

Icarus 2 - QIDI X-Max / X-Plus / I-Mate / X-Maker Carriage (Orbiter, Sherpa Mini, LGX Lite)



humebeam

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updated 6. 3. 2024 | published 6. 3. 2024

Summary

Icarus 2 is a strong, lightweight and dimensionally accurate one-piece carriage for the QIDI X-Max, X-Plus and I-Mate

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<https://www.paypal.me/humebeamengineering>

Update June 6, 2023

A few more carriages for the optional LMUW8 bearings were added. These you can find in the icarus-2-current.zip under the special bearings for 8 mm rod printers folder. Both versions with and without dial holders are available.

Update July 5, 2022

The Icarus fan duct has been updated to version 2.3 with optimized airflow from each outlet, the rear outlet has been removed as well as it caused to much bias from that direction.

Although both the previous version (2.2) and the current one (2.3) do a great job with unsupported overhangs up to around 70 degrees, I've found that with the new version shows an improvement over the previous version in most test prints and it is more versatile.

Here is the new 2.3 printed in Prusament PC-CF:





Comparing a Benchy printed in standard print direction (left 2.2, right 2.3) you can see a clear improvement to the bow where the earlier lacked sufficient cooling at 60 mm/s print speed with my particular brand of PLA. The same gcode is printed with both ducts.

Update June 6, 2022

Icarus 2.1 is here! It's the first update of the series and a fairly big one as it allows for much cheaper builds, here's what's new:

- Support for BMG extruder
- Support for V6 hotend
- Support for Rapido K500 HF hotend
- Support for LMUW10 and LMUW8 bearings (see alternative-carriages in zip)
- Ribbon cable holder turned and strengthened. This is mostly for printers with a coupler on the Y motor that interferes with the ribbon cable as the printer homes. For those wanting to upgrade but don't want to reprint the whole carriage a remix will be uploaded shortly.
- Cutout for easier inserting the front mount heated insert.
- Minor aesthetical fixes.
- Print files hosted externally.

The new mounts are also compatible with Icarus 2.0.

About

Icarus 2 is a strong, lightweight and dimensionally accurate one-piece carriage for the QIDI X-Max, X-Plus and I-Mate (and I-Mate S) that was designed focusing on strength and ease of maintenance while keeping it very lightweight.

Icarus 2 is based on my popular Icarus 1.x mod but with a number of key improvements:

- A **universal carriage** for all supported printers, regardless of extruder and hotend. Instead, you print a mount for your chosen extruder and hotend that install with just four screws meaning you can quickly swap to another extruder and hotend while still using the same carriage, improved maintenance.
- Hotend fan upgraded from 4010 to 4020 - improved cooling performance and lower noise level (4010 fan is still supported with optional printed distances).
- The belt teeth are now on the belt peg and tensioner instead of the actual carriage.
- Proper belt tensioner for both open and closed (stock) belts. For the stock belt the tensioner is optional but recommended, you can attach the belt peg alone if you like.
- Support for the new wider Qidi PCB supplied with some printers.
- Increased blower fan stability.

The whole carriage is very light and only around 70 g depending on infill and filament type used and the extruder and hotend are easily accessible without removing any other parts. Once the carriage is installed, there is no play between the bearings and the carriage.

Using one of the supported extruders makes the Icarus printhead very capable and lightweight. This allows for higher print speeds as there is less mass to move around when printing and it will also print flexible filament with ease.

This means the Icarus printhead is about **250g lighter than stock**.

Supported Extruders

- Orbiter 1.5
- Orbiter 2.0
- Sherpa Mini R1
- Sherpa Micro R1
- LGX Lite
- BMG

Supported Hotends

- Dragon
- Dragonfly (both BMO and BMS)
- Mosquito (and clones)
- V6 (and other hotends with V6 groove mount)
- Rapido HF K500

You can use any combination of the above, just print the appropriate mount.

Why?

I have earlier developed the Hercules mod. While print quality with Hercules is just as good as this, the BMG extruder and the V6 groove mount are not ideal for flexible filaments. This design uses a rigid mount and has a much shorter filament path from the extruder to the hotend.

I also wanted to offer a truly lightweight option which this is.

What to print:

Print these files from your extracted zip file:

icarus-carriages/icarus-2.1-normal.stl
belt-pegs/icarus-belt-peg.stl
belt-pegs/icarus-belt-tensioner.stl
fan-ducts/icarus-fan-duct-2.5.stl

You can also print the optional dial holder if you're going to use one. Also, print the mount for the extruder and hotend you have chosen as well as its corresponding PTFE cutting jig. For example:

mounts/mount-sherpa-mini-r1-dragon-2.1.stl
ptfe-cutting-jigs/sherpa-mini-r1-dragon-and-mosquito-ptfe-cutting-jig-14.70mm

The PTFE cutting jig is for a short piece of PTFE tube used between the extruder and the hotend in the cold zone where it does not deform from heat, it's required to lead the filament to the top of the hotend. Dragon and Mosquito use the same length of PTFE tube which is why they share jig.

BOM - Bill of Materials

I buy most of my 3D printer parts from quality stores on AliExpress. Shipping takes a while from China but quality is excellent and the prices are good. I might add more stores to the BOM later but it's a lot of work keeping it updated and current so I will try to keep it short.

If the links do not work disable your adblocker or use a VPN.

1. Extruder (pick one)

All of the supported extruders below are low weight with dual gears and are excellent for flexible filament out of the box (excluding the BMG, not very good for TPU).

Use whichever you like and fit your budget.

Orbiter 1.5 Extruder (genuine)

Orbiter 2.0 Extruder (genuine)

2. Hotend (pick one)

Sherpa Mini R1 Extruder (genuine)

I can highly recommend the new **Rapido K500 Hotend** that in fact was made specifically by Trianglelab for us/Icarus users so thanks to Trianglelab for bringing us this product. It's not cheap but it includes both the thermocouple and the heater so you do not have to buy those separately. It has performed excellently at speeds up to at least 200 mm/s in my testing the past month.

Normal Rapido hotend is **NOT** supported as it uses a thermistor, only the K500 one from the BOM works.

Dragon and Dragonfly are also great options.

Other hotend options are Mosquito and clones (NF-Crazy for example) but they're not linked from here.

Rapido K500 Hotend

3. Thermocouple/Heater cartridge

Select K500 Rapido if
Notice: If you went with the Rapido K500 Hotend above, skip these two purchases. No need to buy a thermocouple / heater cartridge with this, it is built-in!

The budget thermocouple is fine. I've used a bunch without issues. Buy a spare. The sensor only is needed.

Parts required: **Heatsink - Heatbreak - Heatblock - Screws - Nozzle**

For heater I recommend a 24V 60W heater cartridge, a 50W will also work well. Buy one of each above and assemble yourself, it's easy.

For Heatsink select "Heatsink V2.0" and for Heatbreak select "New Core-SF V2.0"

TL T-K500 Thermocouple (3 x 15 mm)

4. Hotend fan, BOM, TL T-K500 Thermocouple (3 x 15 mm)

I like to use Simon-Madeley fans good quality and not too noisy. If you plan on printing > 350 C a lot you may want to go for the second option (2VX) as it pushes considerably more air, it's not very silent though. Otherwise, the first option is sufficient for prints up to 300 C.

Budget choice reliable. Select "1.75 mm all metal"
You can use a different 24 V 4020 fan if you like or a 24 V 4010 fan with printed distances.

Sunon Maglev MF40202V2-1000U-A99

5. Fasteners

Use this Sunon Maglev fan, it's rated at just 21 dB(A). 7.7 CFM.

You need some M3 hex bolts (socket head) at various lengths. It's best to grab the kit below, it will have everything you need for this build and many more.

Another option, 27.5 dB(A), 10.8 CFM.

Heated M3 inserts are required too, for example for attaching the fan duct to the carriage, you will find out more about this later in the build.

1100 pcs M3 Hex Socket Head Cap Kit

6. Tools

Heated Inserts

You also need a JST crimping tool and some JST-XH terminals and connectors. I'm using this IWISS crimping tool which is inexpensive and is doing a good job. A digital dial indicator is optional but it's recommended so you can level the bed perfectly. A soldering iron is needed too for the heated inserts.

IWS-2820M Crimping Tool + Terminals & Connectors

7. Optional Parts

Select the option (IWS-2820 2.54 XH-F).

These parts are optional. You can use the extruder PCB and blower fan from one of your old Qidi printheads to keep costs down. The other parts are spares that are good to have on hand.

Digital Dial Indicator

Soldering Iron

24V 5015 blower fan

Plated Copper T-V6 Nozzle

How do I use the Dial Indicator Holder?

Hardened Steel T-V6 Nozzle

You can achieve perfect bed level in about a minute without removing any parts or carriage.

Qidi extruder PCB

As the dial holder is in front of the carriage it doesn't measure on top of the bed leveling screws but it doesn't matter for accuracy, we still achieve perfect bed level. The script checks the bed level on three different spots on the bed in a triangular pattern. Adjust the bed leveling screw closest to where it measures and by the time the script has looped three times the bed will be perfectly level.

Triangle filament PA6F15

Notice: You may need to remove the dial holder while printing else it could hit the frame of the printer. On the X-Max you can have it installed all the time but I'm unsure of the other supported printer models.

Print Settings

Print the carriage in high temp resistant filament. I recommend using Polycarbonate (PC), a PC blend such as PC-FR (flame retardant PC), PC-CF (PC with Carbon Fibre) or PA-CF (Nylon with Carbon Fibre). I like using the Prusament PC Blends with the PC-CF being top choice but it is often out of stock. ABS or ASA is fine as well but for long term usage and higher print temps, PC is best.

This PA-CF should be a great option:

Trianglelab Filament PA-CF15

To summarize, print the parts in PC if you can to be on the safe side.

Notice: The LGX Lite hotend mounts must be printed in a non-flexible filament such as PC, else it can flex when extruding due to the unconventional mounting pattern.

Print all parts in 0.2 mm layer height using a 0.4 mm nozzle. I recommend using 5 top, bottom and perimeter layers with an infill of 25% or higher.

The whole carriage prints in one piece, supports are not needed.

The fan duct for parts cooling, the belt peg and the dragon mount all print without supports. The optional dial holder needs some supports but is easy to print.

Notice: If for some reason you find the carriage sits too tight or too loose you can print one of the other carriages with narrower or wider clearance for the bearings (named narrow and wide). It also depends on slicer settings so make sure you dial in flow before you start.

Precaution!

Before you start, please ensure you use the parts in the BOM only. It's very important to use a high quality thermocouple that is rated for 500 C for example, the stock Qidi thermocouple is only rated at 300 C.

If you want to increase the print temp beyond 300 C (stock) you can enable it in firmware, I have commented it there.

Do the mod at your own risk. Never leave your printer unattended, stock or not.

Buy a prebuilt and tested Icarus 2

If you're looking for a prebuilt Icarus 2, here are a few authorized resellers worldwide *:

- **CLPerformance (Germany)**
- **Motor City 3D Print (United States)**
- **NextGen 3D Printing (Australia)**

* 5€ for each sold unit is donated to the Icarus project to help development.

Step Files

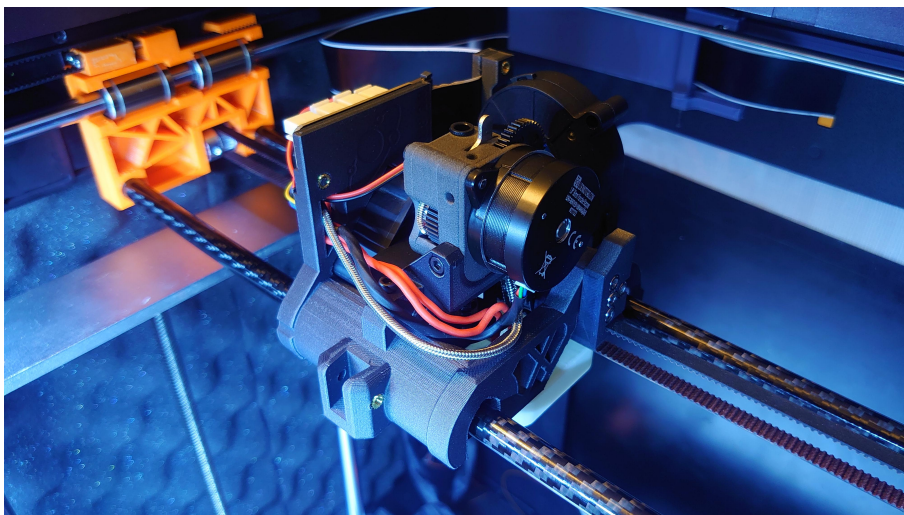
The source step files for most of the extruder/hotend mounts and some of the other designs can be downloaded here if you like to edit or remix yourself:

[icarus-2-current-step-files.zip](#)

The actual carriage design is kept back and shared as stl only.

Assembly Instructions

Just below is a picture of the assembled and installed unit. This carriage was printed using another Icarus 2 carriage with Sherpa Mini R1 extruder and Trianglelab Dragon Standard Flow hotend at the recommended print settings. Pictured here is the LGX Lite extruder and Dragon hotend.



But we start the guide from scratch.

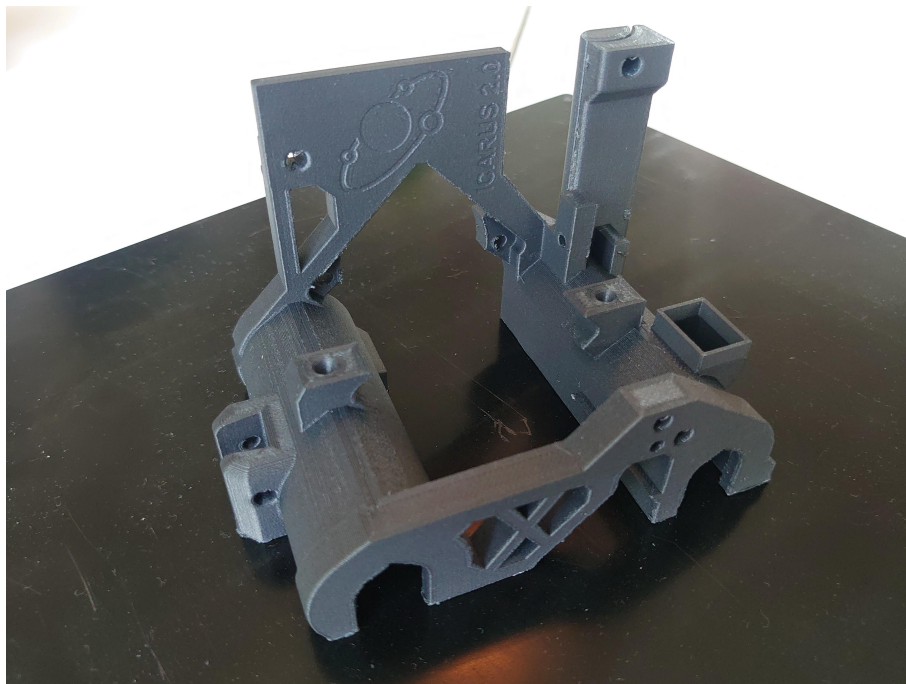
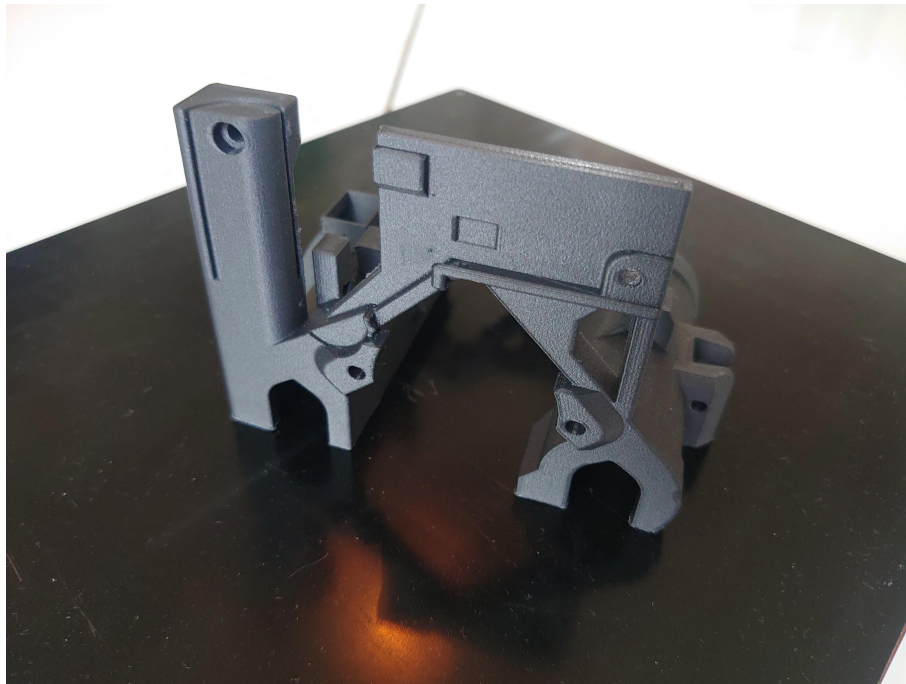
Notice: If your Dragon hotend has a V6 groove mount installed, remove it now, it is secured with two screws from below the top of the heatsink. We do not use the groove mount with the Icarus build.

