3mf files. The slicer settings are my recommendation, you can use yours if you have other ideas.

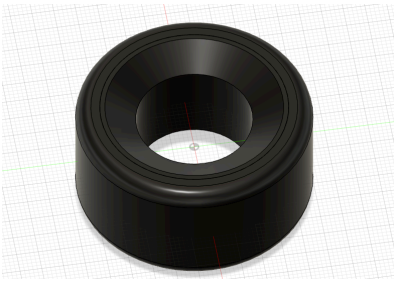
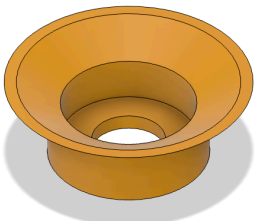
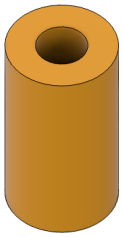
If you want to change parts, I have uploaded .step files. If you want to upload your change as a remix, please respect my license.

3d print settings

General information: I used a hardened steel nozzle with a diameter of 0.6mm for all parts. It can be printed on any printer with the dimensions 250mm x 160mm, a housing is not required. The orientation of the parts in the 3mf files is correct.
For the board I used Pursament PETG CF to make the board as rigid as possible, PETG had bent too much in the first version. However, I wanted to use a material that could be easily printed without a housing. Idea: If you weigh significantly more than me (75kg), I think it makes sense to use a stiffer material like PCCF, but I would recommend a case for your printers. If you have any other ideas let me know.

	**Part: Board Part 1 - Front** layer height 0.32mm structural; Gyroid Infill 80%; perimeter 3; top 6, **bottom 5** (I think more is better); custom support For multi-color 3d printing (orange in my case) I used PETG, all parts that are orange are marked with O, all others are made of PETG CF (black). If you don't want to use any other color, set everything in PETG CF.
	**Part: Board Part 2** layer height 0.32mm structural; Gyroid Infill 80%; perimeter 3; top 8, **bottom 12** ; custom support same multi-color settings as in part 1
	**Part: Board Part 3** layer height 0.32mm structural; Gyroid Infill 80%; perimeter 3; top 6, bottom 5 (I think more is better); custom support same multi-color settings as in part 1
	**Part: Board Part 2** layer height 0.32mm structural; Gyroid Infill 80%; perimeter 3; top 6, bottom 5 or more
The parts of the skateboard trucks are made of Pursament PCCF, which makes it possible to produce small, very stable parts without a housing.	

	Part: truck base MK2 0.15mm layer height structural, 50 % **Grid**, 4 Perimeter, Support needed > print it twice
	**Part: skateboard linear shaft suspension MK2** 0.15mm layer height structural, 50 % Gyroid, 4 Perimeter, Support needed (Tree Support, Z distance 0.35 mm) Attention, the hole for the linear shaft does not need a support. > print it twice
	**File: washers for bushings** 0.2mm layer height structural, 80 % Grid, 2 Perimeter > there are two different parts that you need twice, they are in the 3mf file.
	Part: clamping rings MK2 0.2mm layer height structural, 10% Gyroid, 2 Perimeter > print it four times
The rubbers and the rollers are made of Recreus SEBS (90A) TPE/TPU like material, it must be printed very slowly. I would advise non-experienced users to use a **different material**. If the material has a different shore hardness, the infill density must be **adjusted.**	
	**File: bushings 1/2** 0.2 Layer height Structural, **40%** Gyroid Infill > on the picture is only 1 in the 3mf file are both, print the file twice

	Part: pivot bushings 0.2 Layer height Structural, **30%** Gyroid Infill > print it twice
	**Part: Roll MK2** **>the rolls consist of two parts (in the file).** 0.2 Layer height Structural, outer part: 18% Gyroid Infill, inner part: 30% Gyroid Infill, Support needed print it four times
I have used **Prusament PETG** for these parts in order to achieve design purposes or because these parts do not have to withstand much.	
	**Part: ball bearing holder** 0.15 Layer height Structural, 80% Grid Infill >it is **important** that you only print one at a time, at least 0.15 layer height or less and do not print fast
	**Part: inserting tool** 0.15 Layer height Structural, 40% Grid Infill
	Part: Tool 1 (for nuts M5) Material: PETG or PETG CF layer height 0.32mm structural; Gyroid Infill 80%; perimeter 3

