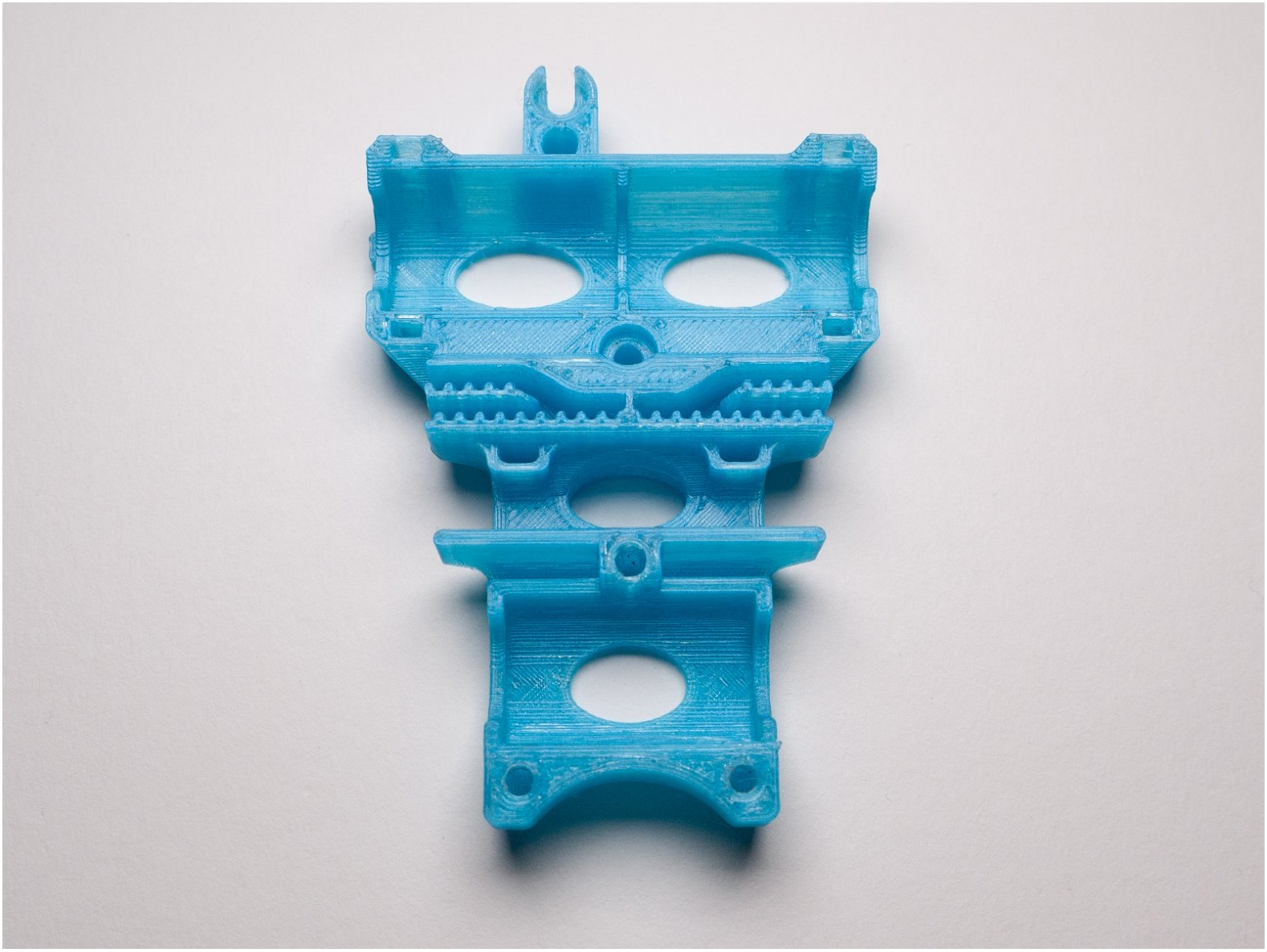
JLTXplore

2. Printing Parts

Written By: JLTX



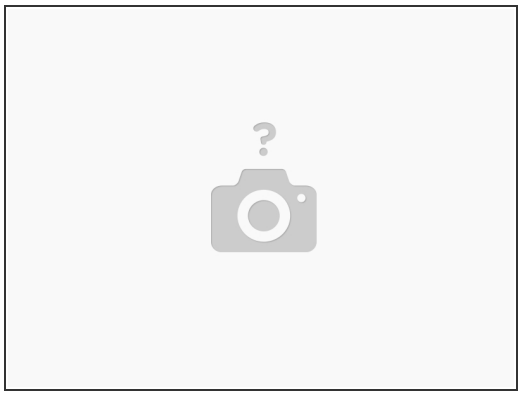
INTRODUCTION

First decide the gear ratio you desire. 16/56 = 3.5 is most common:

Gear Ratio	Pinion	Tread	Wheel	Belt	E steps
4	14	56	std	140	1120
3.5	16	56	std	140	980
3	18	54	std	140	840
2.8	20	56	std	140	784
3.42857	14	48	48	130	960
3	16	48	48	130	840
2.4	20	48	48	136	672
2	16	32	32	112	560

Note: 48 and 32 wheel available on request. You will need to order a shorter belt as indicated.