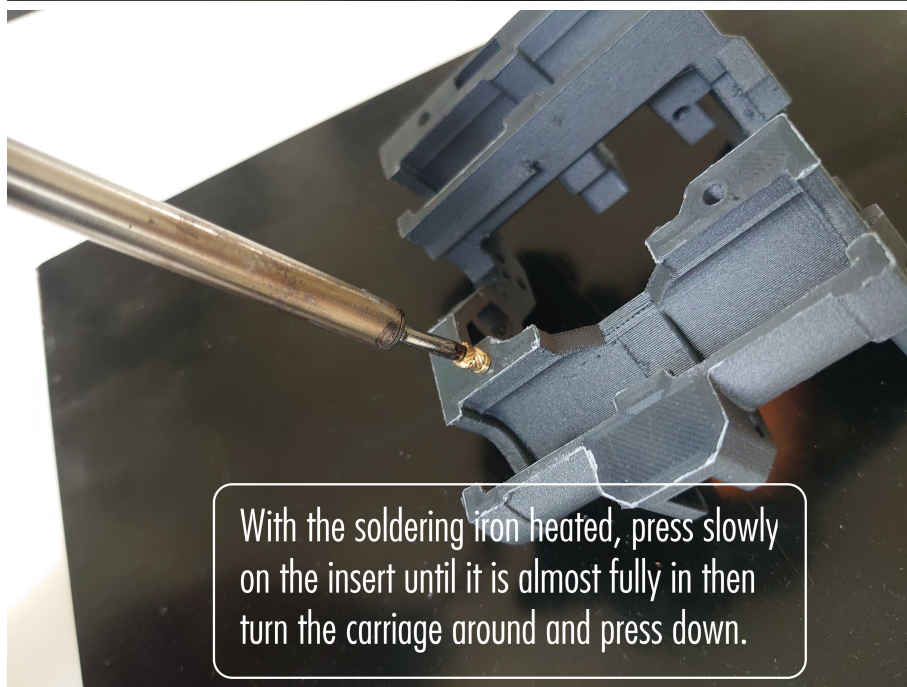
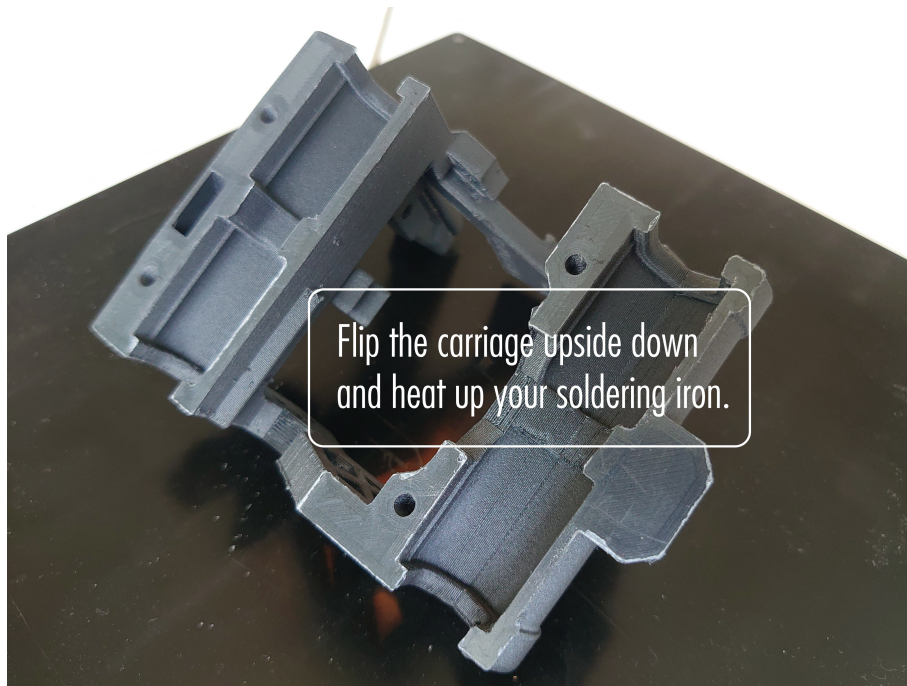
Insert 4 brass insert using a soldering tool to the bottom of the carriage. Press it slowly then once it's almost fully in, turn the carriage around so it's

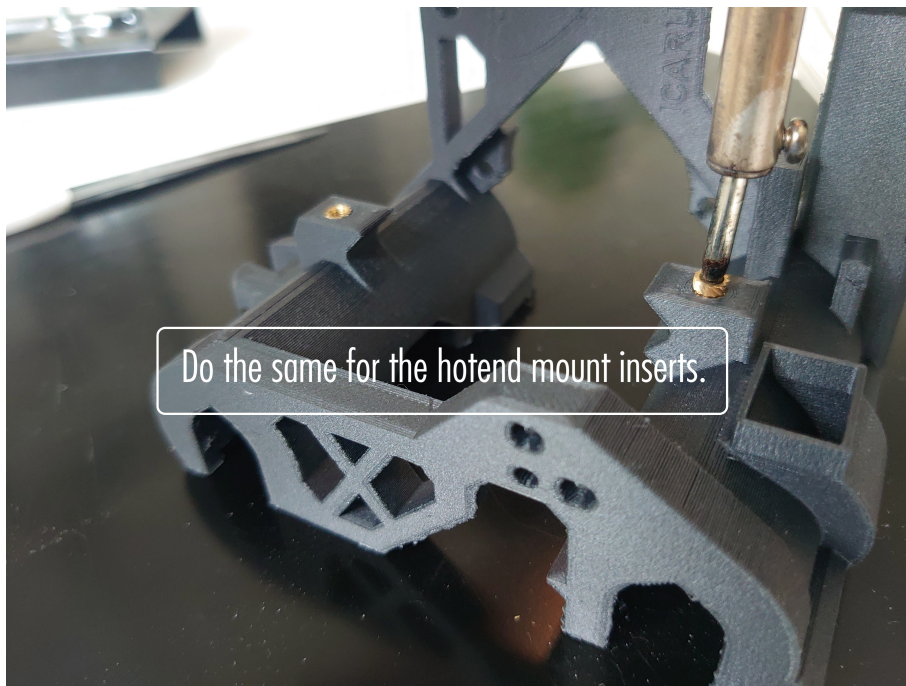
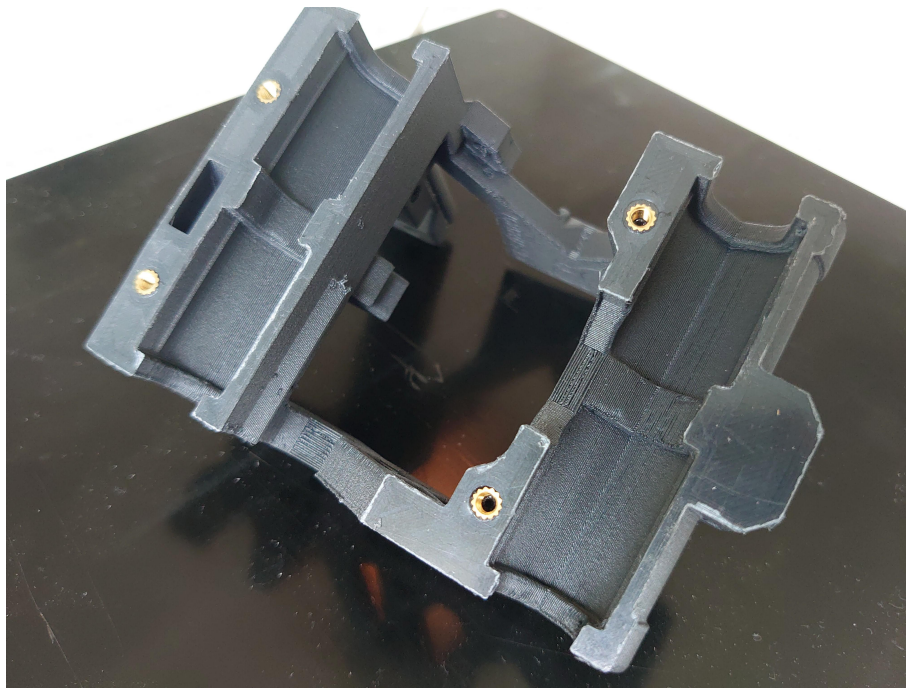
standing up and then press down the whole carriage for 10 seconds on a flat high temp resistant surface. The backside of the QIDI bed plate is perfect for example.

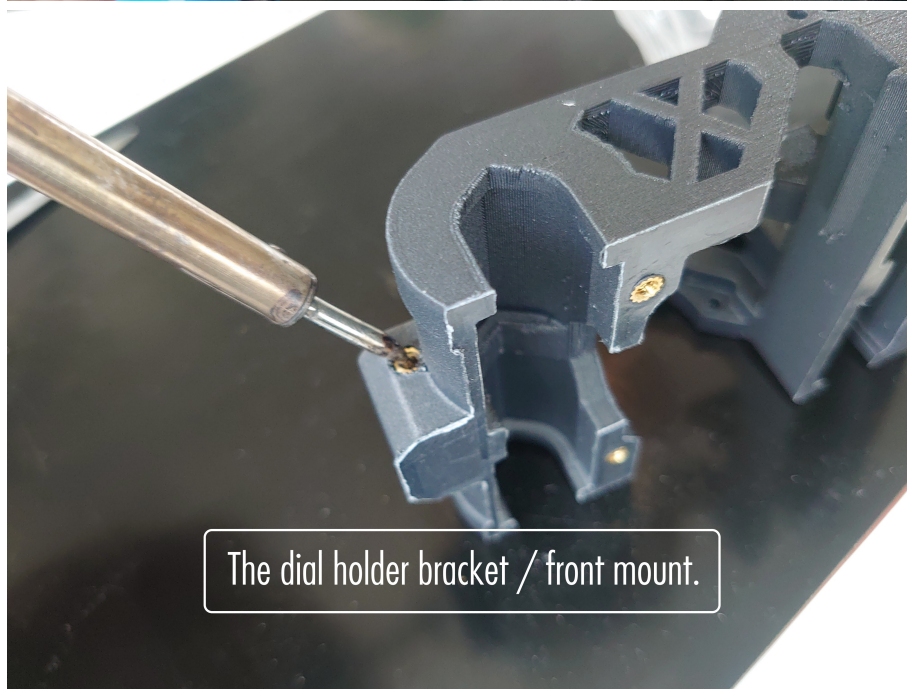
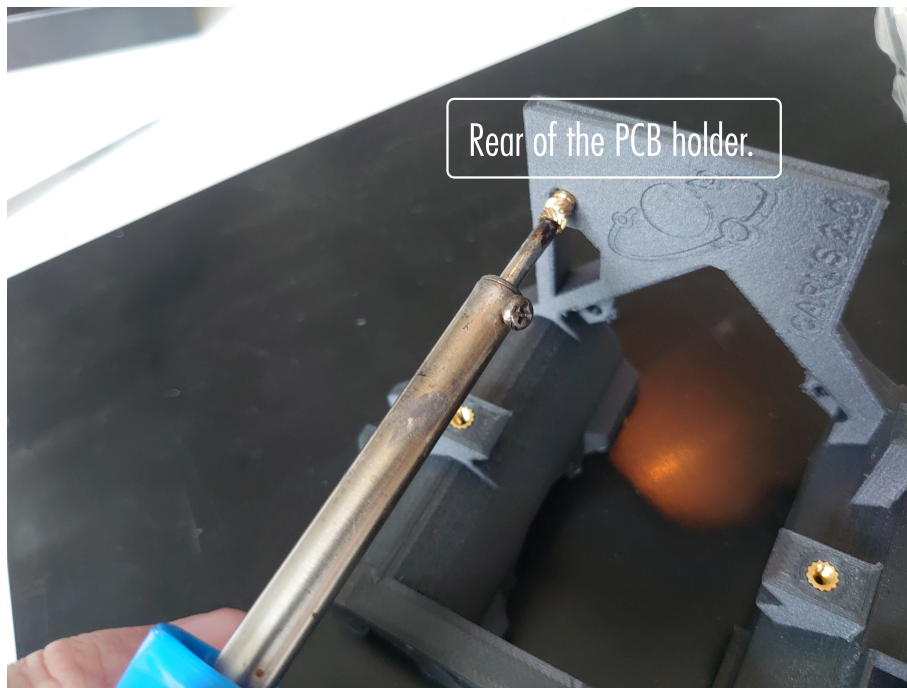
Do the same for the dragon mount, the blower fan mount, the dial holder and the ribbon cable bracket, for these inserts you can use the Qidi metal scraper to ensure they are flat against the surface.

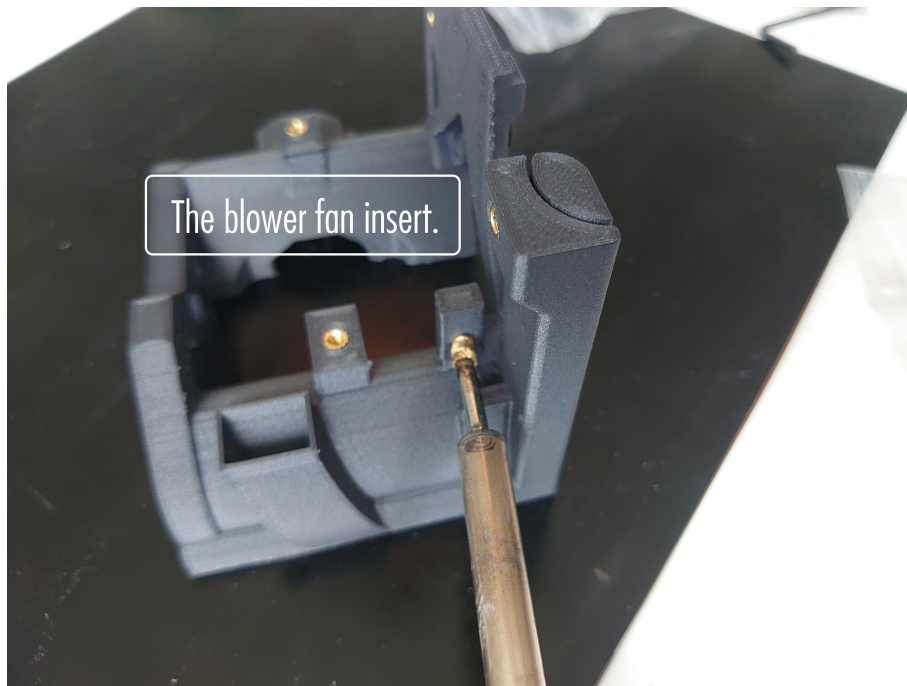
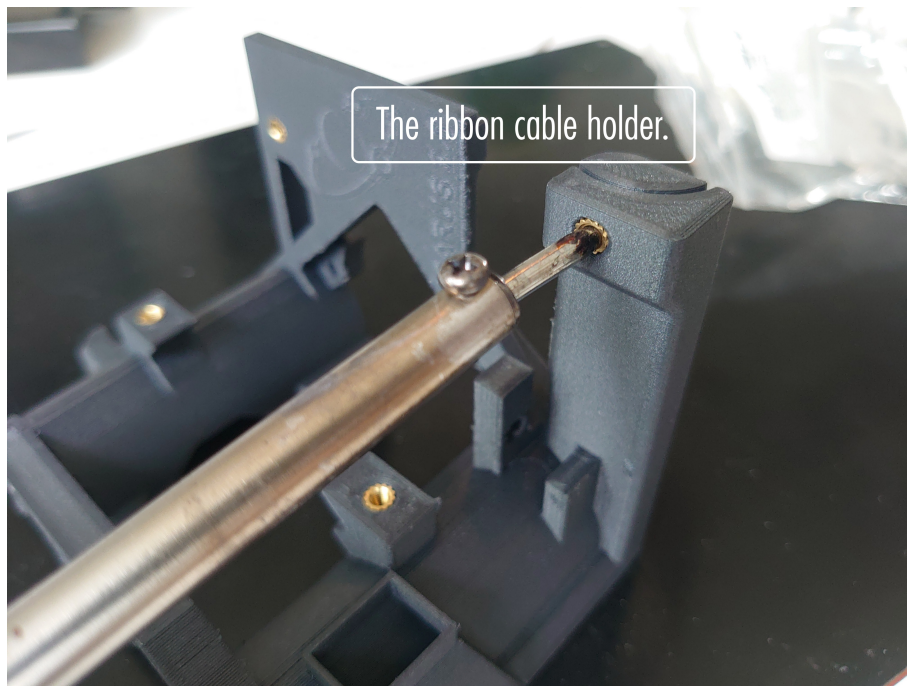
In total 12 brass inserts will be installed in the carriage and 2-4 in the mount (depending on mount).

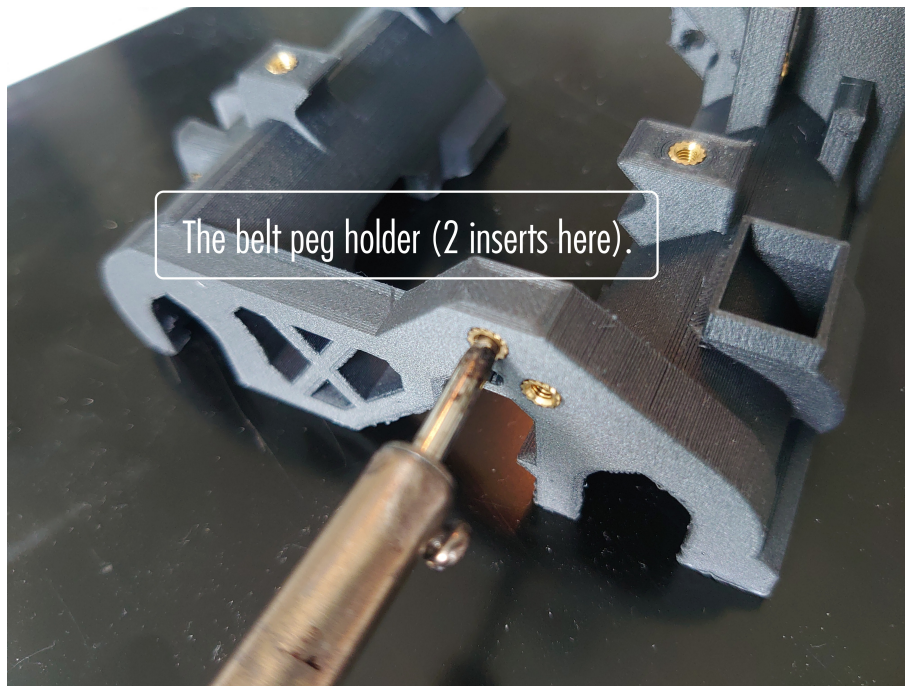




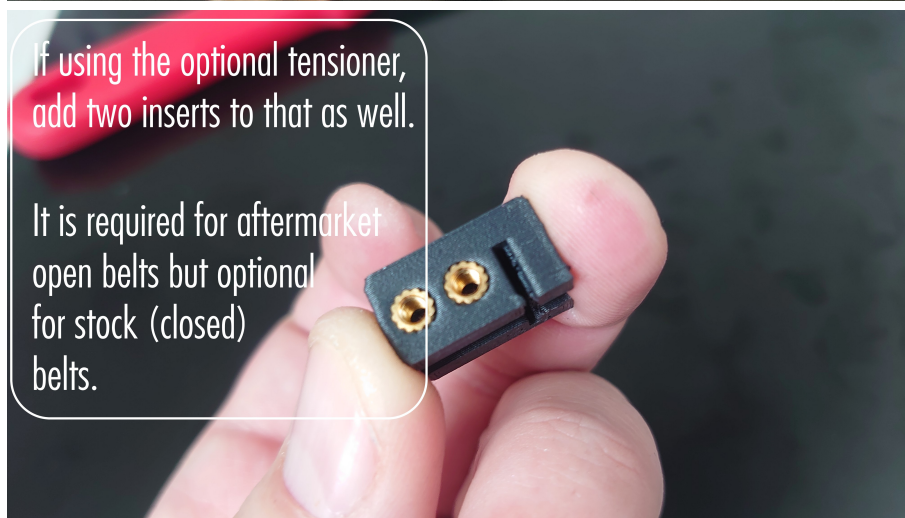






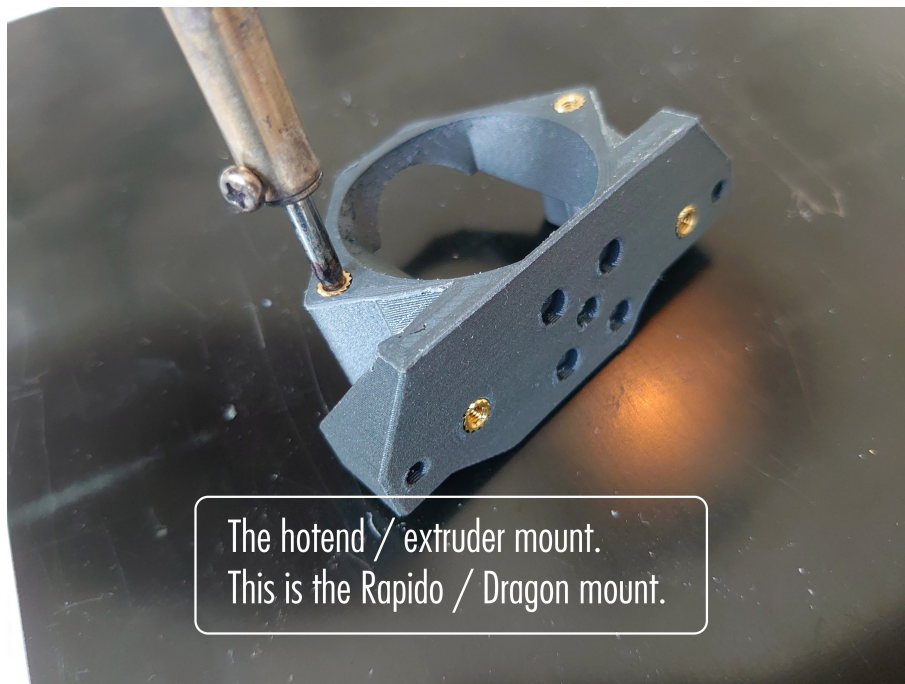


The belt peg holder (2 inserts here).