Parts required:

- all printed parts

quantity	type	standard	dimensions
12	screws	ISO 7380-2	M5 x 25 mm

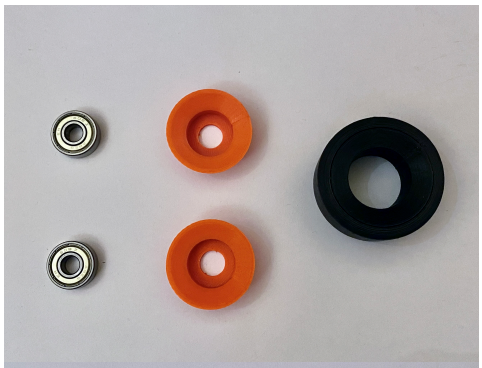
12	self-locking nuts	DIN 985 (ISO 10511)	M5
13	screws	ISO 7380-2	M5 x 16 mm
13	nuts	DIN 934 (ISO 4032)	M5
25	washers	DIN 125 A (ISO 7089)	M5 (5,3mm)
4	screws	DIN 912 (ISO 4762)	M3 x 16 mm
4	nuts	DIN 934 (ISO 4032)	M3
2	screws	DIN 912 (ISO 4762)	M10 x 50mm
2	self-locking nuts	DIN 985 (ISO 10511)	M10
8	ball bearing	608zz	8mm (608zz)
2	linear shaft	/	8 mm x 150mm

required tool	**what worked for me**
Hexagonal **ball-head** screwdriver 3.0 mm x 60 mm	Wera 2052 Ball end hexagon screwdriver for electronic applications - 05118096001
Hexagonal **ball-head** screwdriver 2.5 mm	Wera 2052 Ball end hexagon screwdriver for electronic applications - 05118094001 or the one from your printer
open-end spanner (8mm)	Wera 6004 Joker XS Self-setting spanner
open-end spanner (17mm)	any one
allen key (8mm)	any one
perhaps a small, thin pair of pliers	from Prusa or printed Tool 1 (for nuts M5)

- only the tools I have used are certainly any other
- are not affiliate links from me

Assembly:

As an aid to the instructions, the 3d view for reference.



1. Roll

you need for step 1. :
- the printed roll
- two ball bearing holders
- two ball bearings