Step 1 — Printing Preparation

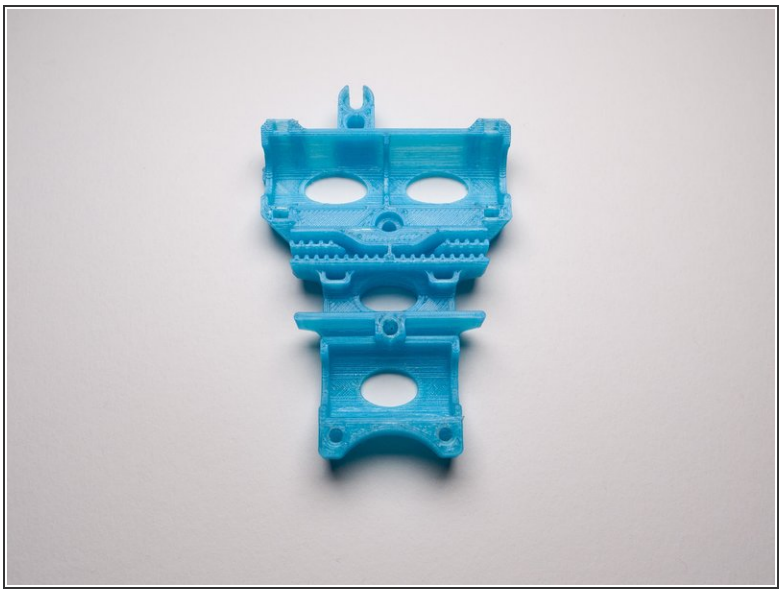


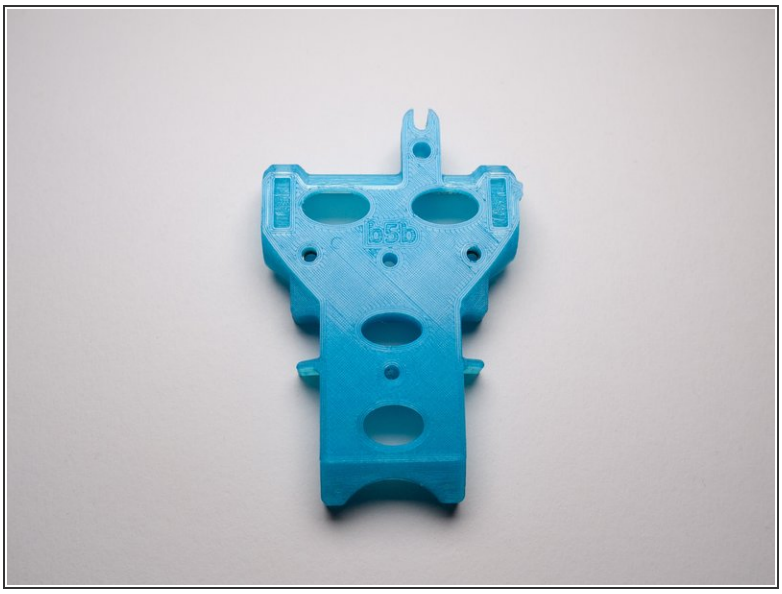
- There are many options for filament between type and color. You can mix and match to suit your style and needs.
- Generally I recommend PETG as it has good all around properties. This is the same as the stock extruder. ABS2.0 also looks promising. I used an all PLA version for about 9 months with little trouble however. Annealing HTPLA is another option, but is challenging due to the shrink factor.
- Certain parts have unique needs that will favor one type over the other. See part listings.

ⓘ Some parts make look slightly different over time as new versions come out, but functionality and printing are correct as listed.

- All parts are tested with PrusaSlicer 2.0. Print parts as oriented, do not rotate around X or Y. Using default settings unless otherwise indicated below.
- **recommend 0.15 layer**

Step 2 — Carriage [SP_carriage]