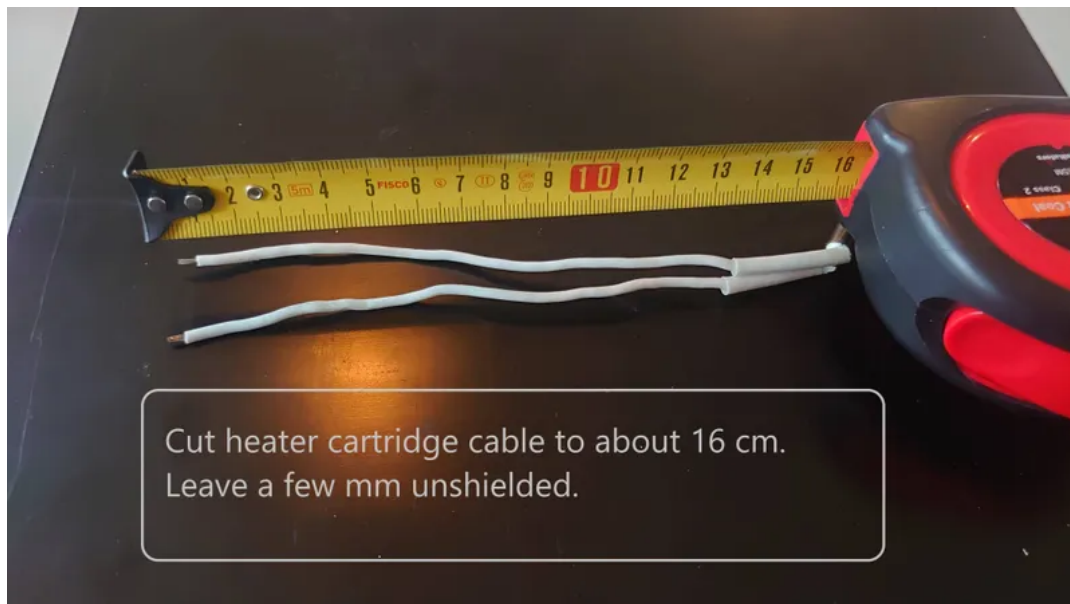
If using the optional tensioner,
add two inserts to that as well.

It is required for aftermarket
open belts but optional
for stock (closed)
belts.

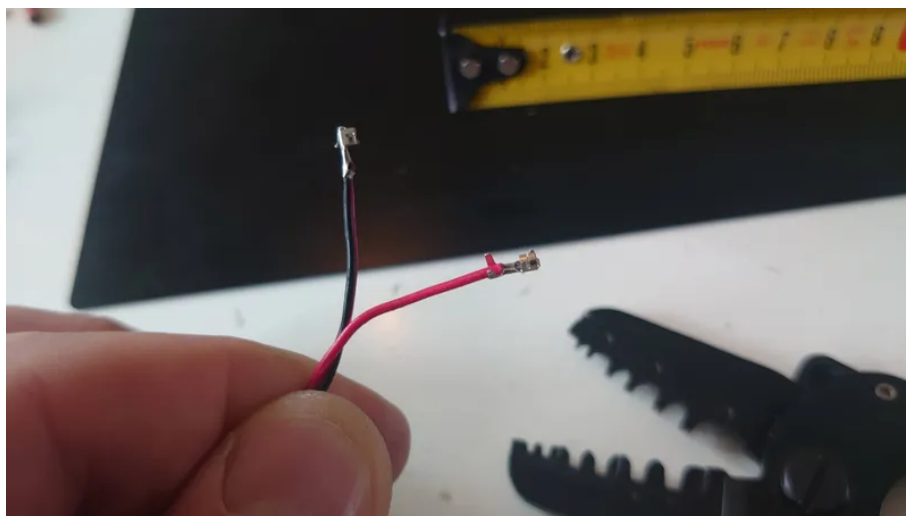
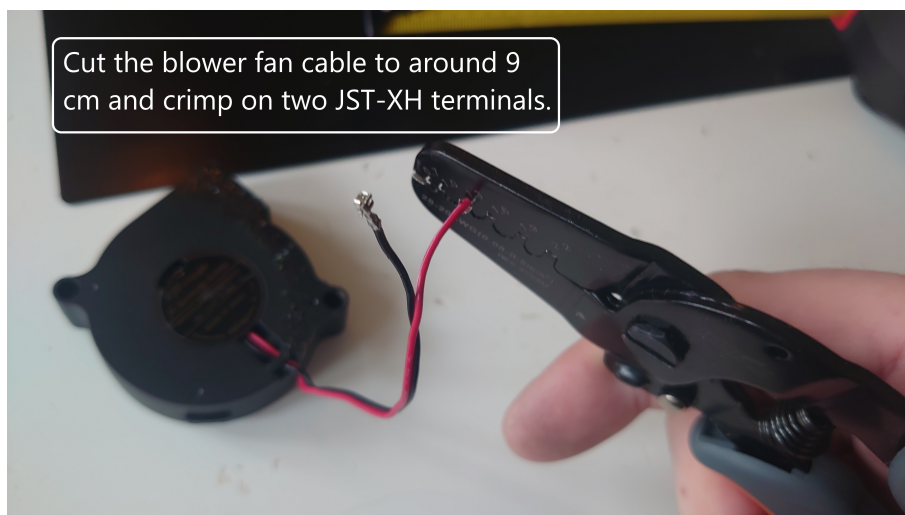


Now all the inserts are done. Note that the extruder/hotend mounts are all a little different, for example the LGX Lite extruder is mounted from below and that only has two heated inserts for the fan.

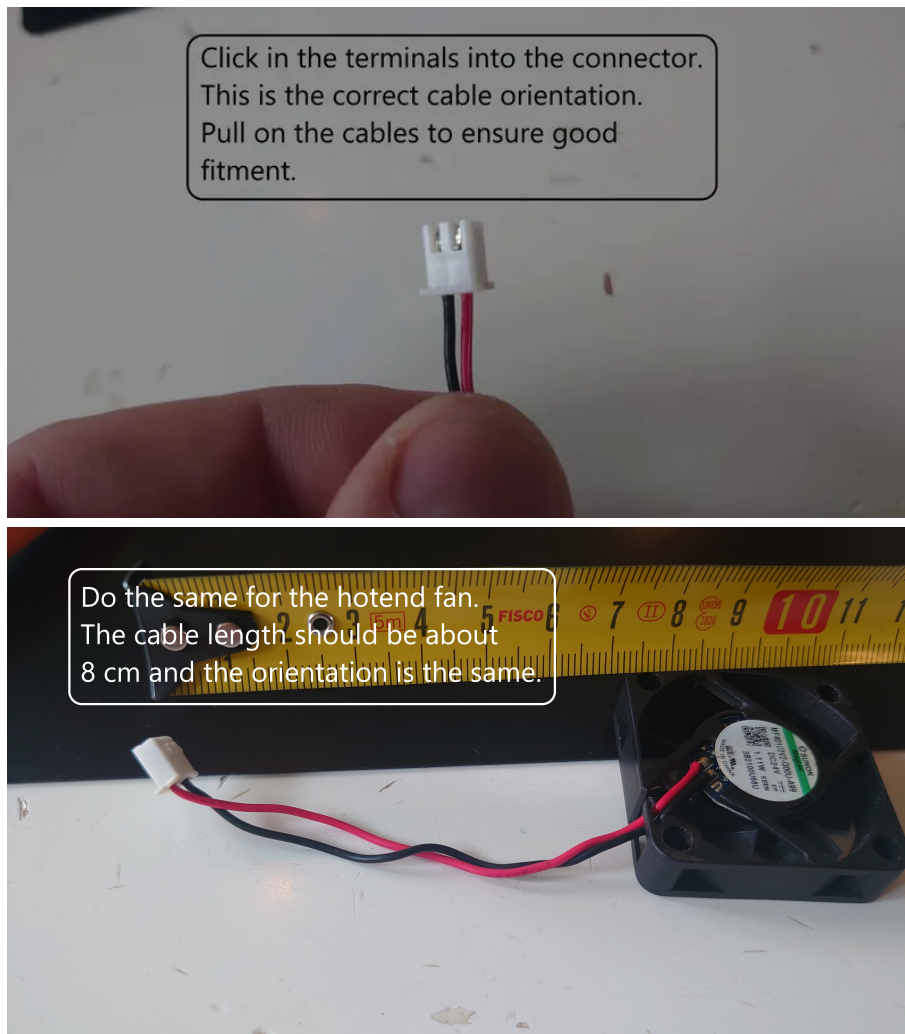
Cut the heater cartridge cable to about 16 cm. Leave a few mm unshielded and screw it to the heat block.



Time to fix the blower and hotend fans. Cut and crimp as described below. If you don't know how to crimp with a two step JST crimper we use in the BOM, there's a quick guide just below the pictures, it's easy so don't worry.







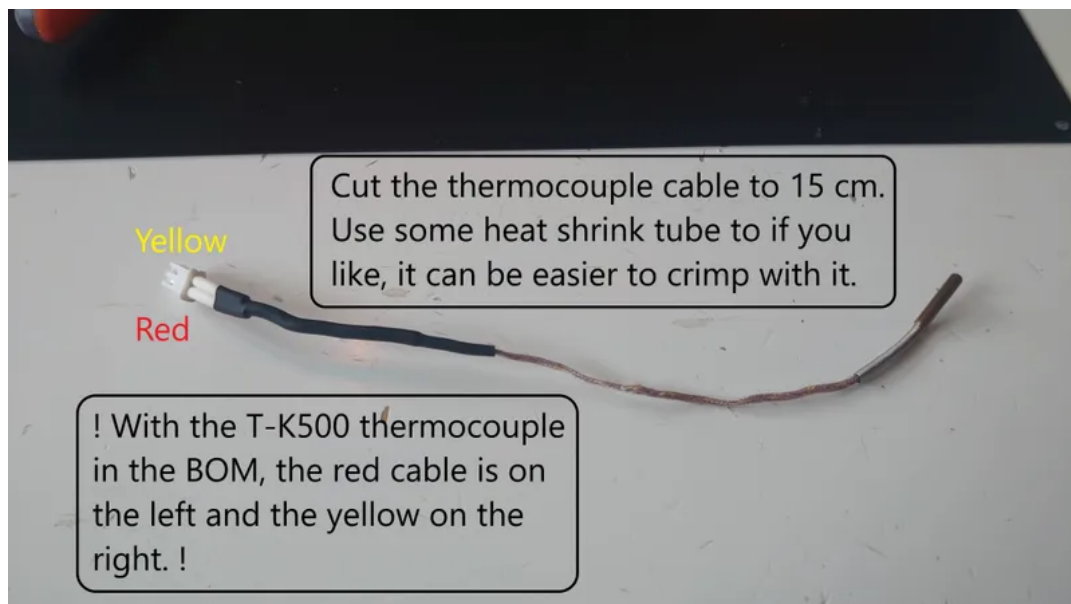
Crimping guide (video)

Not sure how to crimp? View this short video.

Next, cut the thermocouple cable to about 15 cm.

Crimp on a JST-XH connector on the thermocouple. I used heat shrink tube on both thermocouple and heater cartridge but it's optional, it can be easier to get the pin header to grip by doing so. The thermocouple can be a bit difficult to work with so take it slow.

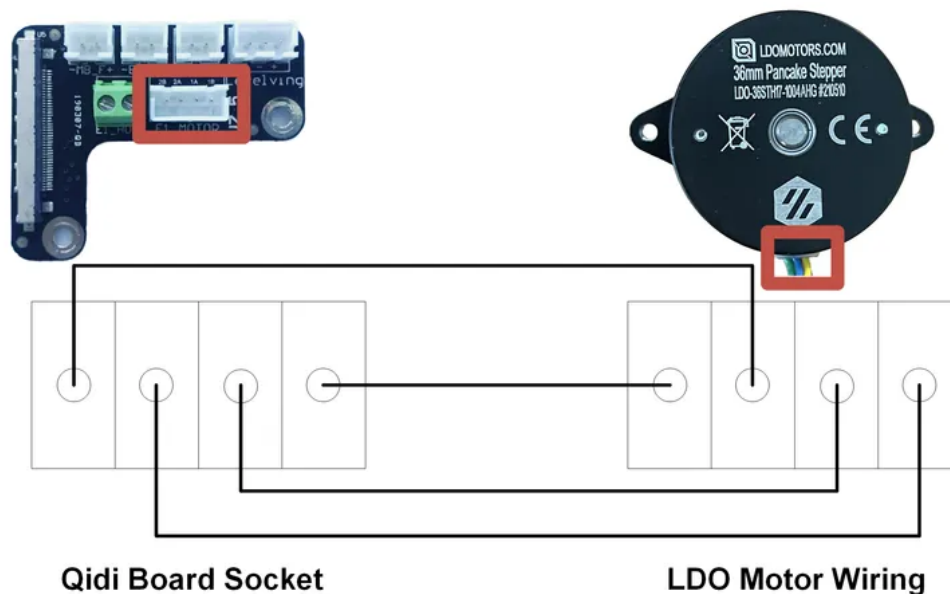
Notice! If you get a temp drop when you start heating the printer for the first time you have probably reversed the thermocouple cables. If so just unpin the connector and switch over.



Notice! Before you start with the motor wiring, take notice of the plug direction in the pictures, it is inserted upside down on the PCB!

Qidi X-Max / X-Plus / i-Mate(s)

Icarus Extruder Motor Wiring Diagram



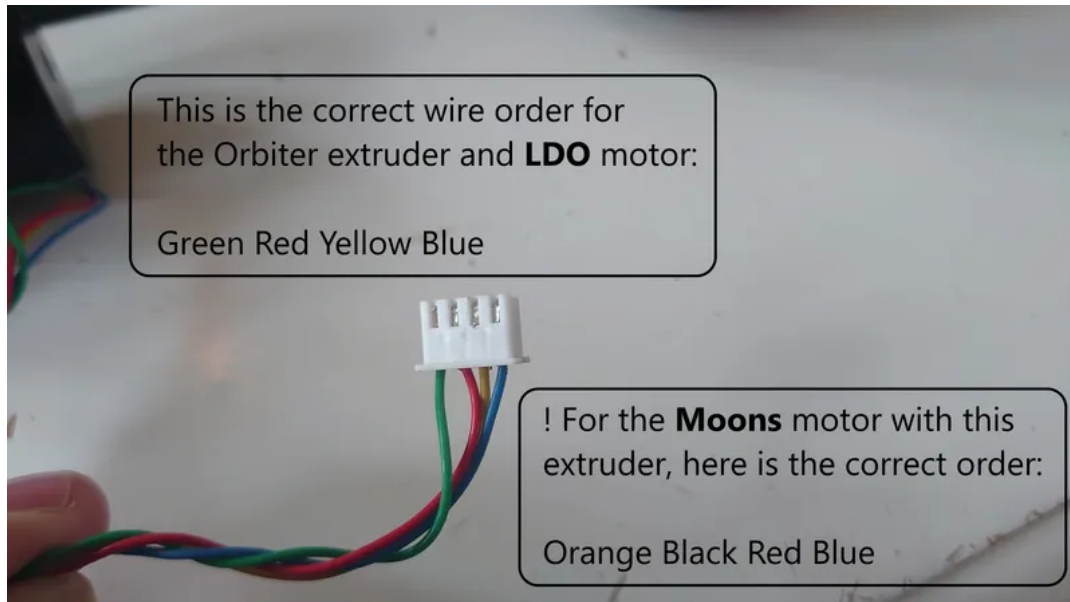
Graphics: Gerald Abao Yuvallos

Orbiter 1.5 and 2.0 wire order

Cut the Orbiter motor cable to around 15 cm and crimp on a 4-pin JST-XH connector. The correct cable orientation for the LDO motor is as pictured: Green, red, yellow, blue.

If you're using a motor by Mellow, this is the correct wire order: Green, black, red, blue.

If you're using a motor by Moons, this is the correct wire order: Orange, black, red, blue.

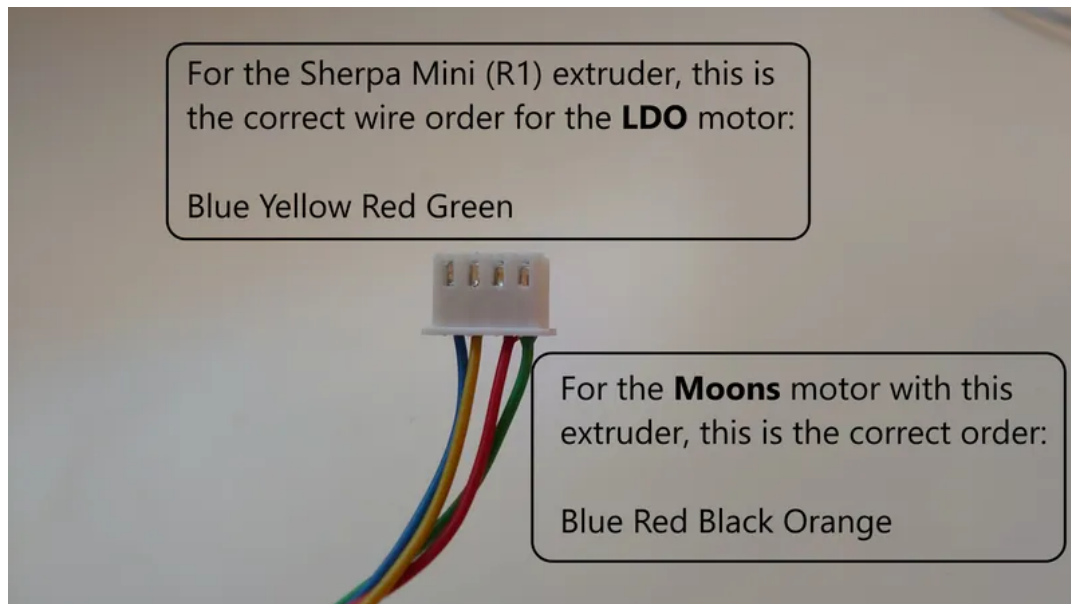


Sherpa Mini R1 wire order

Cut the Sherpa Mini motor cable to around 15 cm and crimp on a 4-pin JST-XH connector. The correct cable orientation for the LDO motor is as pictured: Blue, yellow, red, green.

