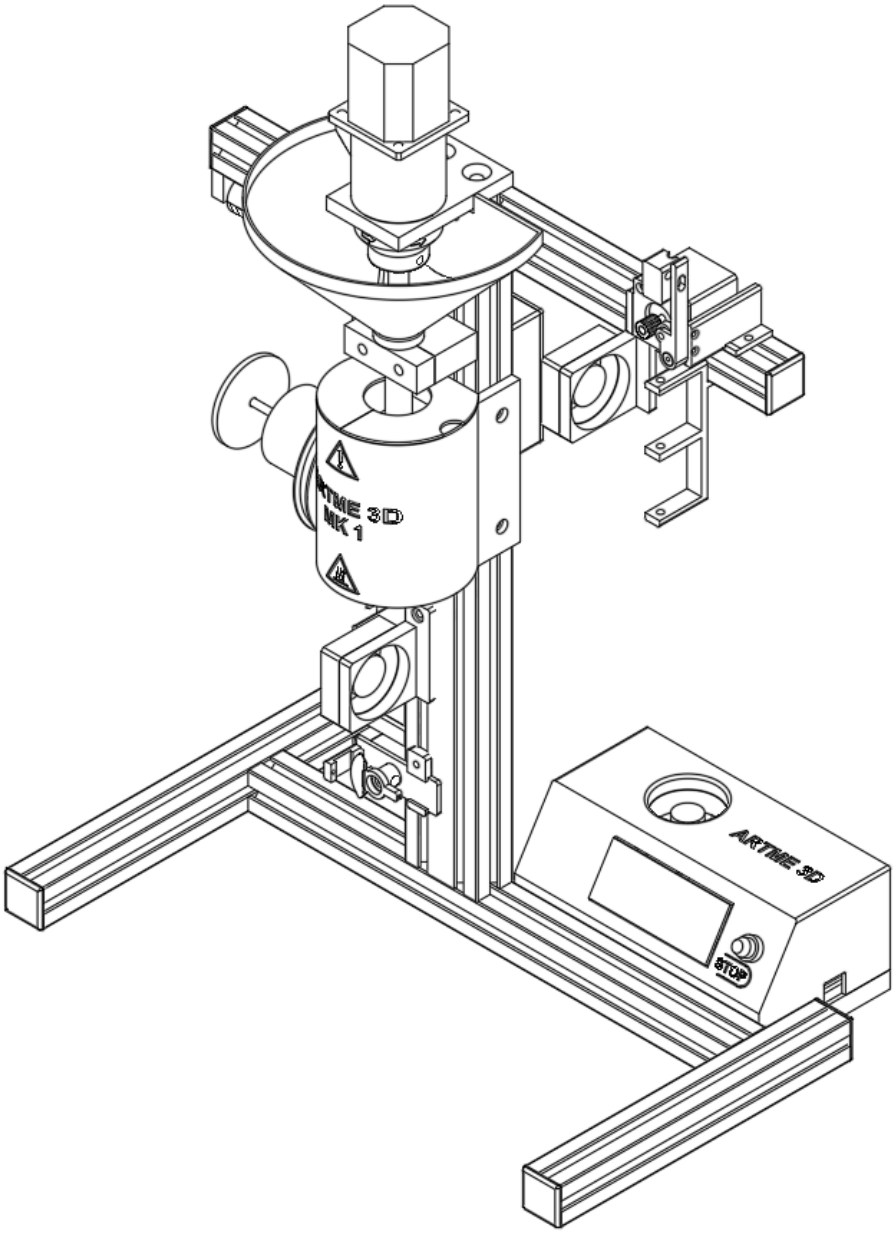
Assembly instructions
07-Puller motor

Original Desktop Filament Extruder MK1 by ARTME 3D
Version 30.05.2022



Additional tools required for this assembly section:

Phillips screwdriver PH1

Packages overview

Package 0: Delivered carton
Package 1: Screws (SC)
Package 2: Spare Parts (SP)
Package 3: Custom Metal Parts (CM)
Package 4: Extruder Barrel (EB)
Package 5: Electronics (EL)
Package 6: Tools (TO)

Step 1:

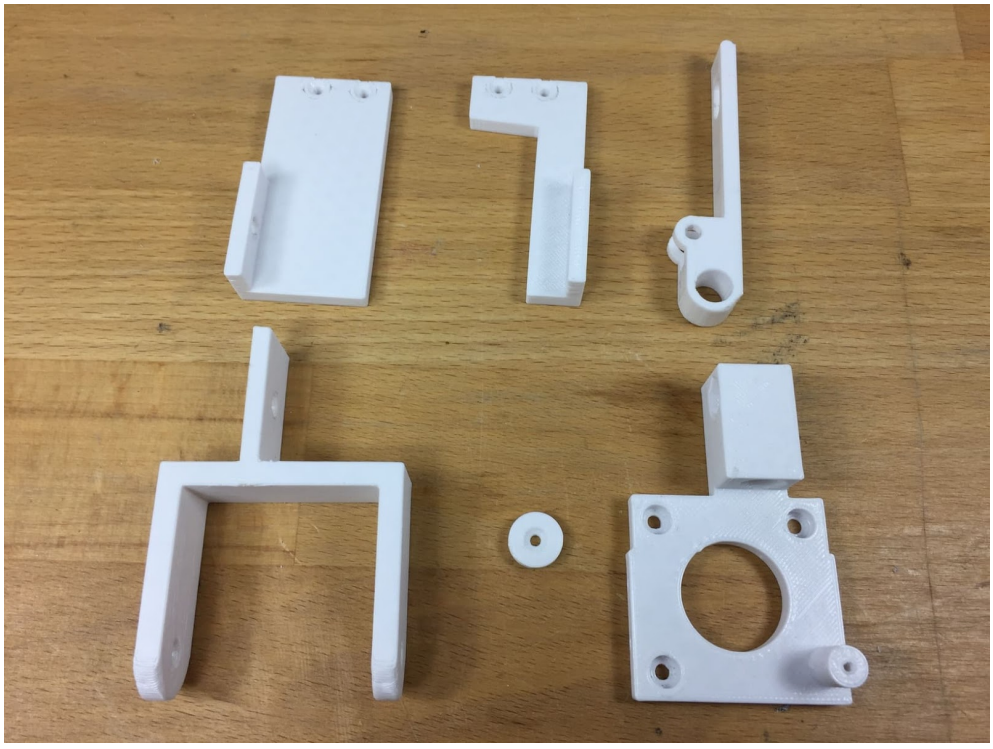
Remove from package 0 (delivered carton):
1x Nema 17 stepper motor (MO02)

Remove from package 1:
5x wood screw 2.5x12 SC01
3x cheese head screw M3x6 SC04
4x cheese head screw M4x10 SC05
1x hexagon screw M5x40 (20mm thread) SC10
1x Washer M5 (SC13)
3x Slot nut SC17

Remove from package 2:
U-ball bearing 4x13x4 mm SP15
1x Extruder feed wheel SP16
1x Pressure spring 6mm SP17

Step 2:

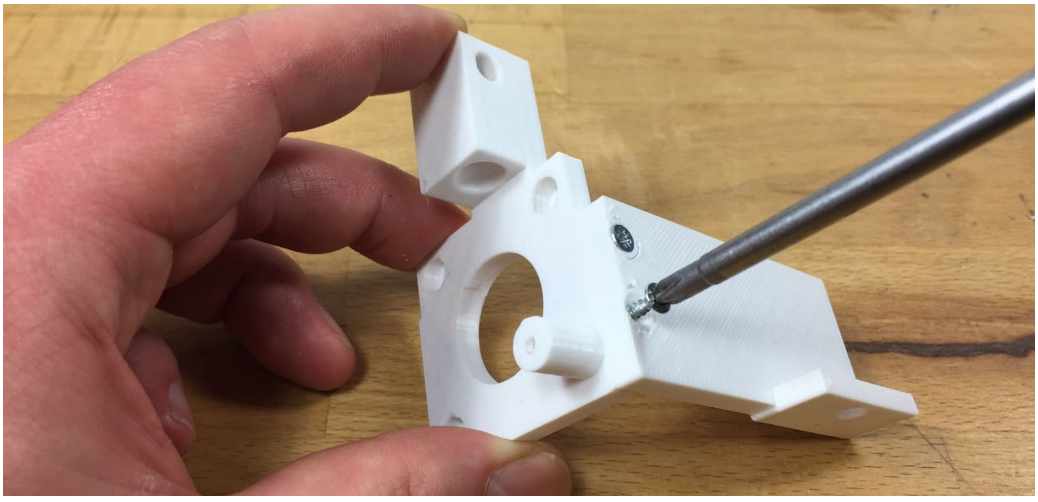
3D printing: motor holder part 1 (FP01), motor holder part 2 (FP02), motor holder part 3 (FP03), lever (FP04), disk (FP05), filament guide (FP06)