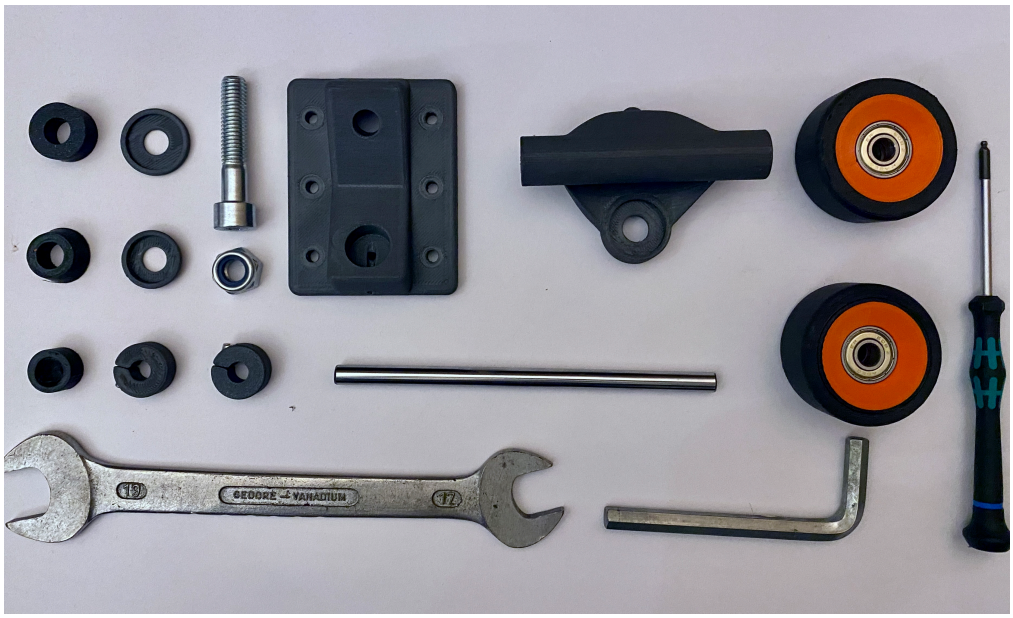
1.1

- insert the ball bearing into the holder
- repeat this for the second holder

1.2

- set the ball bearing holders
- into the roller

> Repeat step 1 for all 4 rollers



2. truck

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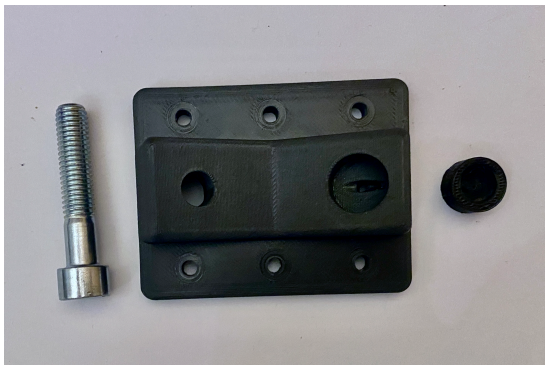
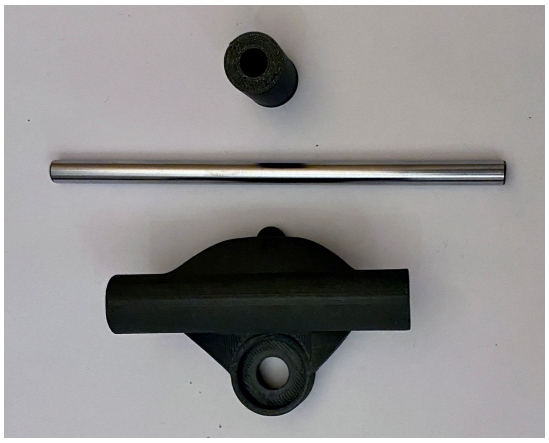
you need for step 2. :

- 2 roller, linear shaft
- skateboard linear shaft suspension & truck base
- pivot bushings, bushings 1/2 & 4 washers for bushings
- M10 x 50m bolt and M10 nut
- 2 clamping rings, 2 M3x16mm screws, 2 M3 nuts
- Tools: Open-end spanner (17mm), Allen key (8mm), hexagonal ball-head screwdriver 2.5



2.1

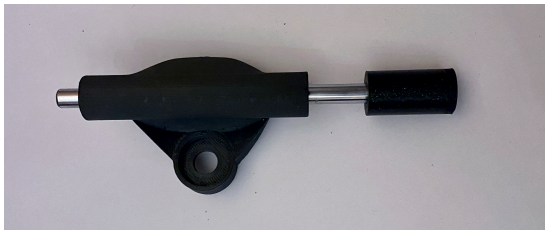
- you need the truck base
- insert the M10 screw into the small hole on the left make sure that it is in correctly at the bottom
- the pivot bushings on the right (with a 2-3mm Allen key you can push the pivot bushings out again if necessary)



2.2

you need now:

- inserting tool (top)
- linear shaft
- skateboard linear shaft suspension (bottom)



2.3

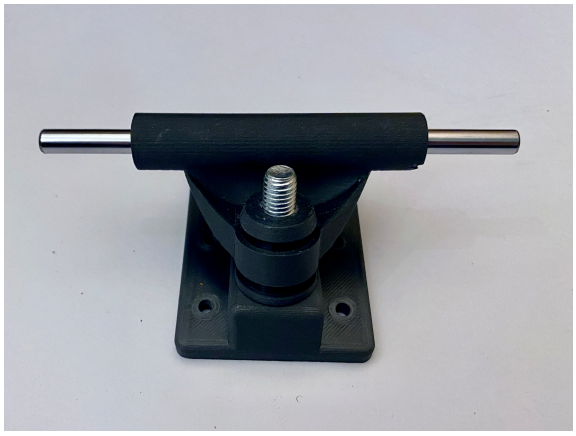
- insert the linear shaft into the suspension, use the insertion tool to centre the shaft

2.4

- you now need the cylindrical bushings and their washer
- first put the washer on the screw, then the bushings