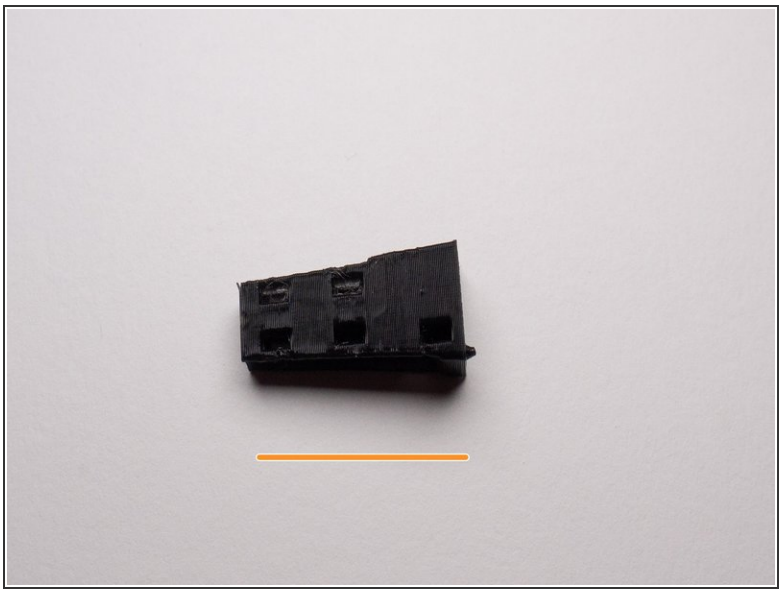


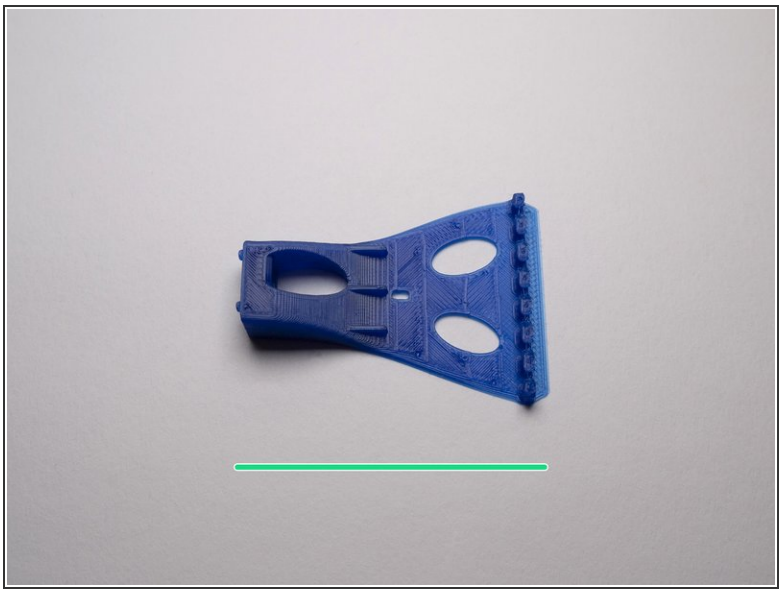
- PETG or PLA

Step 3 — X-Clamp [SP_Xclamp]

- PETG or PLA

Step 4 — Umbilical Connector [SP_tail or SP_Fin]

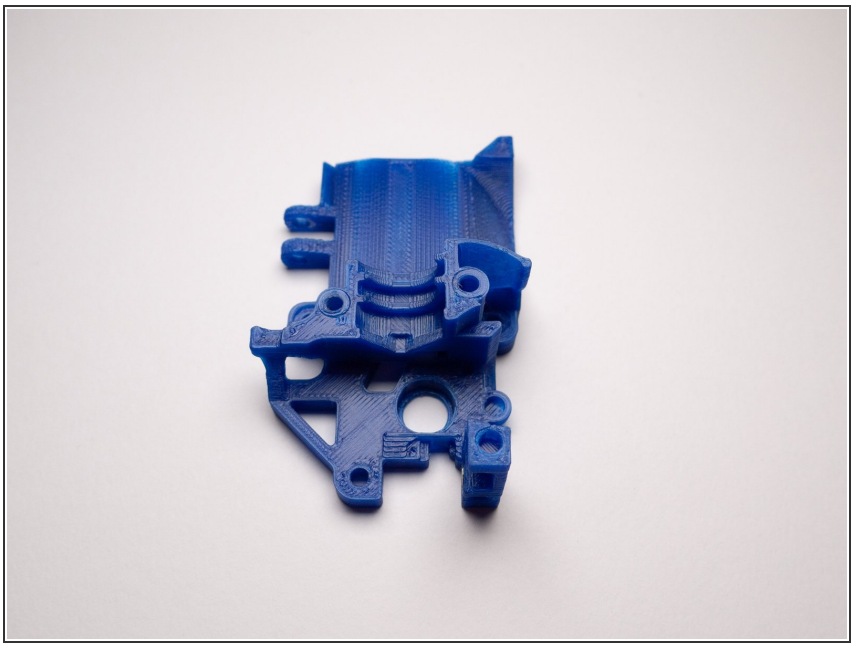




- PETG. If you choose Fin, it **requires** PETG for flex.
- Tail - similar to Prusa style connection
- Fin - more flexible, less resistant connection

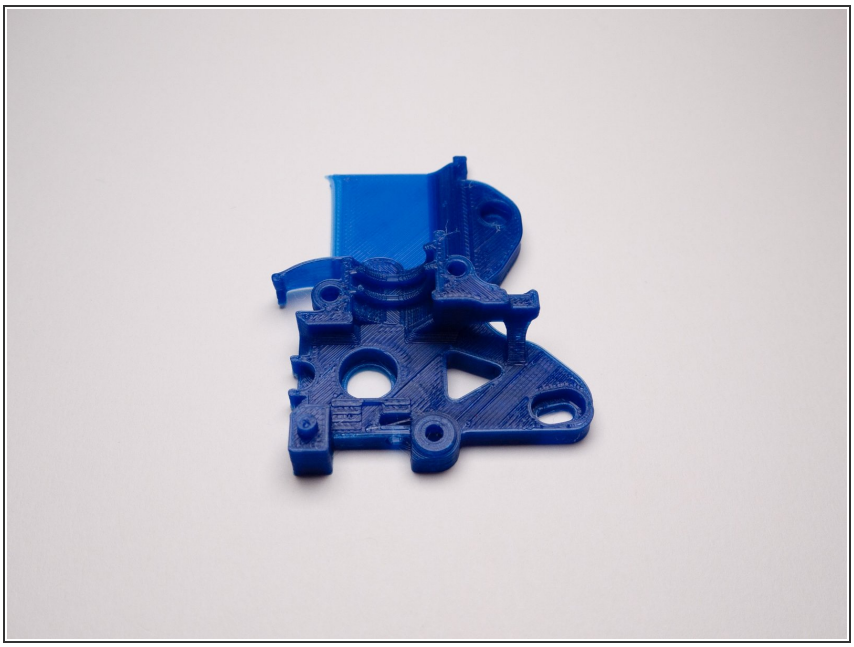
ⓘ Note that the wire rack at the end of Fin is designed to have split openings at the top even though the stl appears closed. This will resolve when you slice.