Step 3:

Tool: Phillips screwdriver PH1

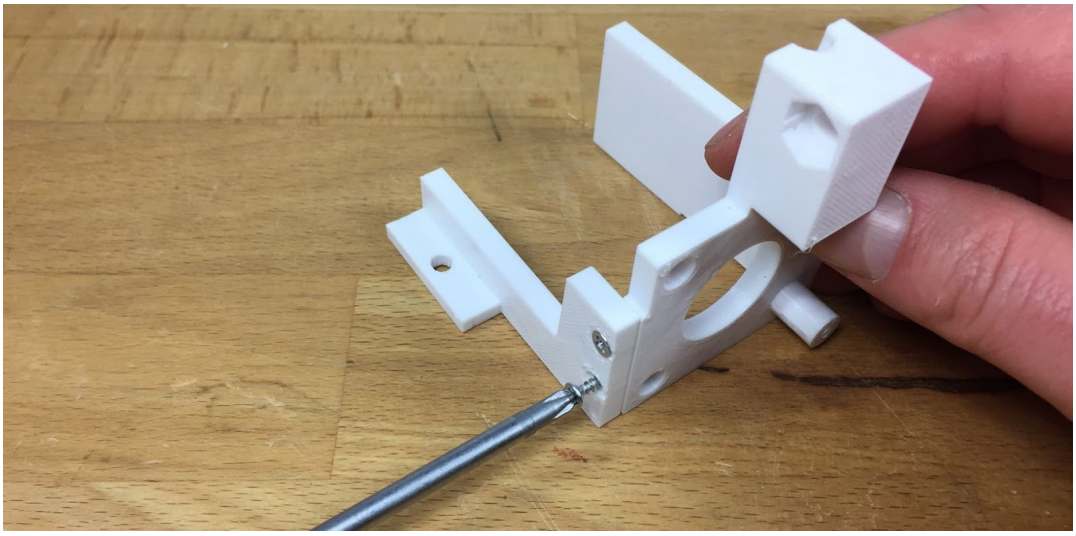
Screw the motor holder part 2 (FP02) to the motor holder part 1 (FP01) using two wood screws 2.5x12 SC01. Alignment see picture.



Step 4:

Tool: Phillips screwdriver PH1

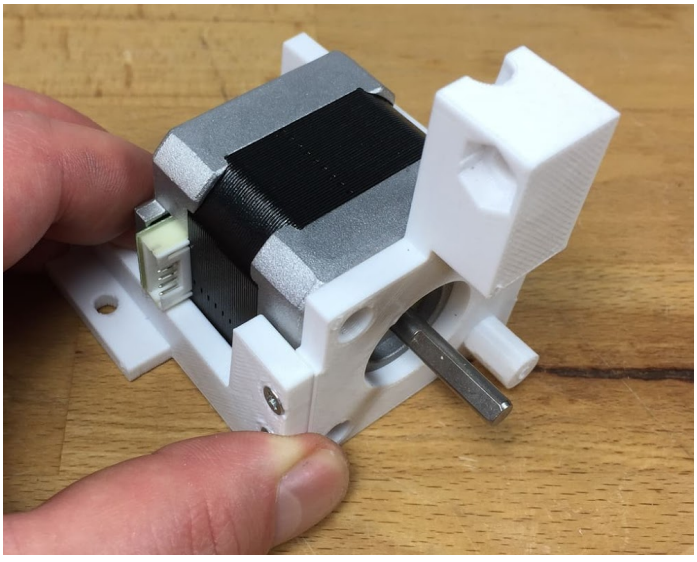
Screw the motor holder part 3 (FP03) to the motor holder part 1 (FP01) with two wood screws 2.5x12. Alignment see picture.