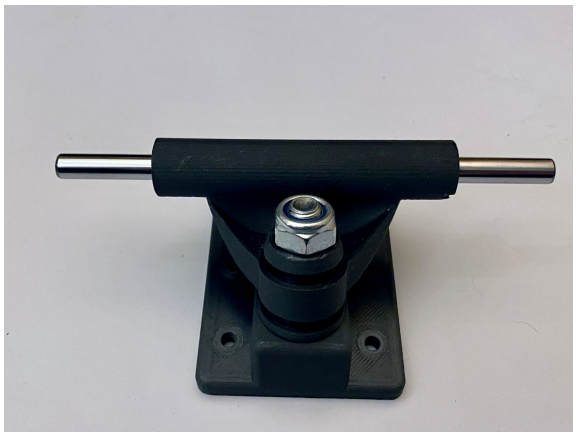
2.5

- now place the suspension on the base, as shown in the picture



2.6

- now place the bushings on the M10 screw on the smaller washer > make sure everything is seated correctly



2.7

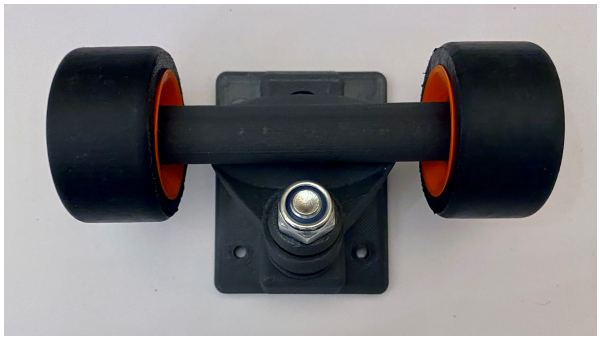
- place the M10 nut on the bolt using the 17 mm open-end spanner and hold the bolt in place using the 8 mm allen key
- do not over tighten the nut

2.8

- now insert the M3 nut into the square recess in the clamping rings
- tighten lightly with the M3 x 16mm screw
- repeat this with the second

2.9

- place the roller on the linear shaft, push the clamping ring onto it
- tighten the m3 screw so that the roller is securely in place
- repeat that on the other side



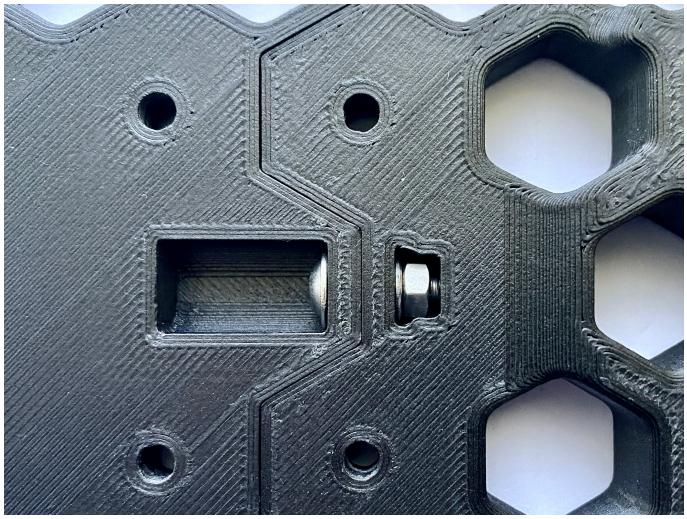
2.9.1

- repeat this for the second axis

3.0

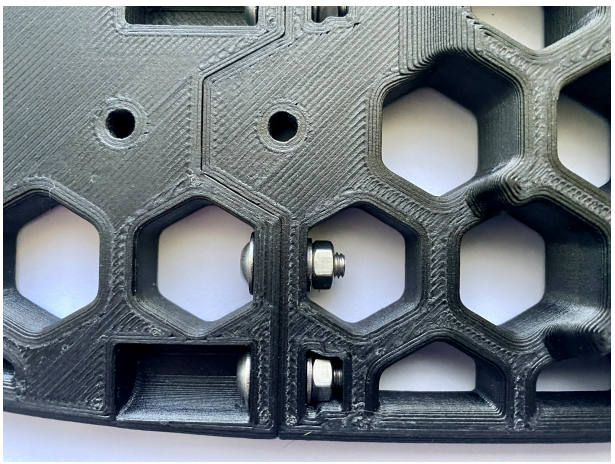
for step 3 we need :