Step 5 — Extruder Cage Back [SP_EcageB]



- PETG

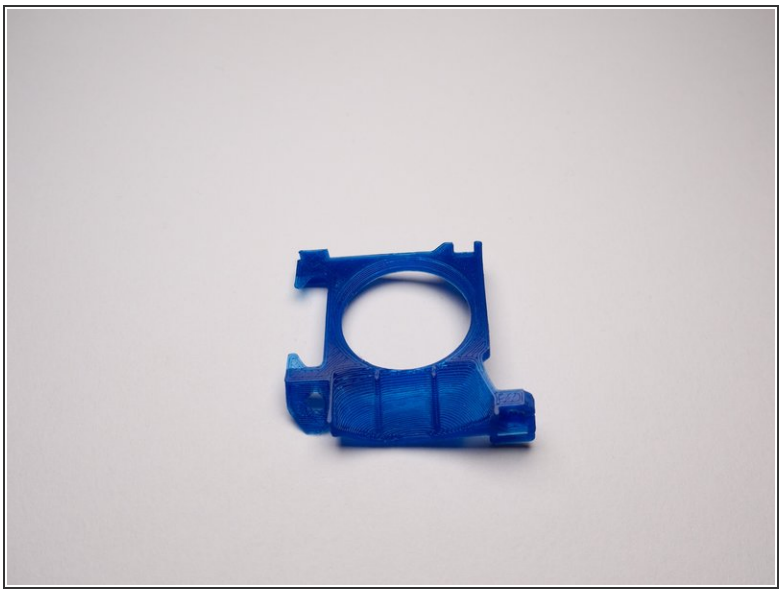
Step 6 — Extruder Cage Front [SP_EcageF17]



- PETG

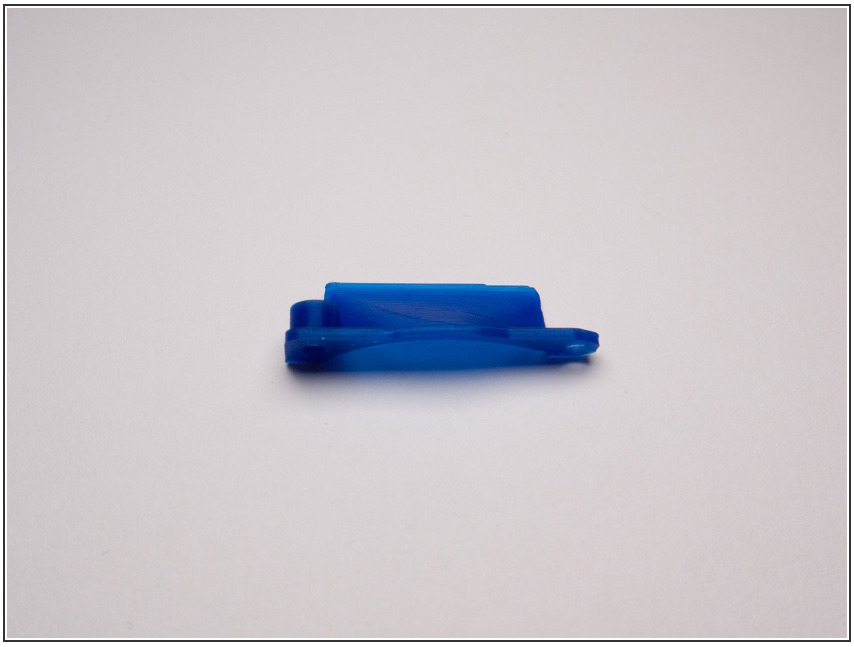
Note that this has one built-in ring support. We will remove it in a later

Step 7 — Extruder Cage Shield [SP_EcageS]



- This part is separate and small so that you can print in a high temp resistant filament.
- Has two small breakaway supports that should be removed.
- R1 version successfully printed in PETG, HTPLA, ABS, and PC.

Step 8 — Fan Shroud [SP_shroud]