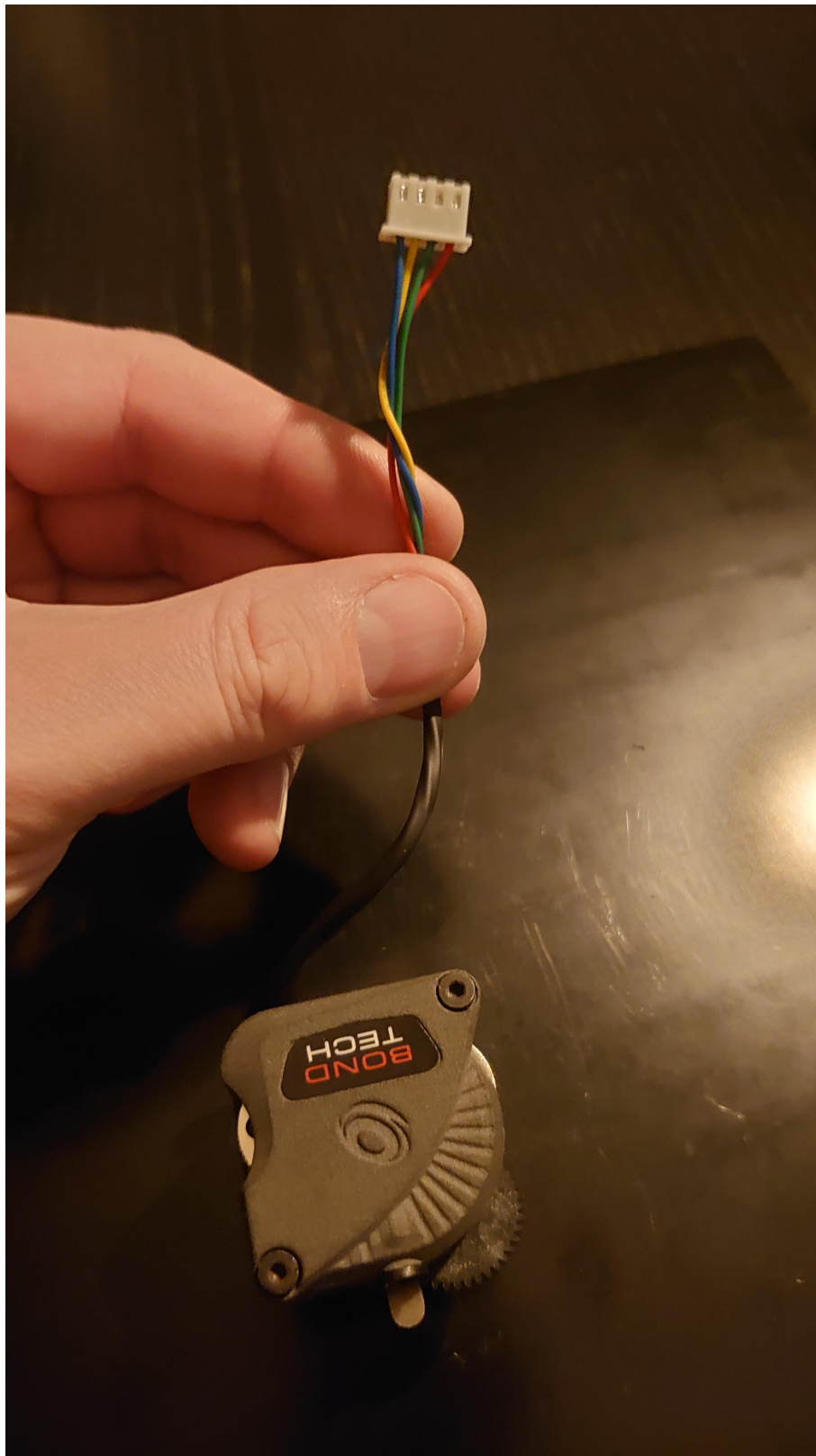
If you're using a motor by Mellow, this is the correct wire order: Blue, red, black, green.

If you're using a motor by Moons, this is the correct wire order: Blue, red, black, orange.

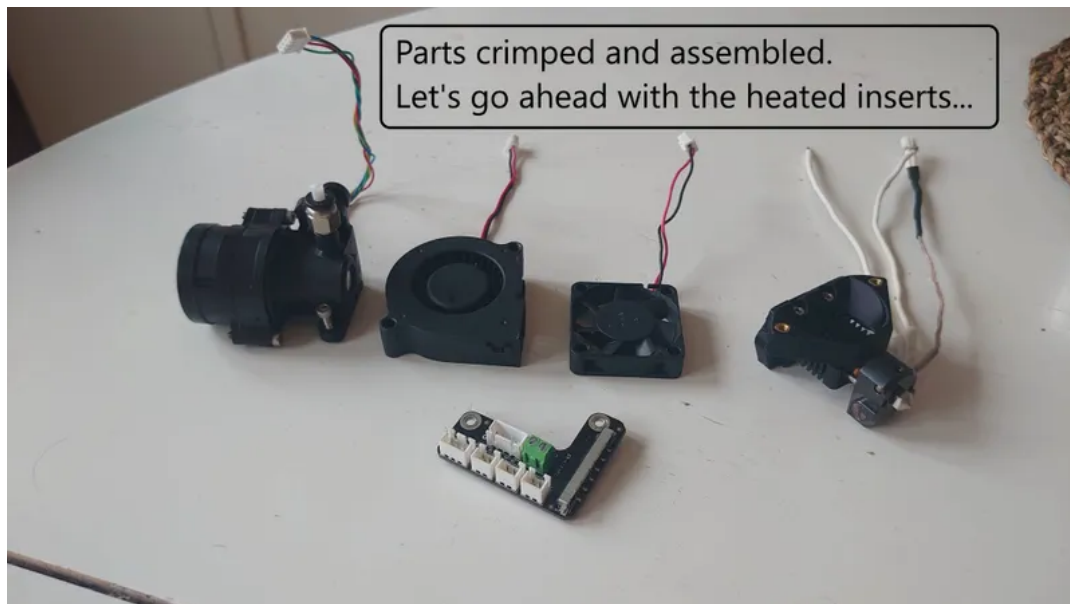


LGX Lite wire order

Cut the LGX Lite motor cable to around 15 cm and crimp on a 4-pin JST-XH connector. The correct cable orientation for this is as pictured: Blue, yellow, green, red.



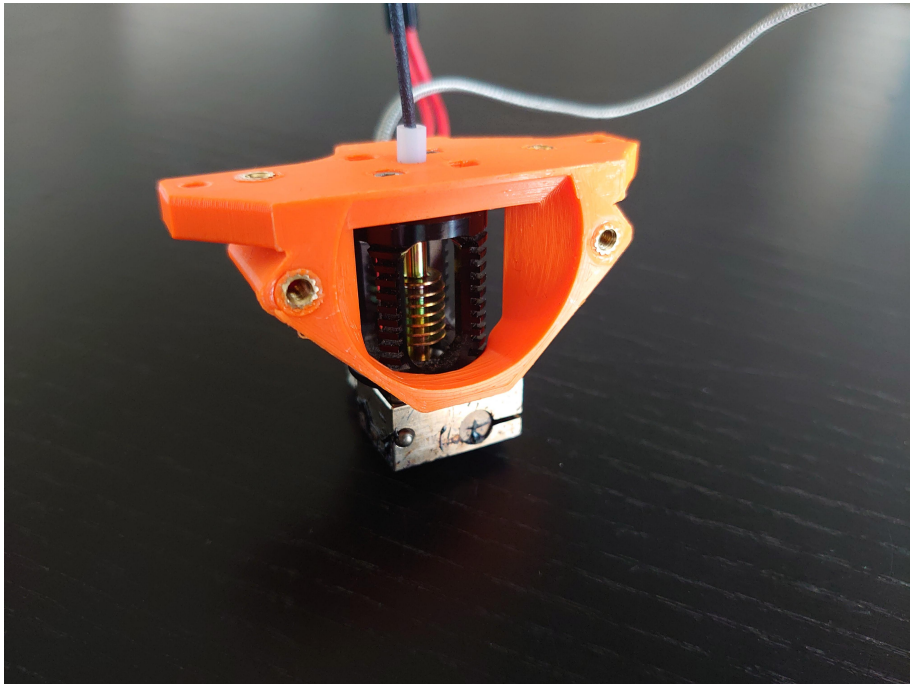
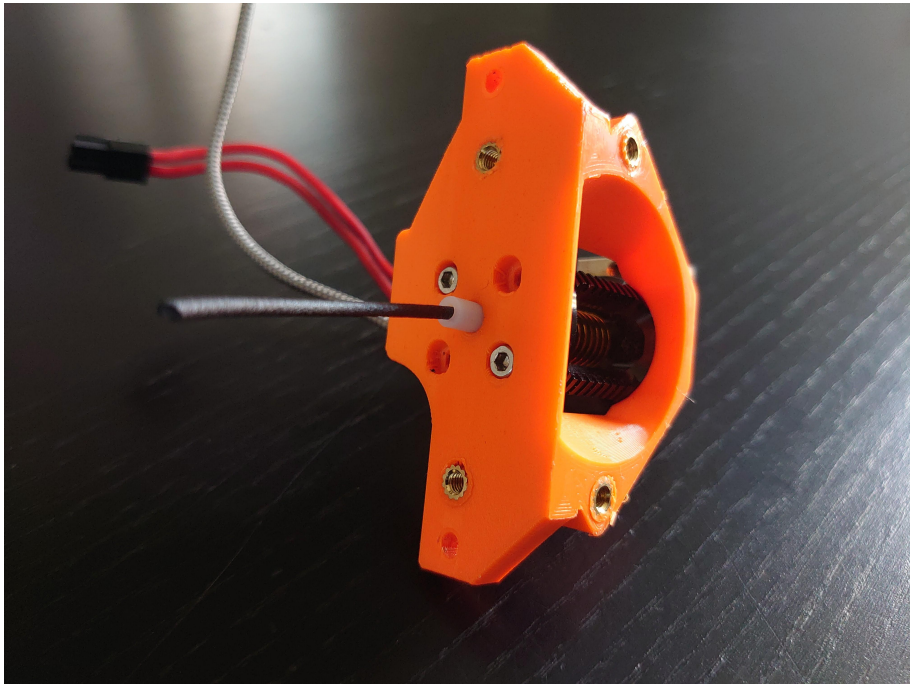
Crimping done!

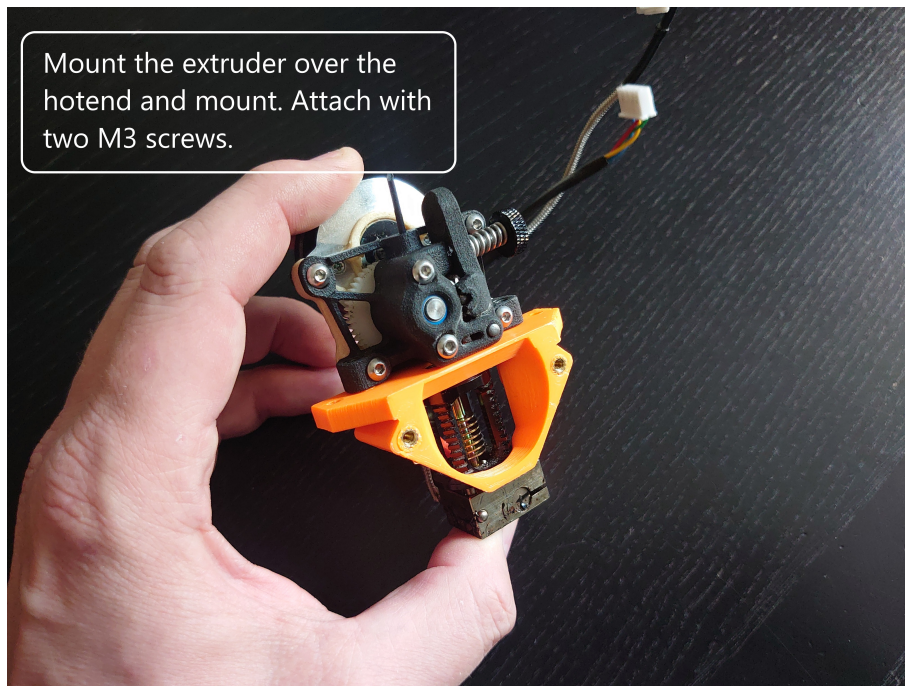


Mount the two small hotend screws to the the hotend mount and tighten it with the hotend sitting behind it. Look at the picture for the correct orientation. In my experience 2 screws are enough but the design allows for four screws to be used.

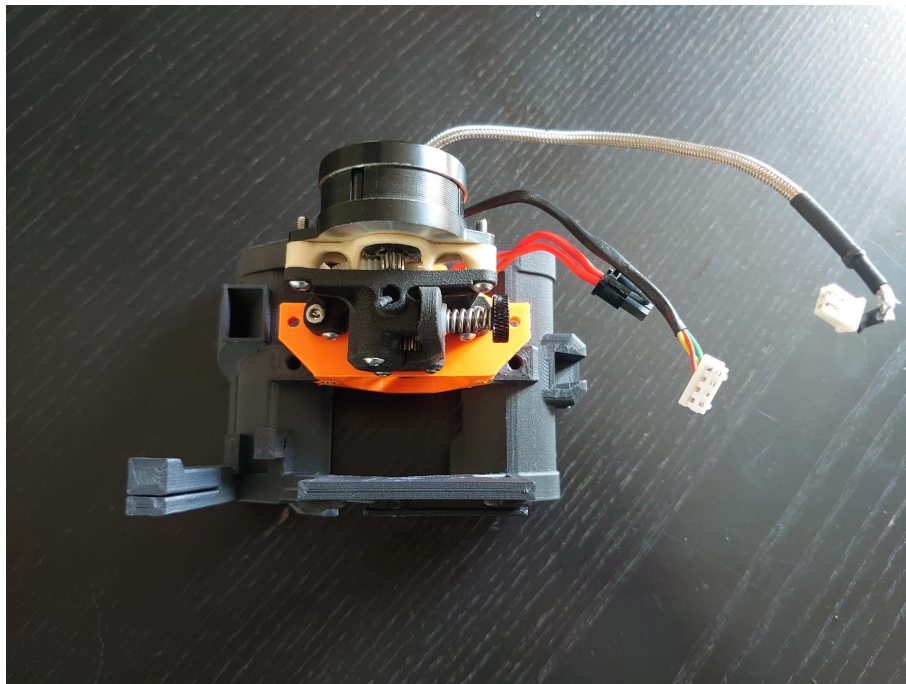
Make sure the heatblock of the hotend is facing the correct direction; the heater cartridge should be the closest to the front of the carriage and the thermocouple towards the blower fan (rear).

Then cut a PTFE tube using the printed jig, the PTFE should have an inner diameter of 2 mm and outer diameter of 4 mm which is the standard for 1.75 mm filament. Insert it into the hotend mount.

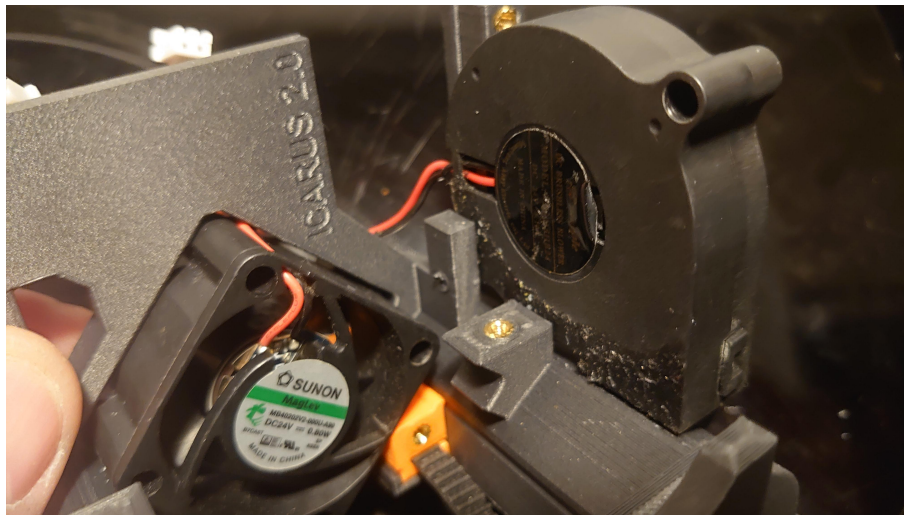




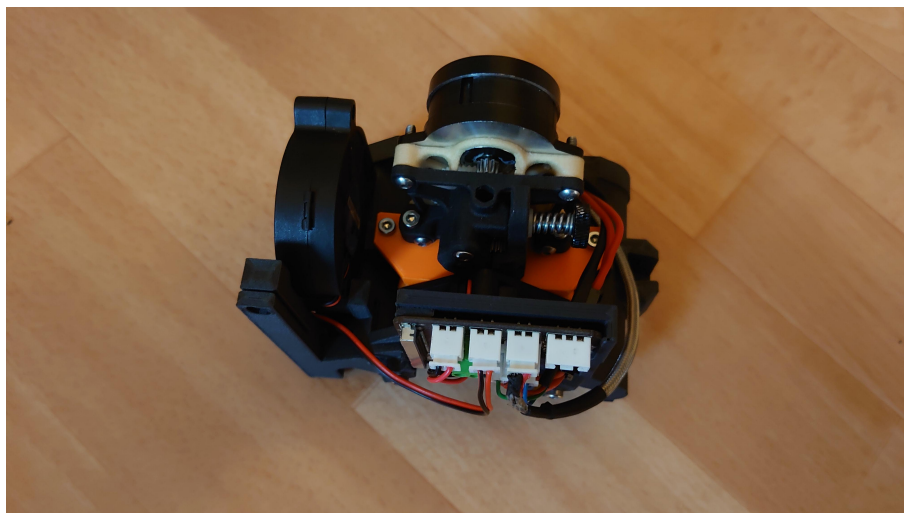
Next, install the hotend/extruder mount in the carriage and slide it backwards so you can insert the 4020 fan in front of it.



Next, insert the 4020 fan between the carriage and the extruder/hotend mount. The sticker on the fan should be facing the hotend.