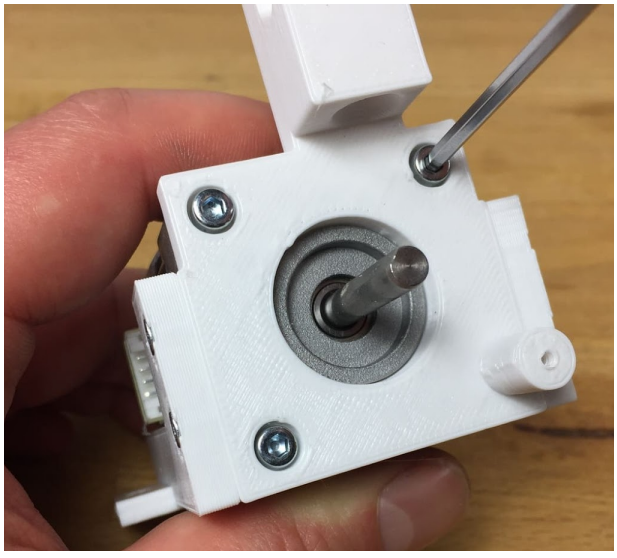


Step 5:

Tool from package 6: Allen wrench size 2.5

Slide the Nema 17 stepper motor (MO03) into the motor holder. Fasten the motor with three M3x6 cylinder screws. The connection for the cable points to the side.

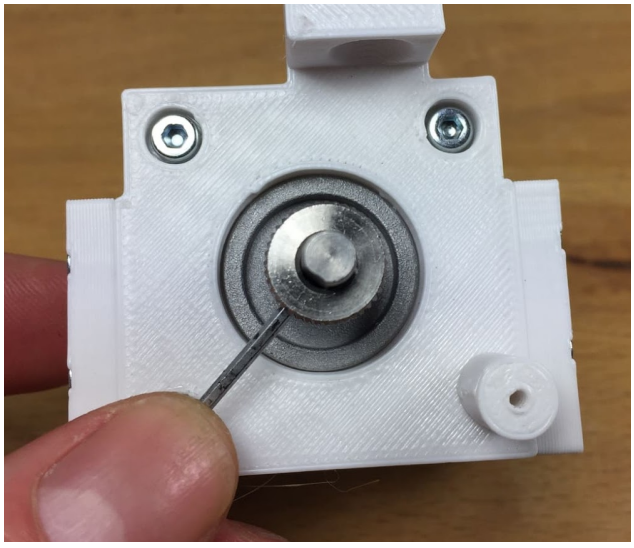
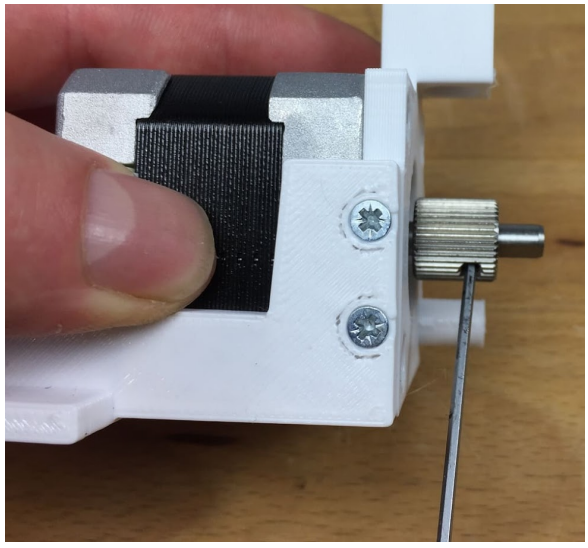




Step 6:

Tool from package 6: Allen wrench size 1.5

Slide the SP16 extruder feed wheel onto the motor shaft. Align the grub screw in the feed wheel so that it is against the flat surface on the motor shaft. Then tighten the screw. Tighten the screw but do not overtighten.

Step 7:

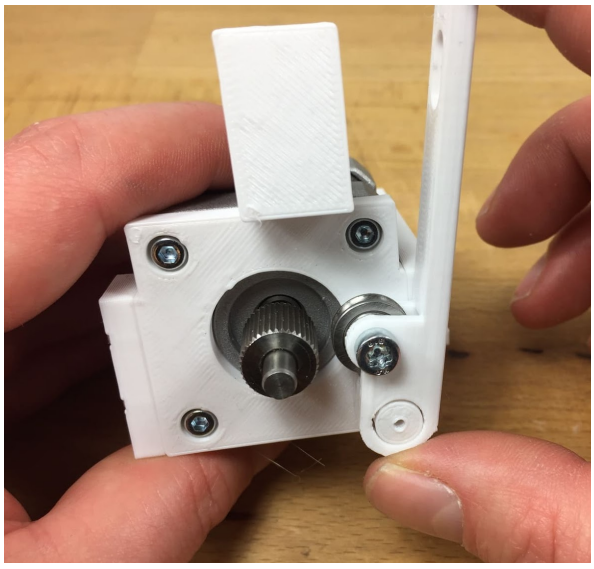
Tool from package 6: Allen wrench size 3.