- the 4 skateboard parts
- 13 screws ISO 7380-2 M5 x 16 mm
- 13 nuts DIN 934 (ISO 4033) M5
- 13 washers DIN 125 A (ISO 7089) M5 (5.3mm)
- Tools: Hexagonal ball-head screwdriver 3.0 mm x 60 mm, Tool 1 (for nuts M5) or thin pair of pliers



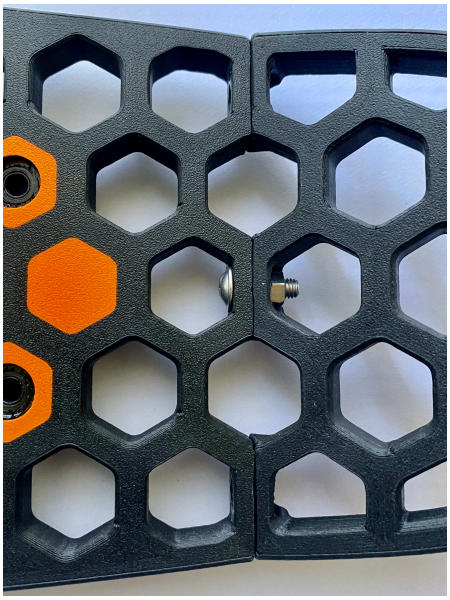
3.1

- take the board part 1 & 2 and place it in front of you with the underside facing upwards
- put the parts together
- there are 5 screws connecting the front of the board, first we connect the one in the middle
- insert a washer and a nut into the small hole (right)
- on the left an M5 x16 mm screw
- do the same for the two screws on the outside



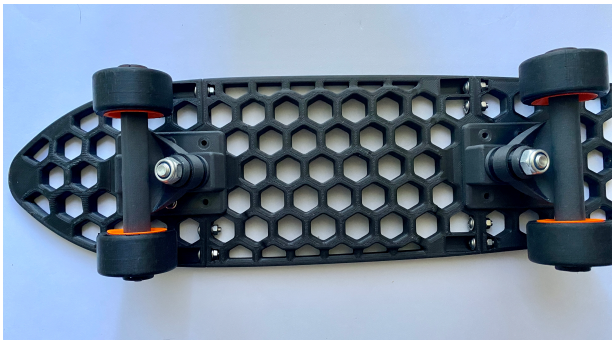
3.2

- Now we connect the last two screws
- insert the screw into the hole (the direction does not matter)
- put on a washer and a nut
- **repeat steps 3.1 and 3.2 for the connection between parts 2 and 3**



3.3

- now we connect parts 3 and 4
- insert the M5x16 screw from the left through the center hole
- put on a washer and a nut from the right
- repeat this for the other screws

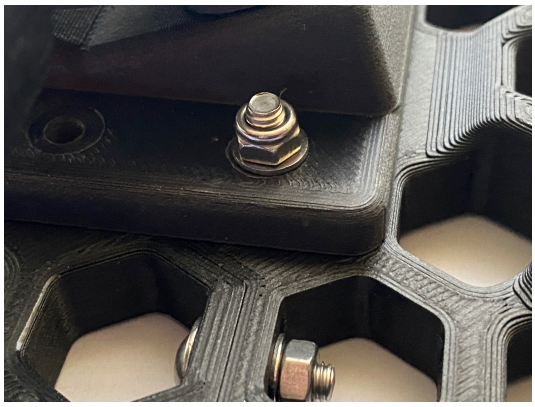


4.0

- now we need the two finished trucks
- the board
- 13 screws ISO 7380-2 M5 x 16 mm
- 13 self-locking nuts DIN 934 (ISO 4033) M5
- 13 washers DIN 125 A (ISO 7089) M5 (5.3mm)
- Tools: Hexagonal ball-head screwdriver 3.0 mm x 60 mm, open-end tensioner (8mm)

4.1

- Push the support out from below with the screwdriver



4.2

- place the demand axis on the board as shown in the picture for 4.0
- push a M5x25 screw from above through the board (where you have removed the support)
- secure the screw with a washer and self-locking nuts
- do this for the remaining 5, then tighten them crosswise

4.3

- repeat this for the other truck pay attention to the alignment at point 4.0

Please be careful when testing
I assume no liability for damage to property or personal injury.

Thank you so much, I can't wait to see what great skateboards you've made.
Seb aka megalog_