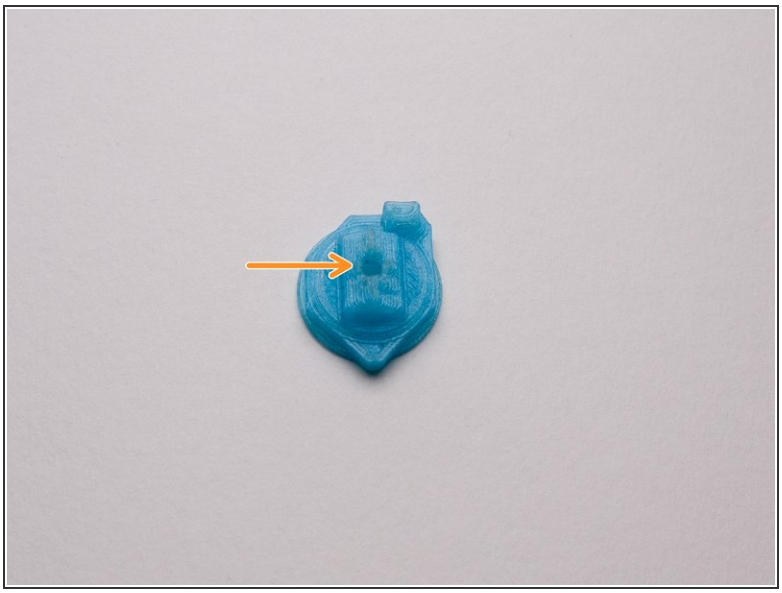


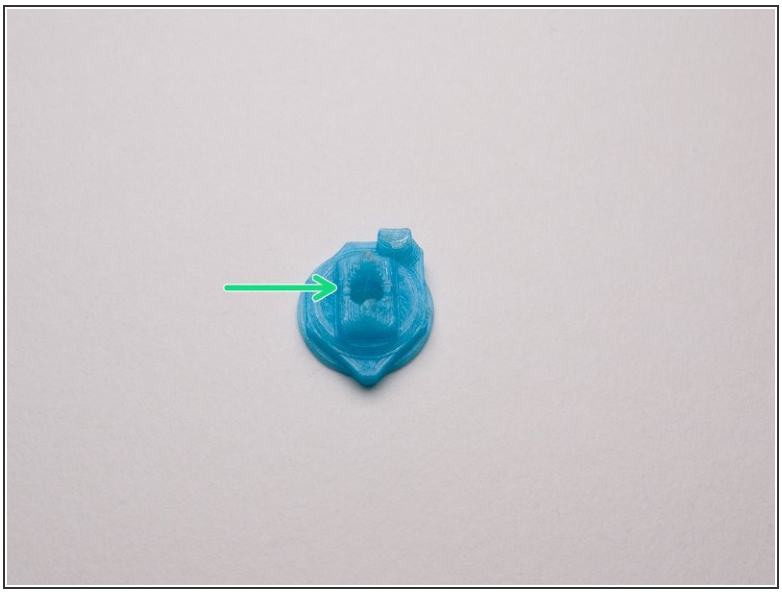
- PETG or PLA

Step 9 — Key [SP_key]

- PETG

Step 10 — Inlet choice [SP_inlet...]





- PLA, though PETG can work
- Std version: this is similar to the stock Prusa extruder, where the PTFE is cut flat and terminates before the gears
- PTFE version: this has the PTFE pass through and needs to be cut tapered to fit between the gears. This is best suited for flexible filaments.

Optionally print at 0.1 layer with 0.25 nozzle for extra high precision for tightest fit with Bondtech drive gears. No escape for flexible filament!

Step 11 — Spider [SP_Spider17]

- PETG

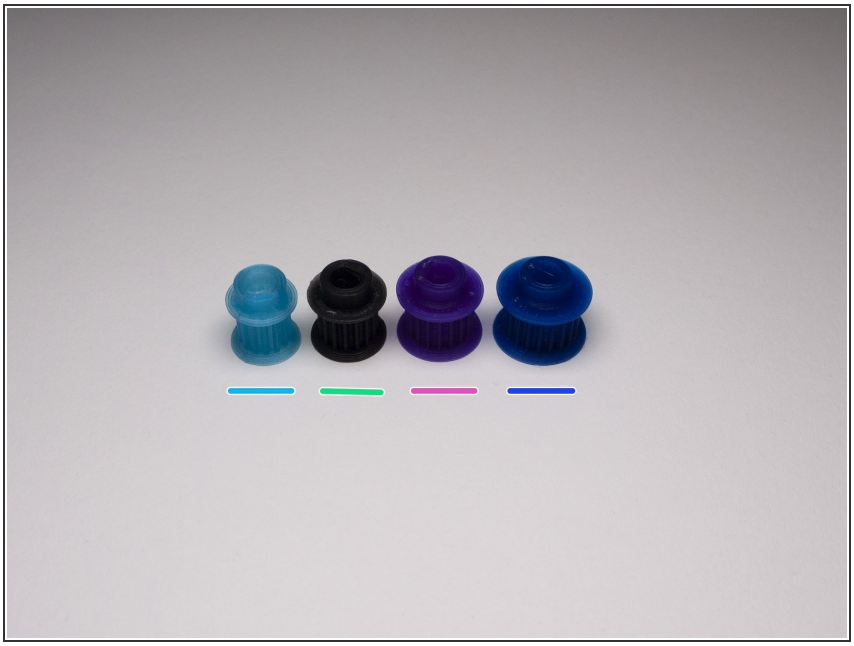
Step 12 — Wheel [SP_wheel]

- PETG

Step 13 — Tread [SP_tread...]

- PLA works well here. PETG also.
- It is best to print this part by itself and not plate it with other parts. This helps ensure you get clean teeth.
- Print either the 56 or 54 tooth version depending on the gear ratio you want.

Step 14 — Pinion [SP_pinion...]



- PETG, HTPLA, PC
- Print one size depending on the gear ratio you want
- Use 3 perimeters. Turn off 'detect thin walls'
- 14T
- 16T
- 18T
- 20T

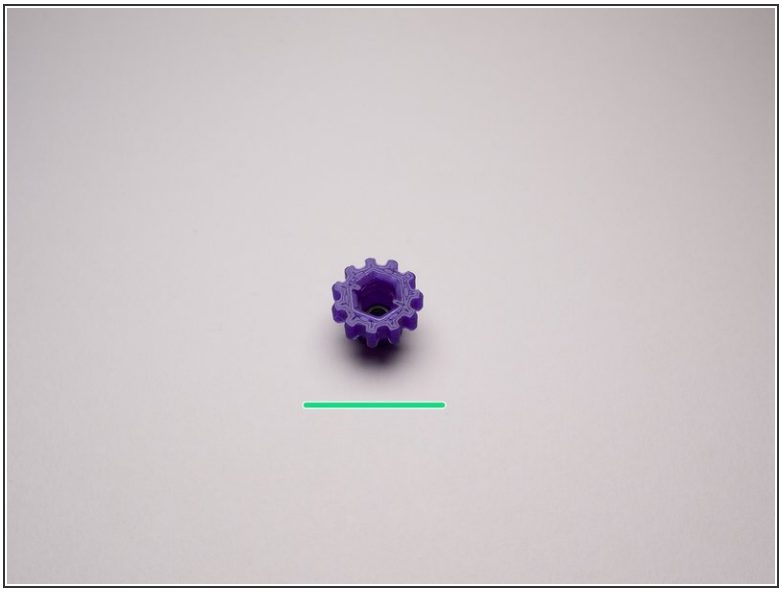
Step 15 — PINDA Rack [SP_Prack]