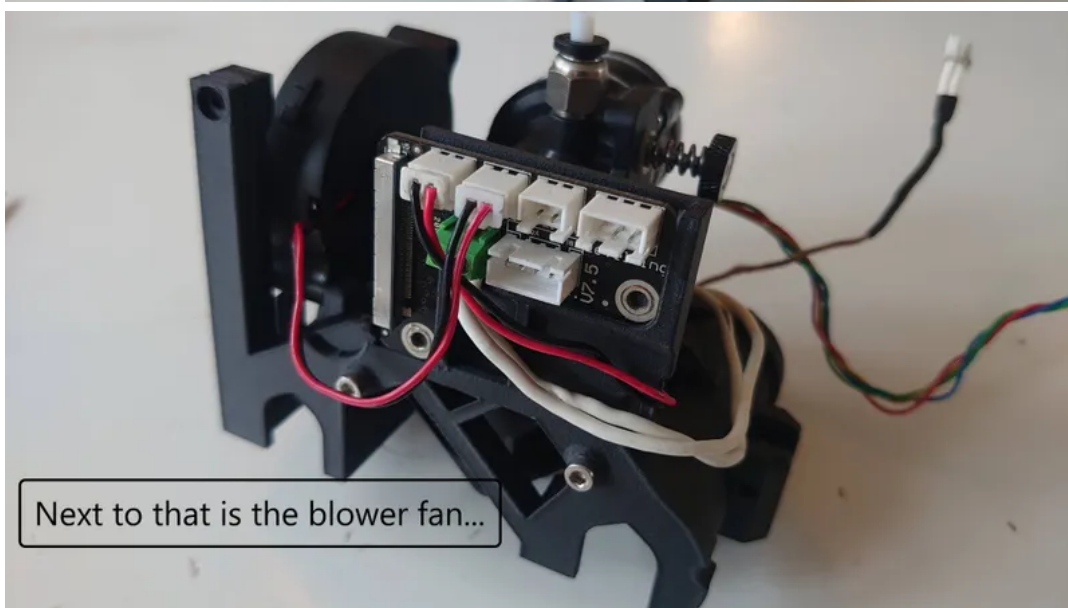
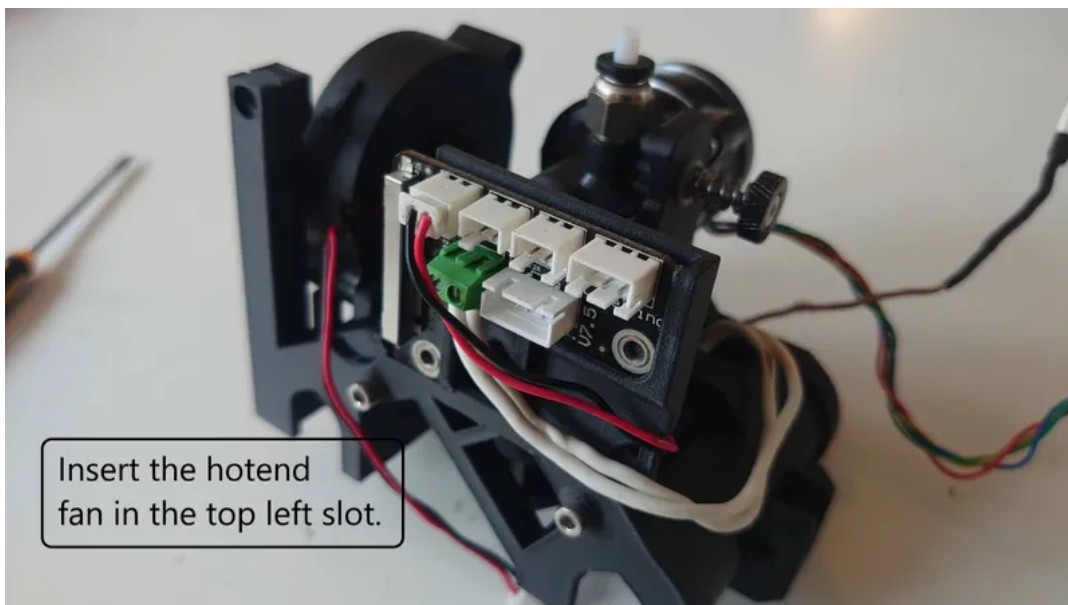
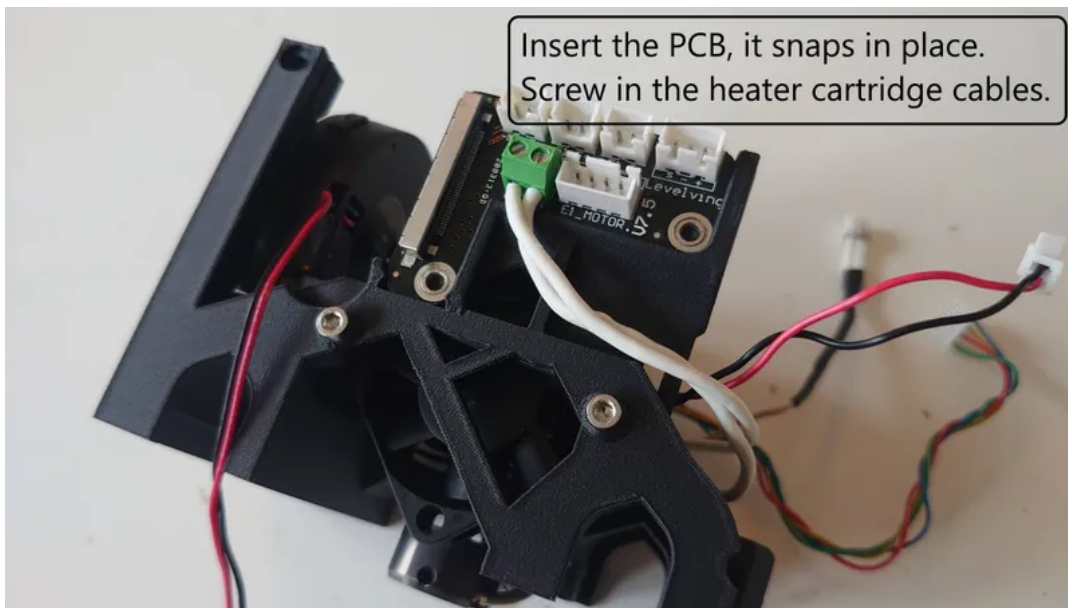
Then push the mount forward again and line up the screw holes before fastening it with two M3 bolts, I find it easier to do if you use a thin pin or a thinner allen key for example to line it up before tightening. Also, fasten the two M3 screws from above the mount.

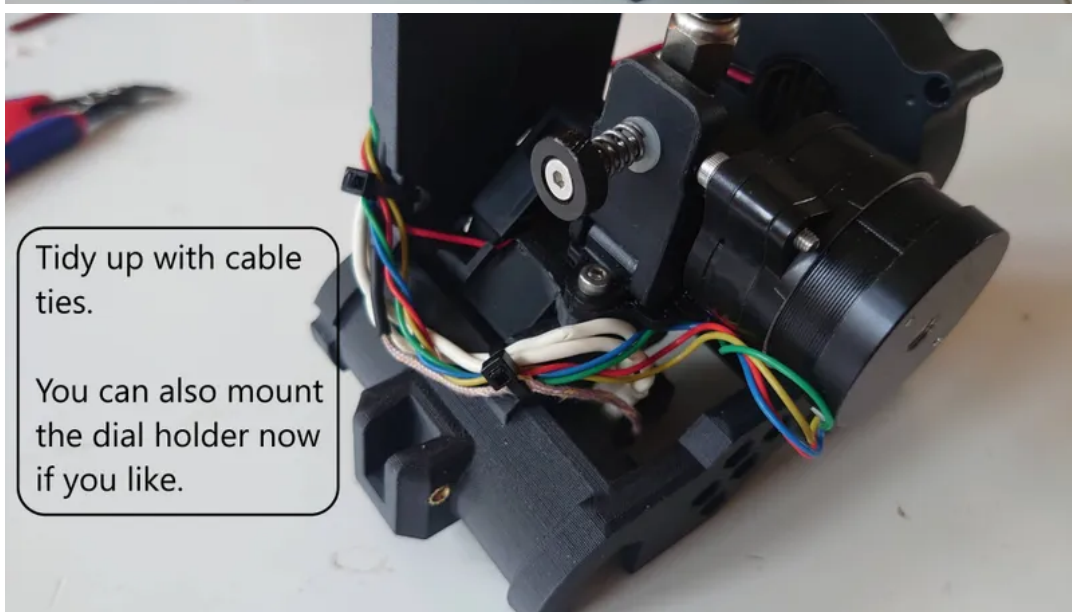
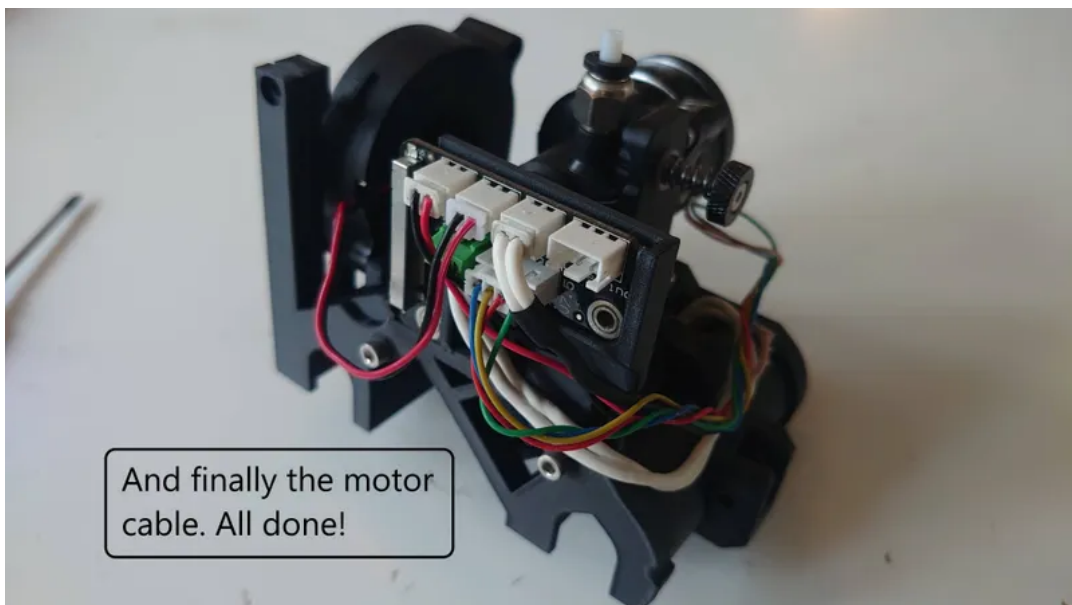
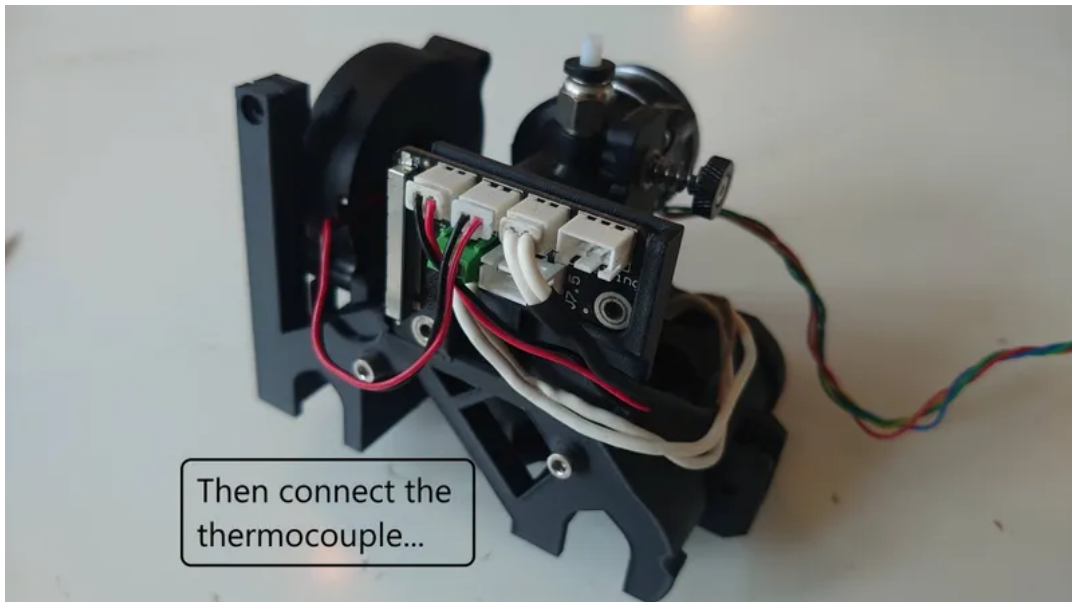


Caution! Tighten it but do not overtighten it as we don't want the brass inserts to come loose from the carriage. The same applies everywhere in this guide.

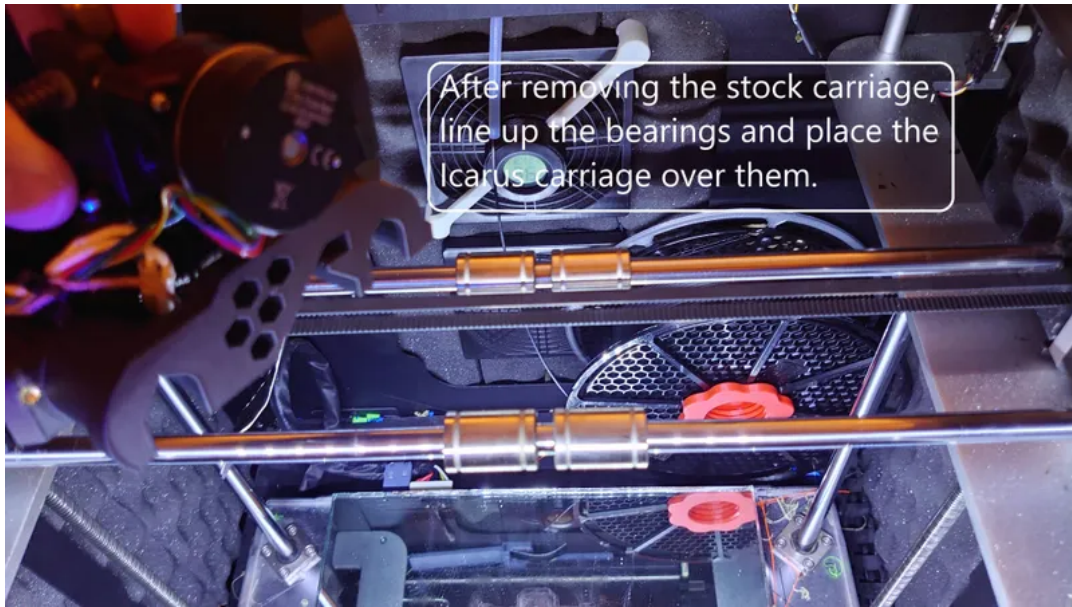
I designed the carriage and hotend mount this way for stability as the bolts secure the hotend mount as well, preventing hotend roll.

Fasten the cables from the heater cartridge to the PCB (from your spare extruder or if you bought a new one) then carefully press down the PCB into the slot. Secure the right side of the PCB with a M3 screw.

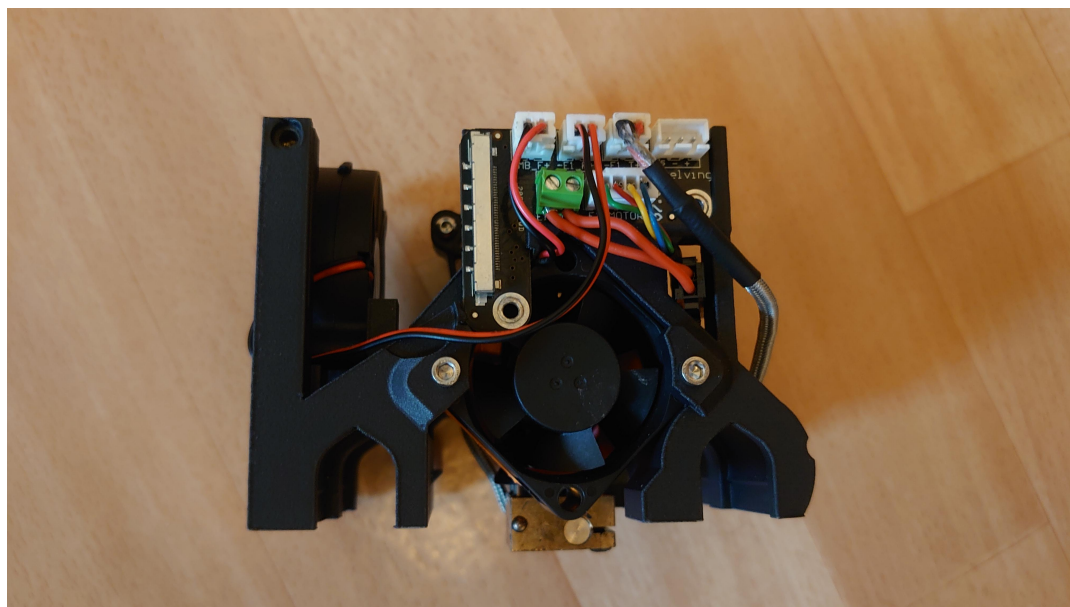
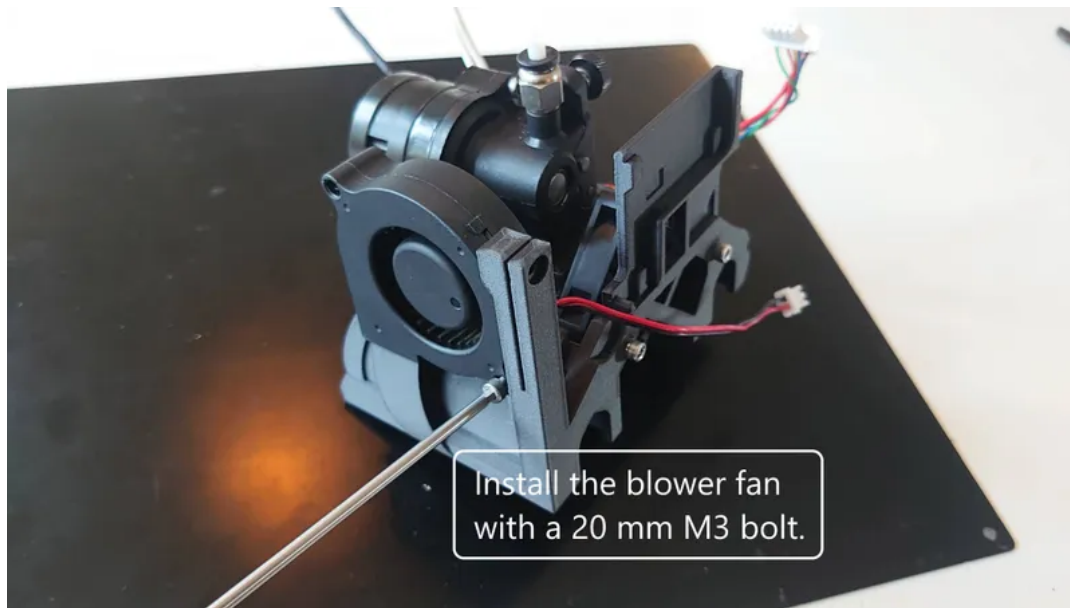