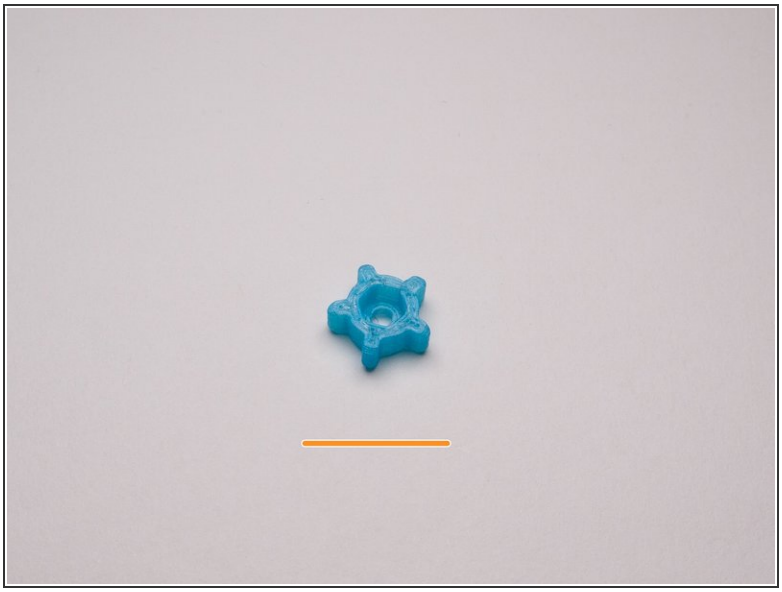
- PETG, maybe HTPLA
- Needs some flex, so PC is poor choice

Step 16 — Idler [SP_idler]

- PETG
- Note that this piece has two built-in supports. Do not remove the cylinder yet.

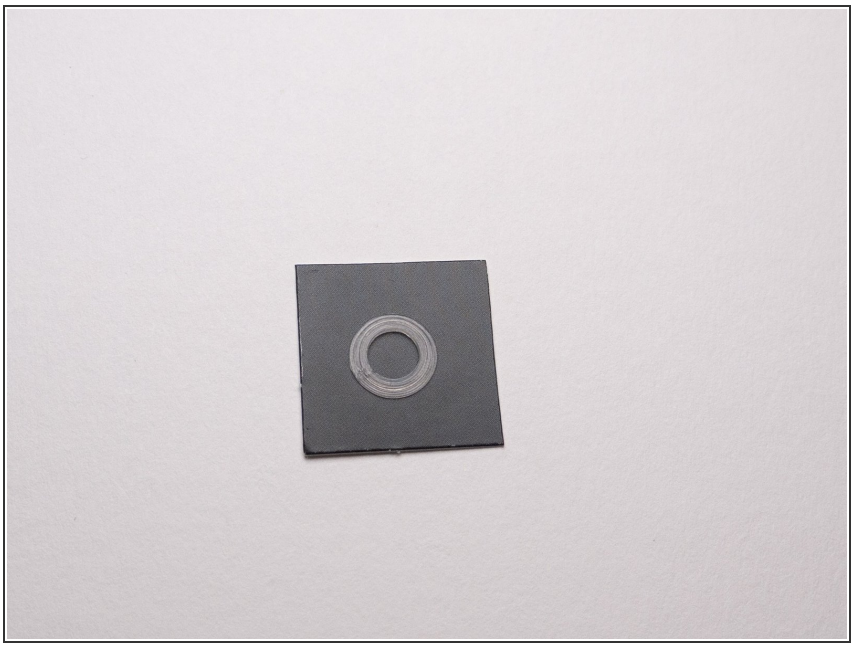
Step 17 — Knobs [SP_tensioner and SP_knob]





- I recommend printing control knobs in a contrasting color.
- Any filament should work fine
- Tensioner knob
- PINDA knob

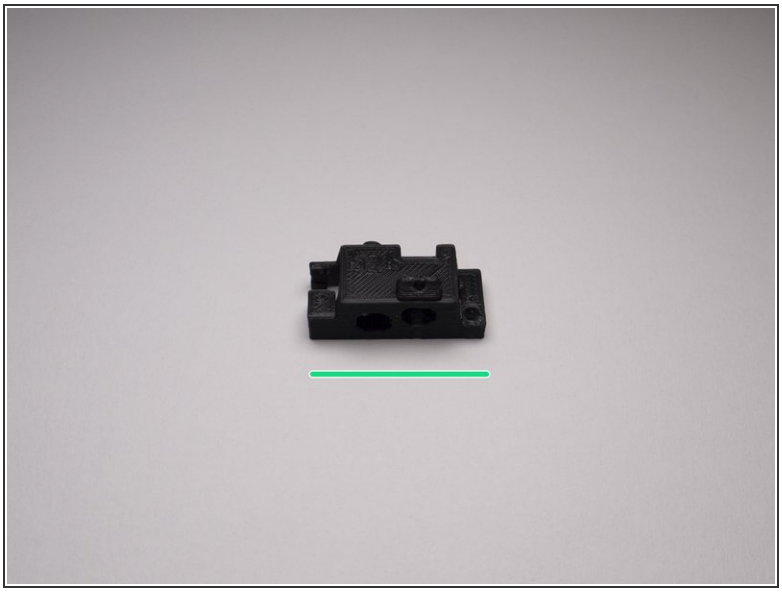
Step 18 — Spacer [SP_spacer]

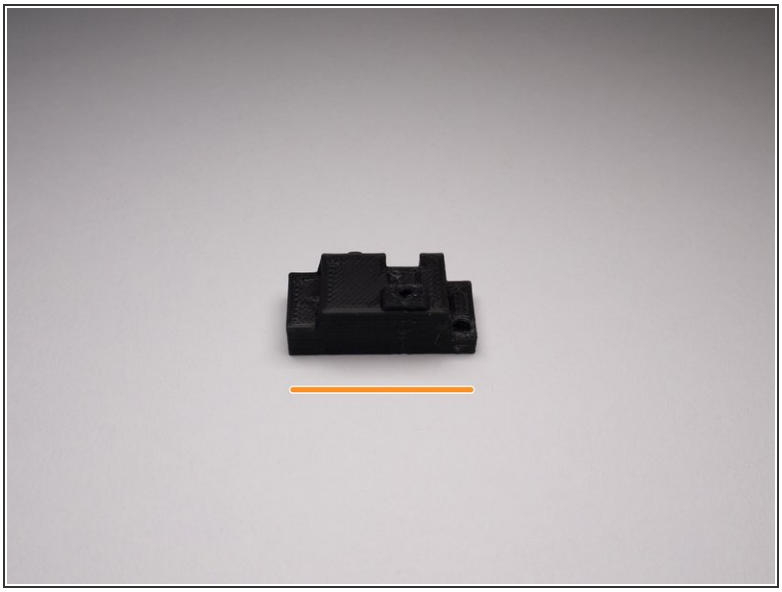


- PETG or PLA

Print a few spares, that one is easy to loose. Maybe use a brighter color

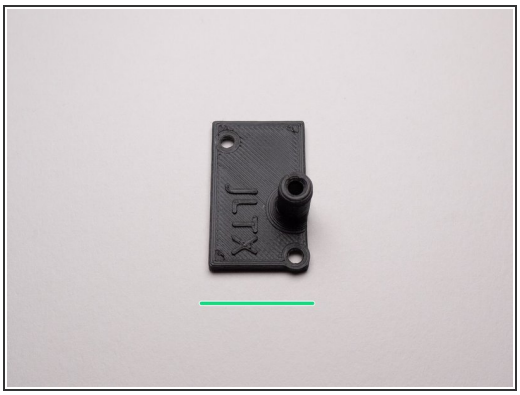
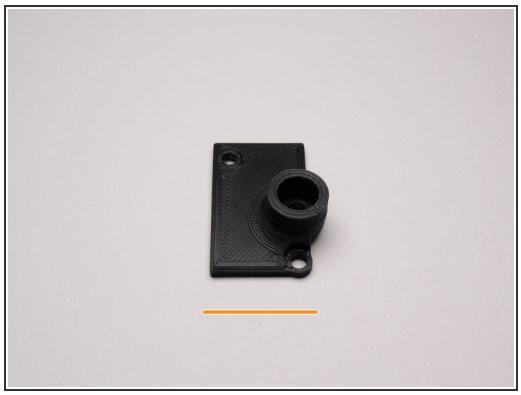
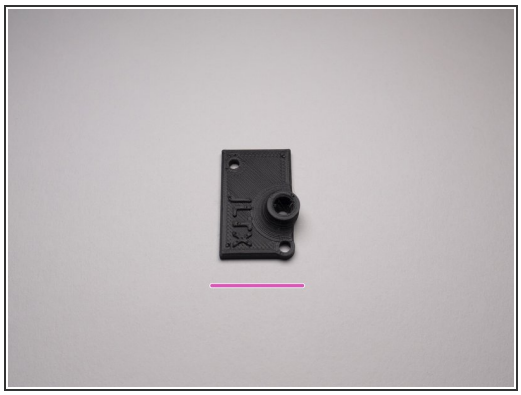
Step 19 — Direct / Indirect Cartridge [SP_Dcartridge]





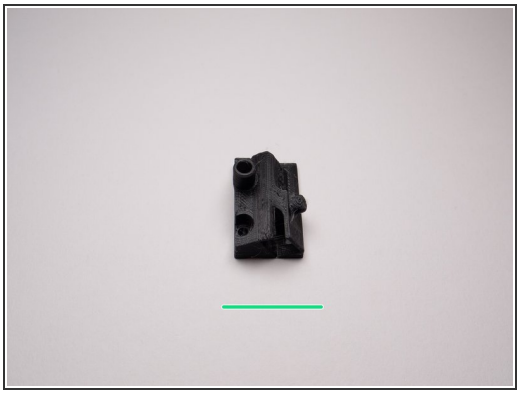
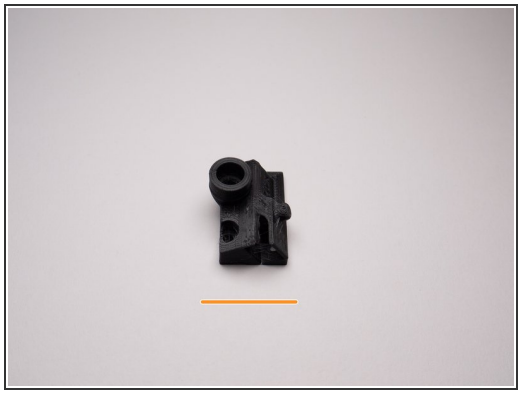
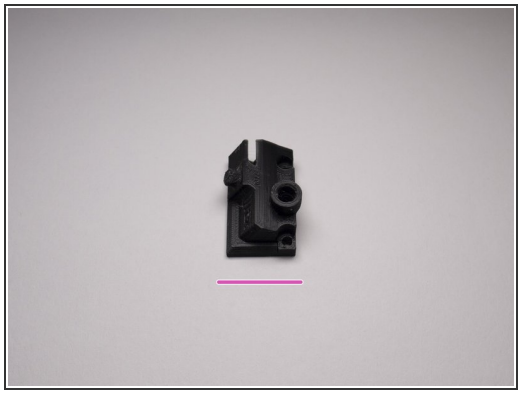
- PLA, though PETG can work
- Dark color is best.
- Direct sensor cartridge for stock setup
- Indirect sensor cartridge (additional parts necessary)