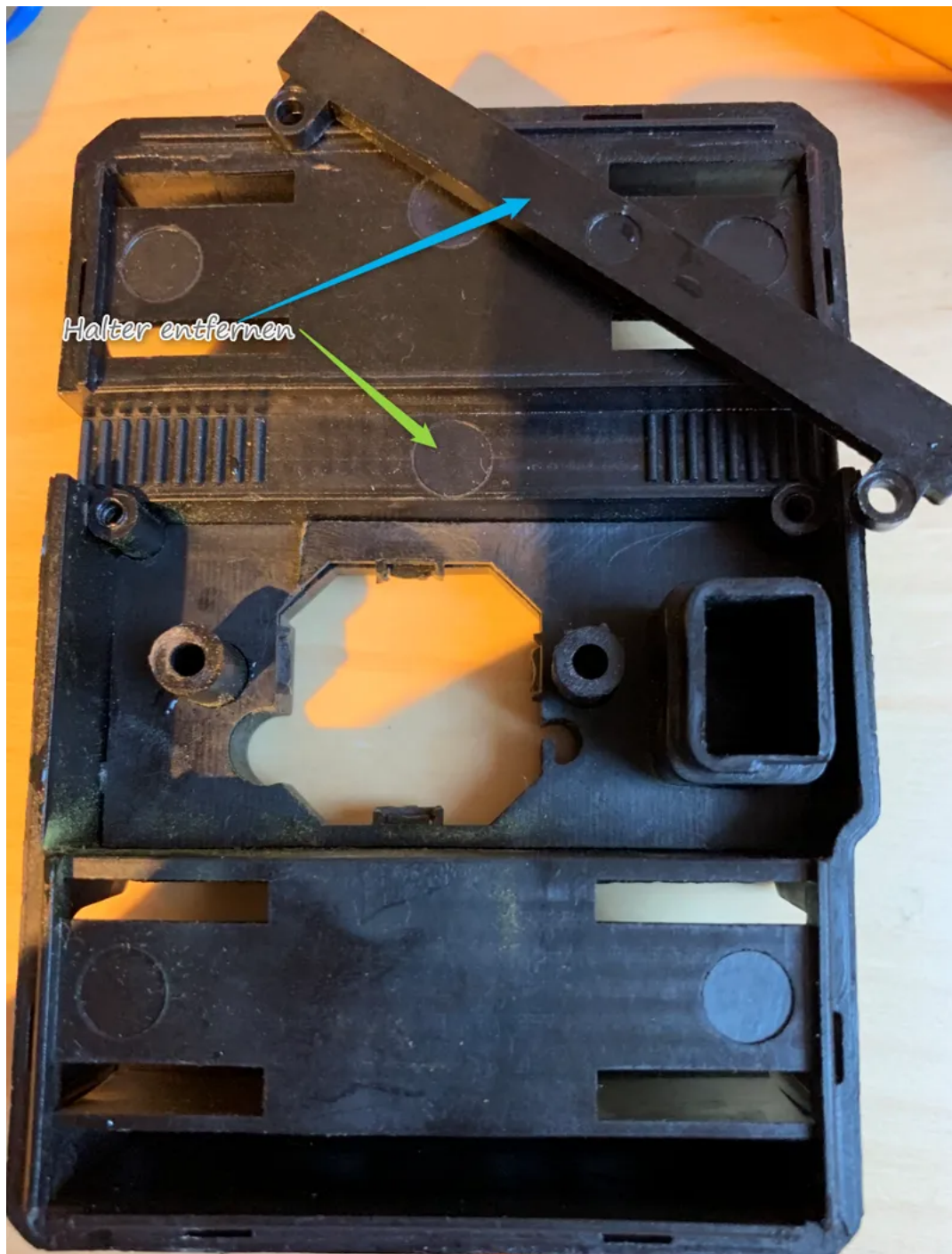
Insert the blower fan and secure it with a 20 mm bolt. Do the same for the dial indicator holder if you wish to use it.



The carriage is now assembled and can be installed in your printer.

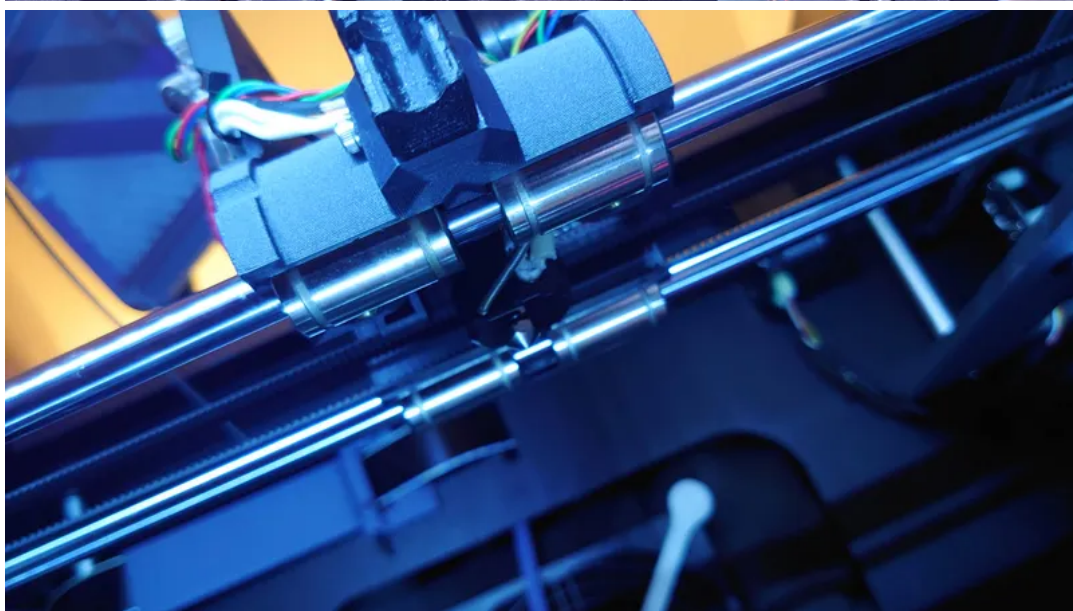
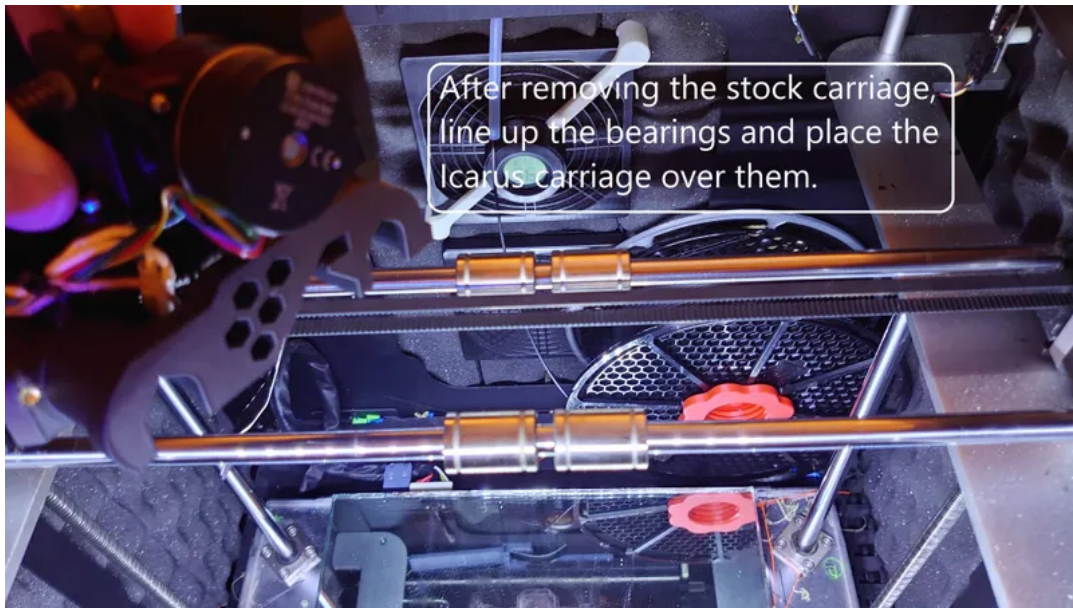


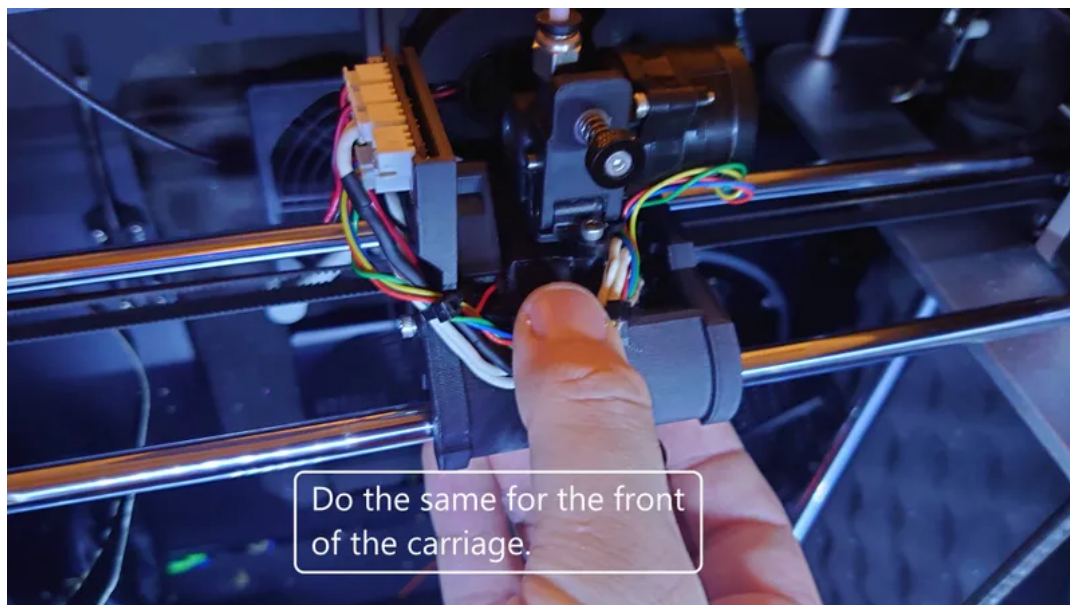
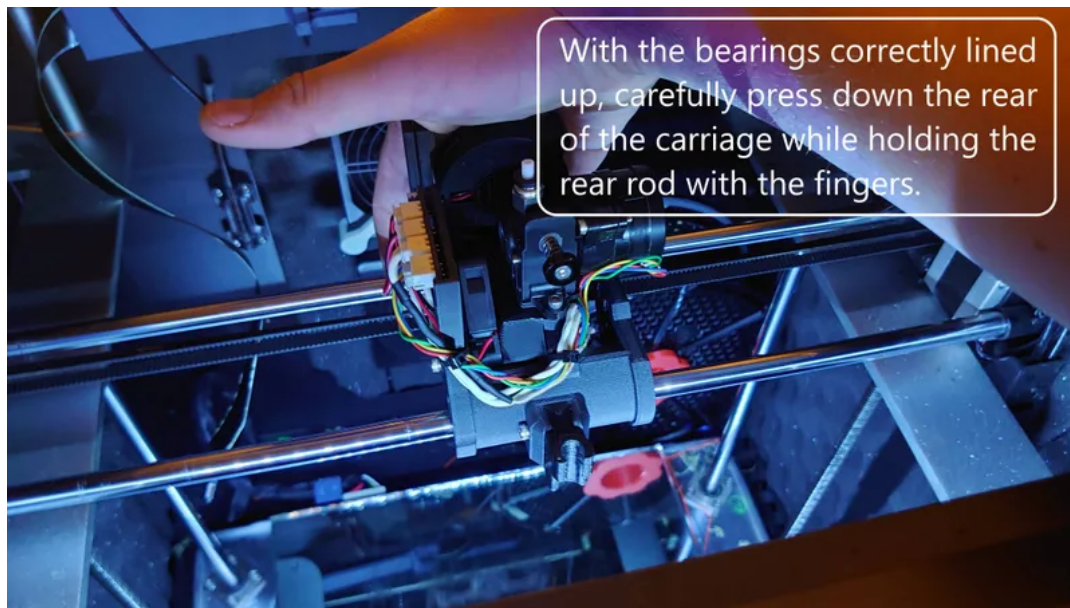
Next, remove the original QIDI printhead and carriage. It is not fully pictured but to do so remove the screw from the top cover, remove the cover, unplug the ribbon cable, unscrew the extruder from below with the two screws (and possibly fan duct if you have one), lift out the extruder, remove two screws holding the belt plate, lift over belt then pull off the whole carriage carefully but firmly, it can sit very tight on.



Picture: Olaf Krause

At this point it's time to install the Icarus carriage into your printer. Line up the bearings below the carriage until you feel the location is correct then press down, use both hands if needed, it is a good idea to hold the rods as well so they don't bend down. It will sit firmly and will snap over the bearings. Once installed there should be no play in the carriage against the bearings.





Next, it's time to install the belt peg and follow the step below based on if you use the stock belt or aftermarket:

A) Closed (stock) belt without tensioner

If you're using a stock (closed belt) and don't want to use the tensioner all you need to do is install the belt peg over the belt (press it in) then attach it to the carriage using the two top-right M3 screws:

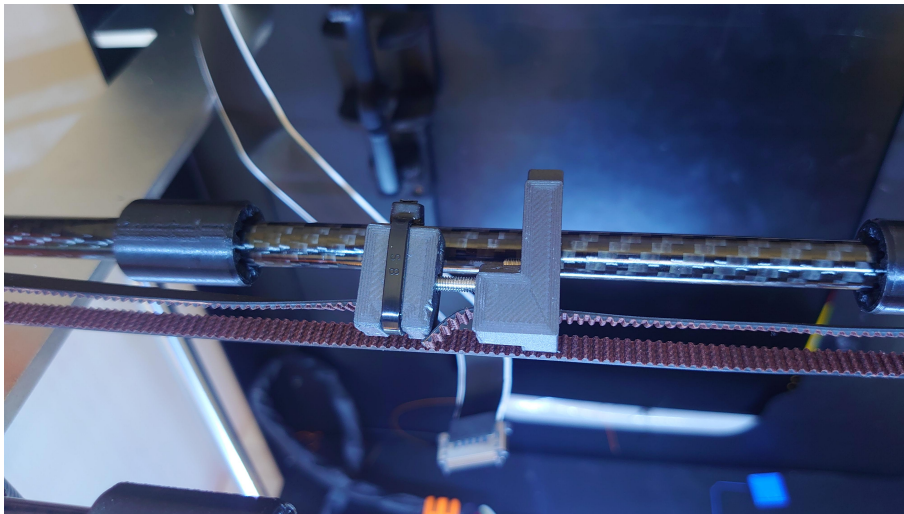
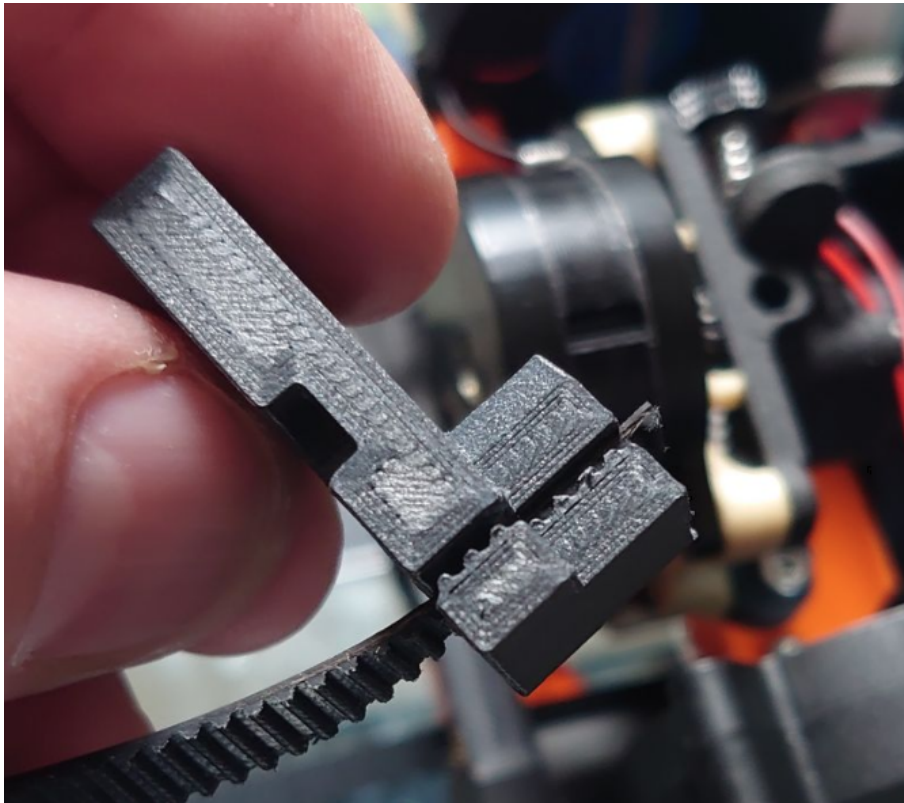


Picture: Olaf Krause

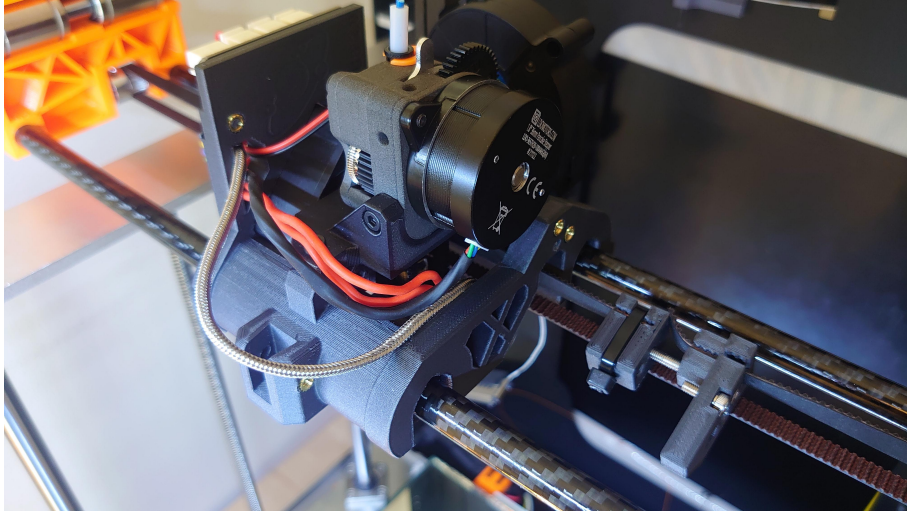
B) Open (aftermarket) belt with tensioner

If you use an aftermarket (open) belt the tensioner is required as it will both tension the belt and keep it in a loop. This install is a little more challenging but if you follow these directions it should be easy enough.

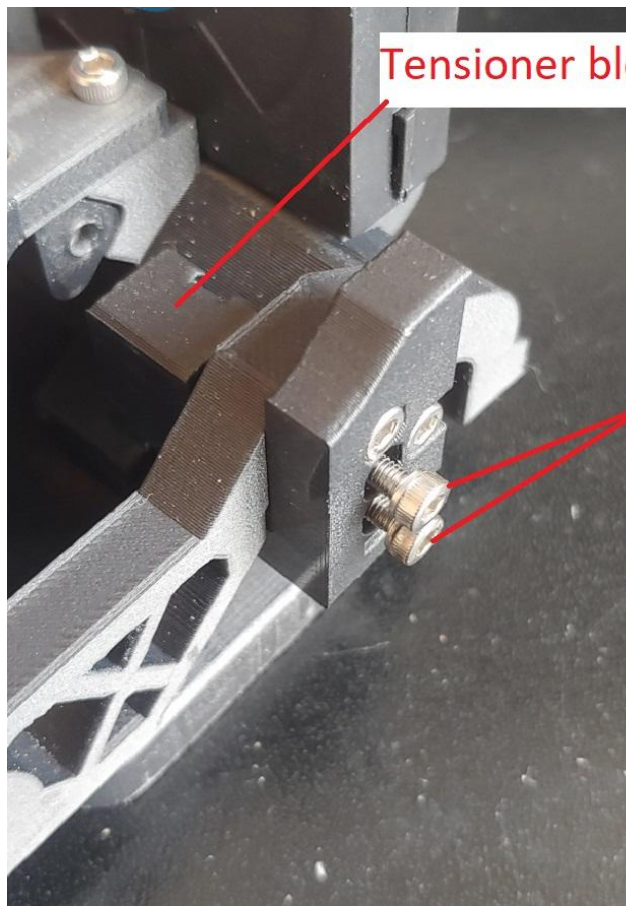
First, press in the belt end into the belt peg's teeth and do the same with the other end as pictured. I've using a cable tie on the tensioner to prevent it from opening when it is being tensioned. Next, insert a fairly long M3 bolt in the bottom hole of the tensioner and screw the belt peg and tensioner together.