Step 20 — Direct Covers [SP_Fcover or SP_Pcover]

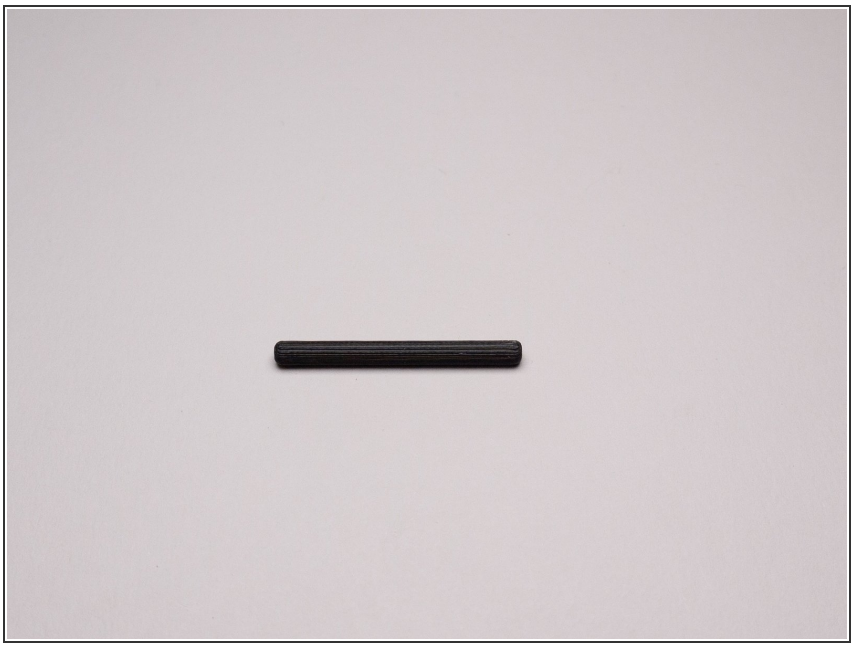
- PETG or PLA
- Standard for direct load
- Bowden for either reverse Bowden or MMU connection. Requires M5 heat-set nut.
- also M6 version for direct attach of PC4-M6 coupler
- See: Skelestruder for Prusa MMU2s and reverse Bowden

Step 21 — Indirect Cover [SP_Ilid or SP_Pllid]

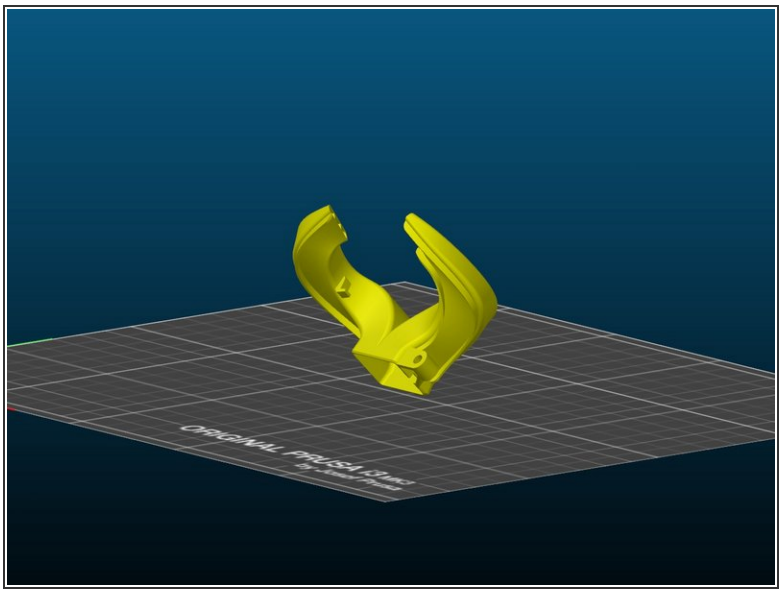
- PETG or PLA
- For use with indirect filament sensor
- For indirect filament sensor and Bowden connection. Requires M5 heat-set nut
- also M6 version for direct attach of PC4-M6 coupler

Step 22 — Indirect Filament Sensor Shaft [SP_spring]



- PETG or PLA
- Serves as both bearing axle and spring, so some give is good.

Step 23 — Omega [SP_Omega or SP_OmegaV]



- PETG, 0.15 layer
- Add supports, build-plate-only, 40 deg threshold
- Use 4mm brim
- OmegaV is for use with e3d Volcano heater block, but printed similarly.
- for new R2 Omega, use 20 deg overhang threshold

You are ready to move to the next stage, Preparing Components