Slide the tensioner part under the carriage and up, still being only attached with the lower bolt. Then, once in place you can attach it to the carriage and install the other bolt to the tensioner as well.

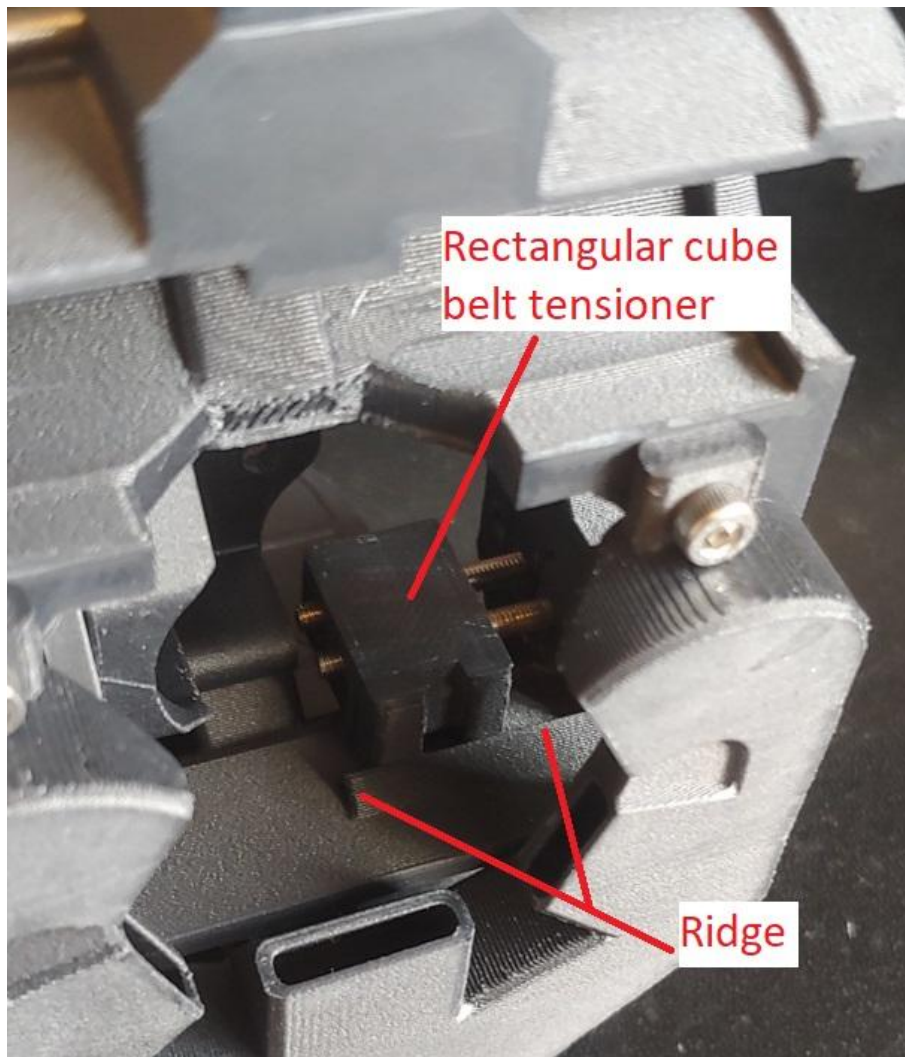


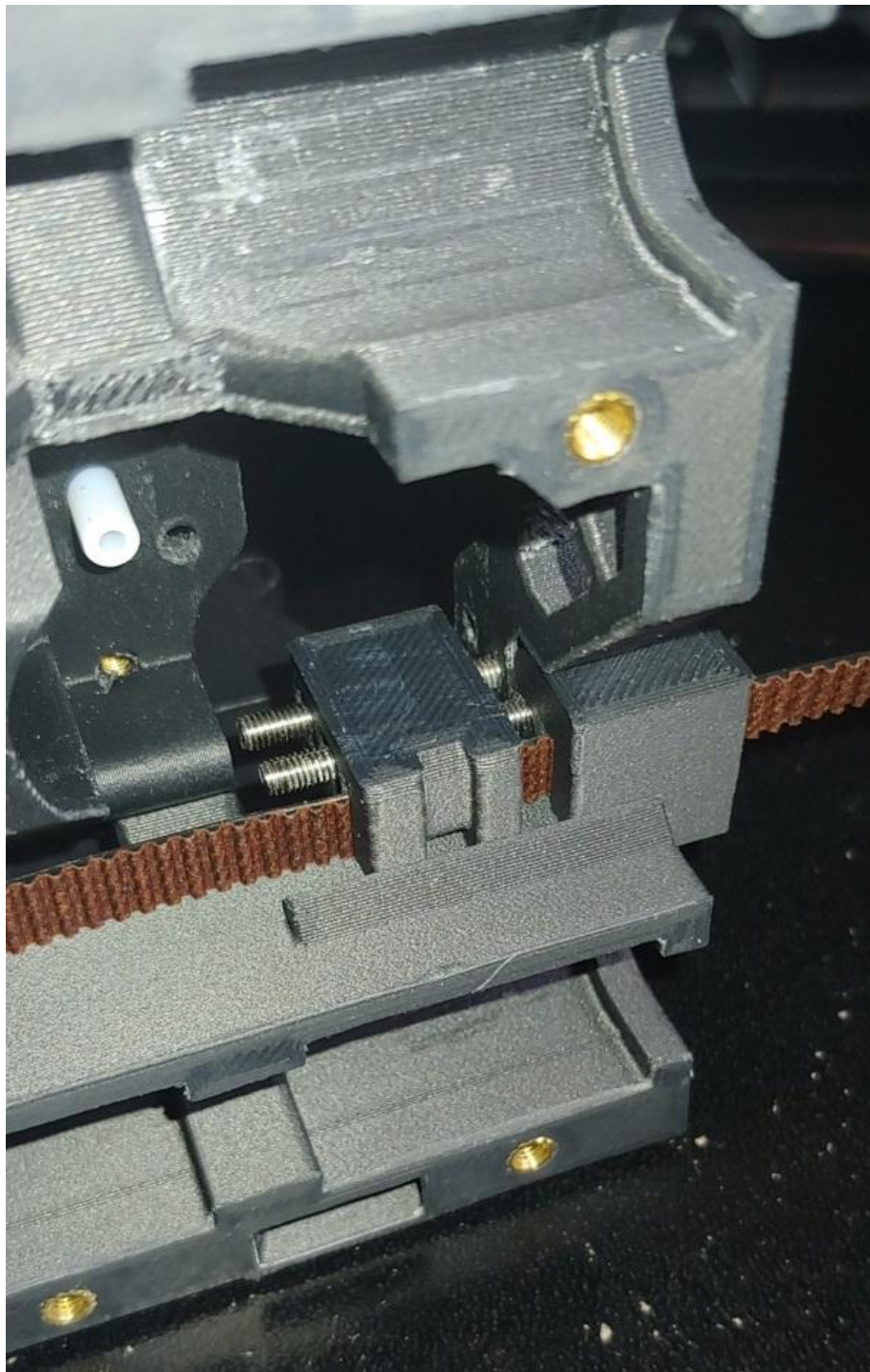
Inside the carriage, there is a ledge the tensioner rests on so it's aligned:



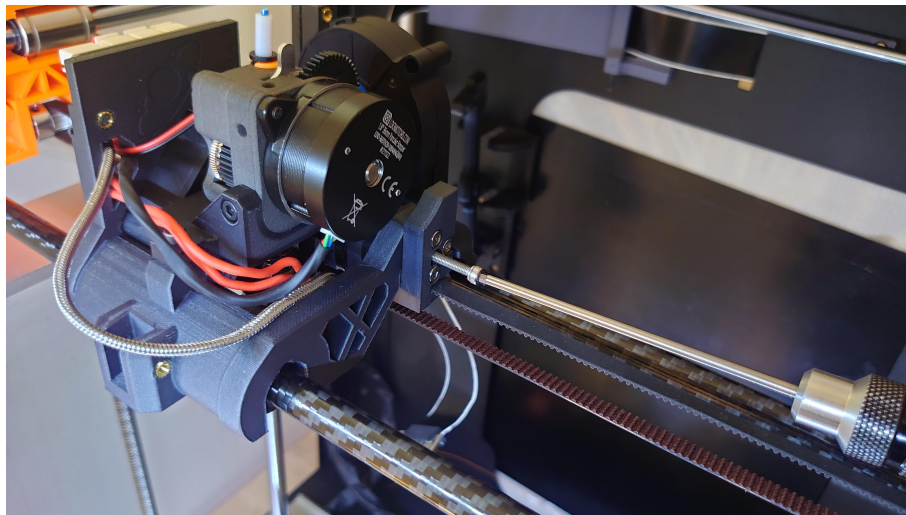
Tensioner block

2 x bolts go through the outer piece, through the chassis & then into the inserts in the tensioner block



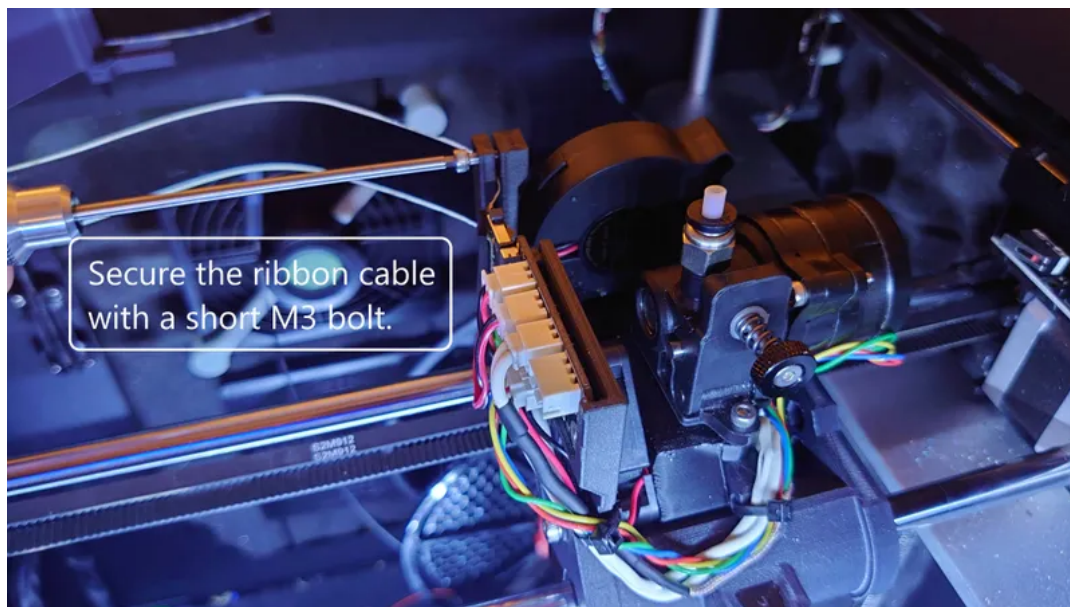
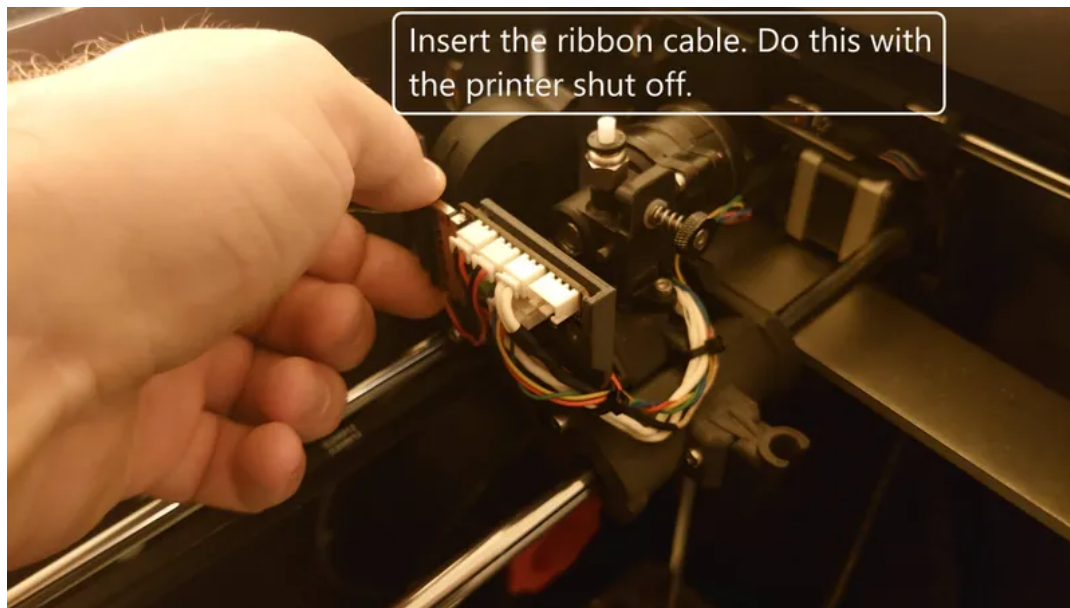


Picture: psjshep on Discord



Ribbon cable

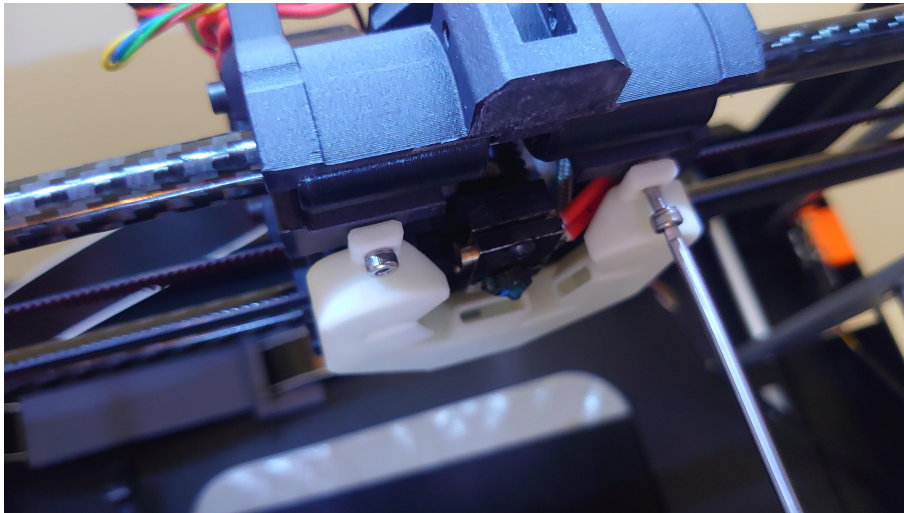
Place the ribbon cable over the ribbon cable bracket and then insert it into the PCB, not the other way around. Do this with the printer shut off.



The main objective of the bracket is to keep the weight from the ribbon cable from stressing the connector. It will also help preventing the ribbon cable from dipping down too much.

Fasten the ribbon cable with an 8 mm M3 bolt.

Install the fan duct from below using 4 x 8 mm M3 bolts.



Now you're done with the physical installation.

Time to print some files for firmware adjustments! With the zip file you downloaded on top of this page (**icarus-2-current.zip**), extract and place them on your USB stick.

If you want to you can save the current configuration to the USB stick before you start. It's optional. But if you wish to, print this file:

`firmwares-and-gcodes/output-configuration.gcode`

It will output the current configuration to your USB stick in a file named `current-configuration.gcode`. You can save this file and print it later to bring everything back to stock.

Next, print the firmware file. Go ahead and print the firmware appropriate for your extruder, for example:

`firmwares-and-gcodes/icarus-2-orbiter-2.0-firmware.gcode`

Notice! All compatible printers use the same firmware file, only the extruders use different e-step values and motor directions.

Just print it like you would print a normal model. It will make adjustments to the motor directions, X and Y distances, E-step adjustments and finally save it all. It will save immediately, no need for a reboot.

PID tune

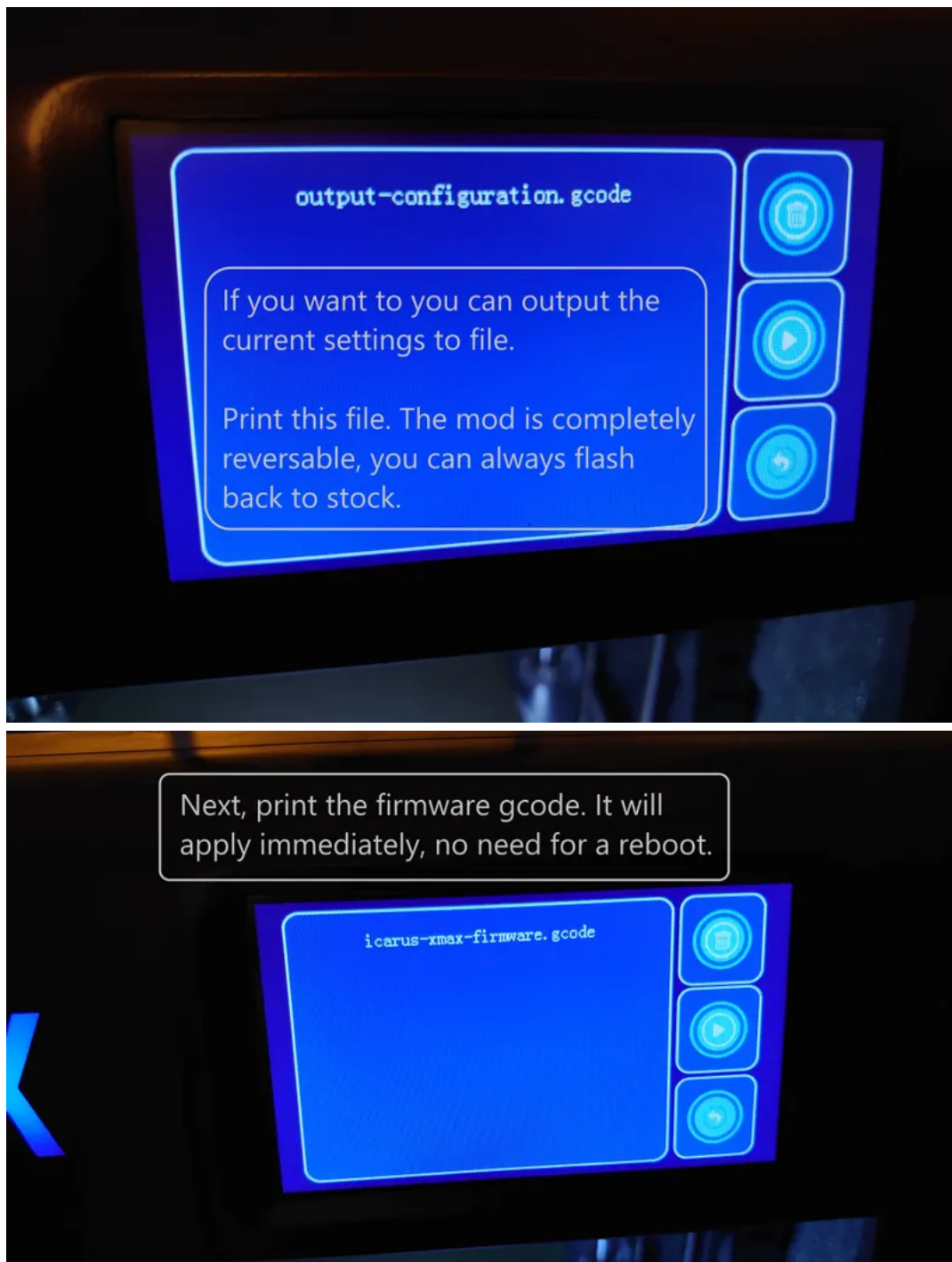
CAUTION! I no longer recommend doing a PID tune as it doesn't work properly in the latest Qidi firmwares, just skip it completely and everything will still work great.

If you are using an earlier Qidi firmware I've made an auto PID tune gcode that you just need to print, you no longer need to connect Octoprint and

send the commands to the printer and watch the output and apply yourself. Print the file, it will heat up to 230 degrees in eight cycles then use the output result and apply to the printer immediately, no need for a reboot.

firmwares-and-gcodes/pid-autotune.gcode

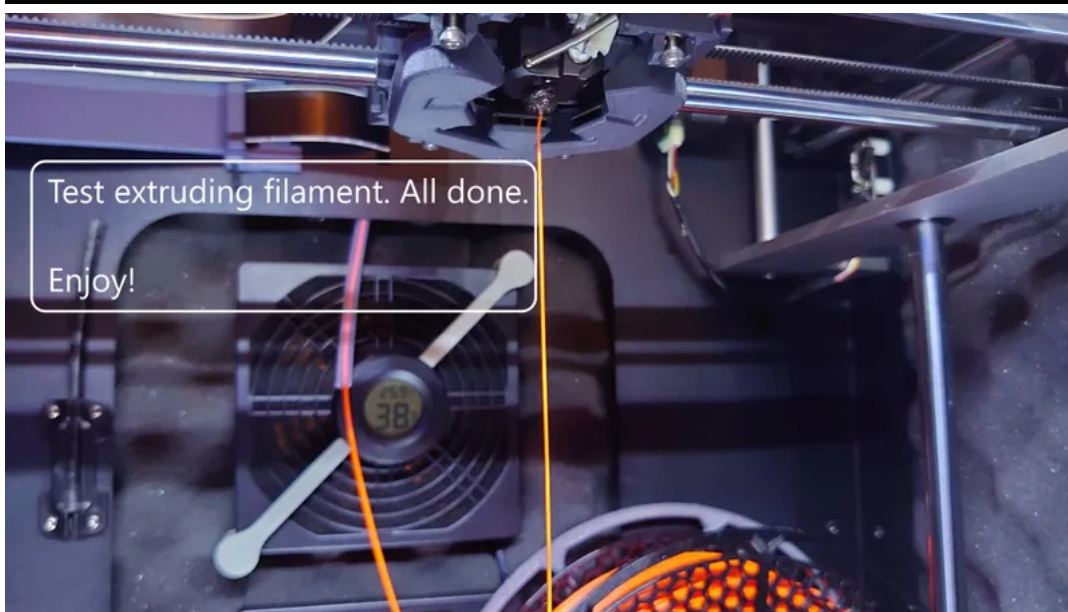
My firmware adjustments does not change the max print temp which is set to 300 C but it is commented in the firmware if you want to increase it (at your own risk).



Now it's time to check the functionality. First, do a manual X, Y and Z adjustment and see how the carriage moves. If everything looks normal heat up the extruder to printing temps and feed in the filament using the load menu. If everything goes well it will now extrude from the nozzle.

Level the bed and you're done.

Important! Screw down the bed leveling screws quite a bit first because the carriage sits a bit lower than stock so you must lower the bed a few mm. If you don't, the nozzle may crash against the bed! Also, remove the bed sticker on the first attempt so you don't accidentally run into it.



If you have a dial indicator now is a good time to perfectly level the bed. Screw in the bed leveling screws quite a bit so the springs/silicone are firm, insert the dial indicator and start the bed leveling script.

The script checks the bed level on three different spots on the bed in a triangular pattern. Adjust the bed leveling screw closest to where it measures and by the time the script has looped three times the bed will be perfectly level.

Just print it like you would a normal model:

`firmwares-and-gcodes/qidi-xmax-icarus-dial-bed-leveling-script.gcode`

If you use an X-Plus or I-Mate this is the script to print:

`firmwares-and-gcodes/qidi-xplus-imate-icarus-dial-bed-leveling-script.gcode`

All done. Enjoy!

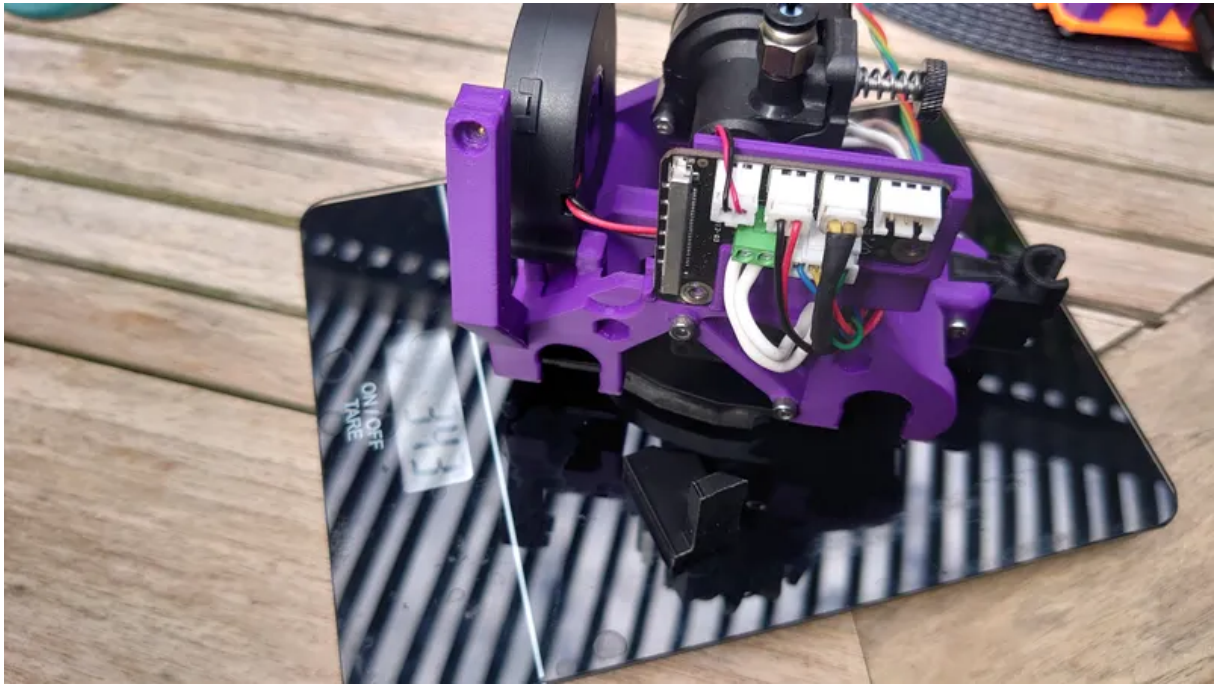
Notice: You may need to remove the dial holder while printing else it could hit the frame of the printer. On the X-Max you can have it installed all the time but I'm unsure of the other supported printer models.

Just a few tips on settings. The Dragon hotend does not need as much retraction as stock Qidi. I find around 0.8-1.0 mm is good with a retraction speed of 25 mm/s, depending on filament. If you get blobs on layer changes, disable "travel prime" in your slicer.

Also, print a few flow calibration cubes and temp towers for your filaments to dial in your printer, I have everything you need, check my other designs.

If you have a dial indicator you can now insert it to the holder and run the bed leveling script.

Icarus full weight including Orbiter extruder and motor, Dragon hotend, blower fan, PCB, bolts, 3010 fan, fan duct with bolts, dial holder with bolt and belt peg is 343g on my scale. It is 173g lighter than Hercules with pancake stepper and more than 250g lighter than stock.



Back to stock firmware?

If you ever wish to go back to stock firmware, if you're selling the printer and want to keep the fancy extruder and hotend for example, you can reinstall the stock printhead and print this gcode:

[firmwares-and-gcodes/qidi-back-to-stock-firmware.gcode](#)

Some test videos

First video is the Voron test cube at 100 mm/s, eSUN ABS+.

Second video is the same Voron test cube at 60 mm/s, eSUN TPU 95A.

Third video is a completed print of a 30 mm test cube at "normal" print speeds (40 mm/s), eSUN ABS+

Time for some still images.

I have not quite dialed in TPU yet but here's Fred the frog in eSUN TPU 95A. First pic shows the effect on the first layer when using the textured side of the ENERGETIC PEI plate, I quite like it. I usually use the smooth side though.

Below it we have a flow calibration cube in the same filament.





Next we have a couple of practical prints. They're a custom design wheel for a robotic lawn mower I made. Printed in black ABS filament with a large 0.8 mm nozzle and 0.6 mm layer height.



Some speed tests of the Voron test cube.

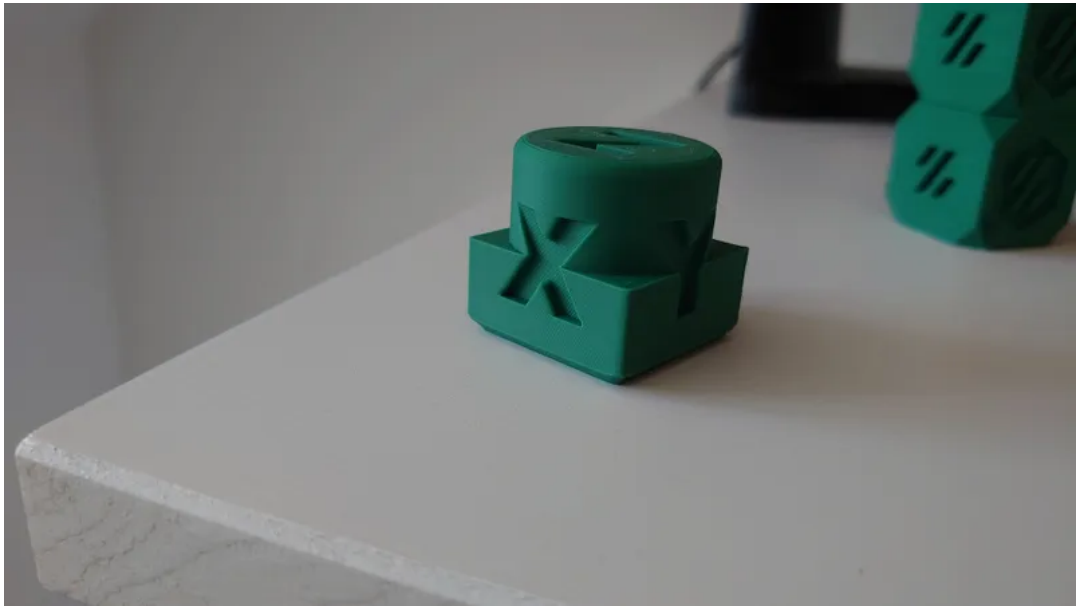
- Bottom is printed at 80 mm/s, eSUN ABS+
- Middle is printed at 100 mm/s, eSUN ABS+ (it's the cube from the video above)
- Top is printed at 60 mm/s, eSUN TPU 95A (also from the video above)

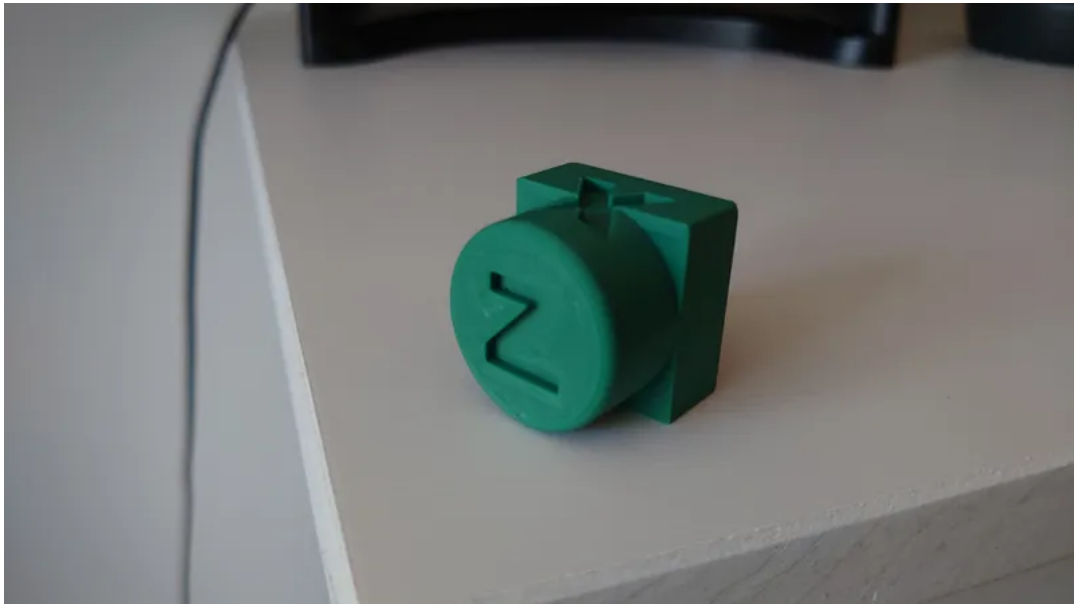


Here is a 30 mm test cube, it's printed in eSUN ABS+ at "normal" speed of 40 mm/s.

0.40 mm nozzle and 0.20 mm layer height.

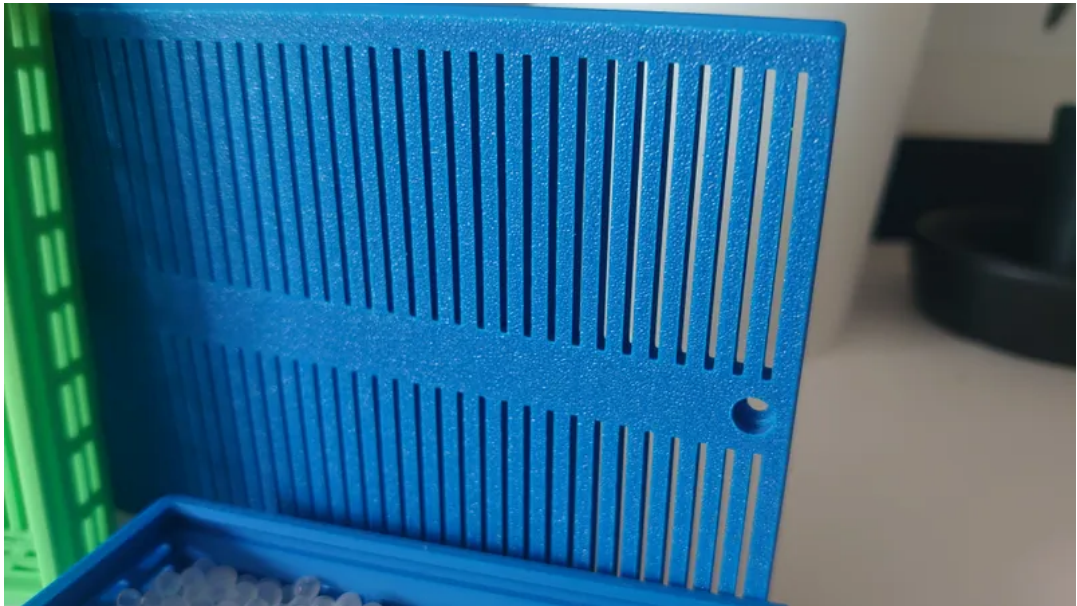
On the Y side we see the Z seam on the edge.

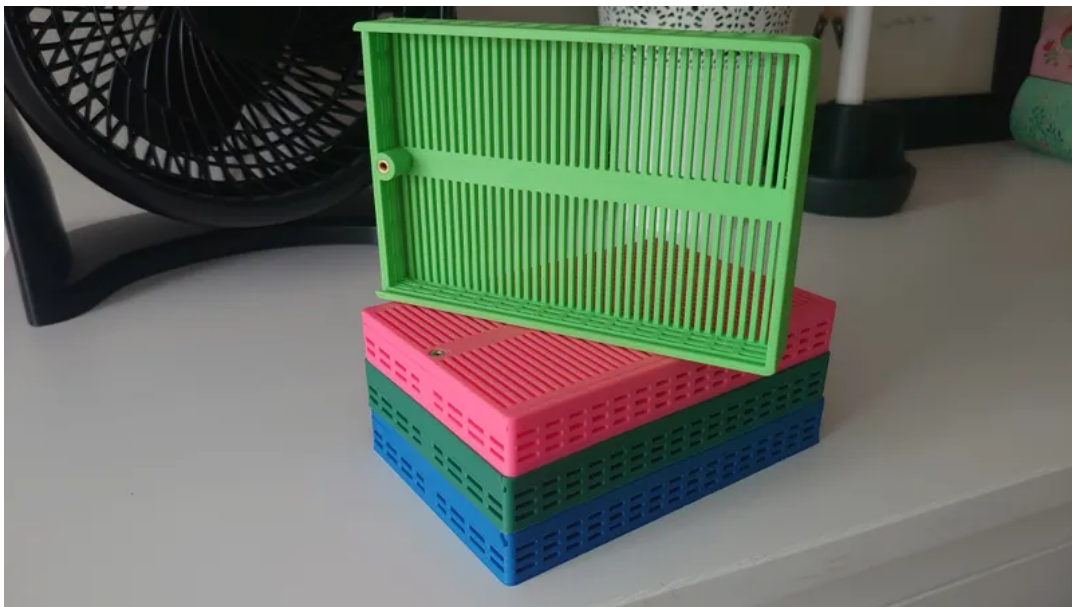




Some Silica Gel boxes printed at 70 mm/s using Icarus and Dragon Standard Flow. Layer height 0.2 mm. Trianglelab T-V6 Plated Copper Nozzle 0.40 mm.

The design is available here:





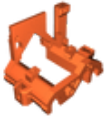
This remix is based on



**Icarus - QIDI X-Max Carriage for Orbiter 1.5 & Dragon /
Mosquito / Zodiac x Phaetus & Dragonfly BMS**

by humebeam

Model files



icarus-21-normal.stl

Other files

icarus-2-current.zip

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