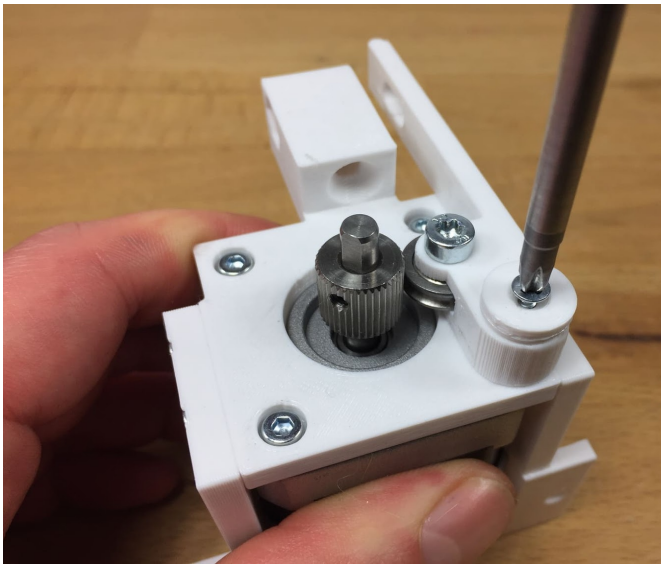
Insert the U-ball bearing 4x13x4 mm SP15 into the lever and fasten it with a socket head screw M4x10. Tighten the screw only slightly.


Step 8:

Tool: Phillips screwdriver PH1

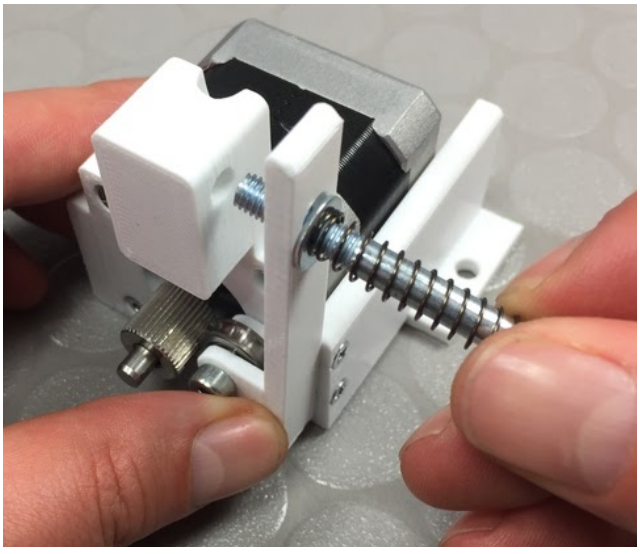
Place the lever on the elevation provided for this purpose on the motor holder. Alignment see picture. Place the washer on the elevation and fasten it with a 2.5x12 wood screw. Check whether the lever can be moved easily. If it hooks, then rework the print parts.

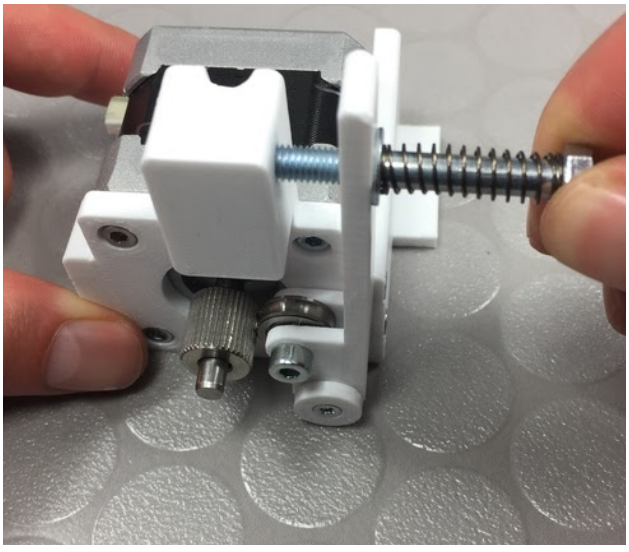




Step 9:

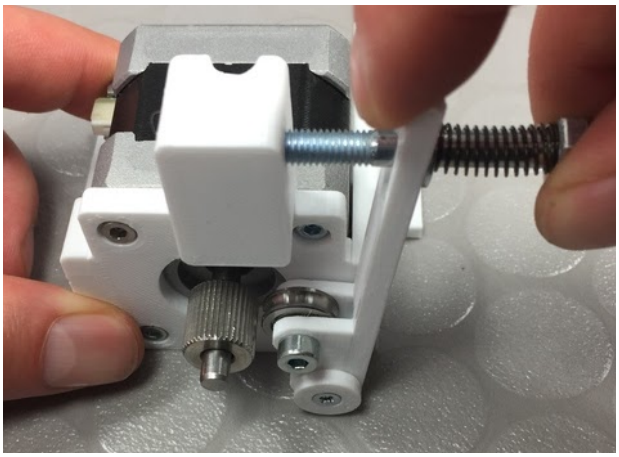
Slide the 6mm SP17 spring onto the M5x40 SC10 hex bolt. Then put on a washer (Sc13). Guide the hexagon head screw through the opening of the lever and turn it into the hole provided. Screw in by hand only a few turns.





Step 10:

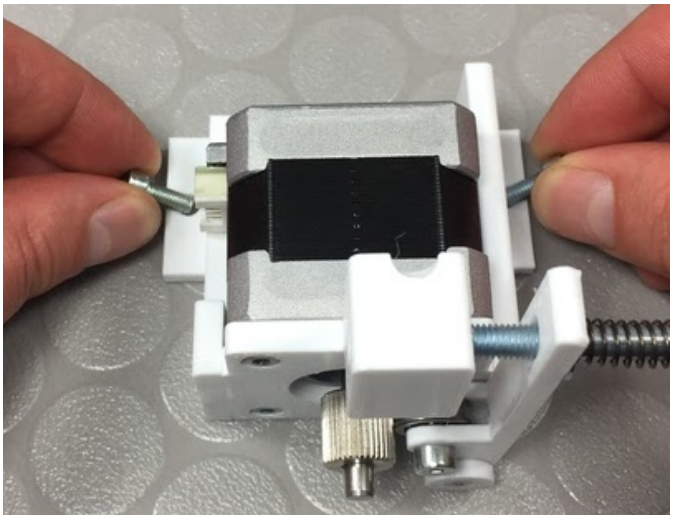
Check whether the lever can be moved easily. If something snags, rework the print parts.

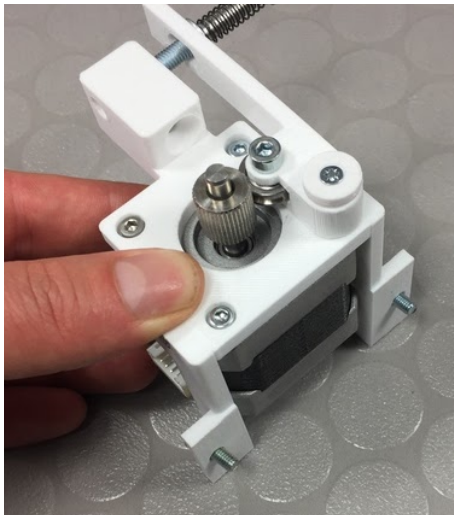


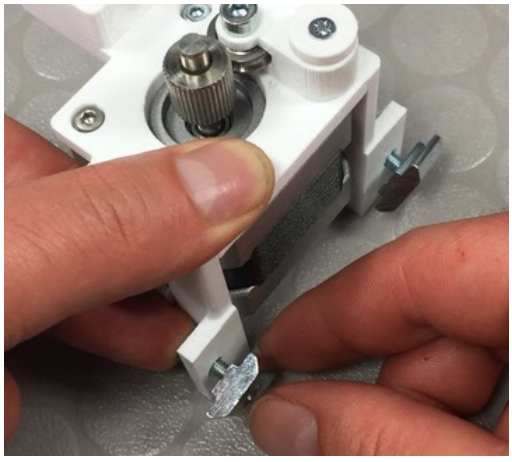
Step 11:

Tool from package 6: Allen wrench size 3

Insert two socket head screws M4x10 into the holes on the motor mount and screw a slot nut onto each.

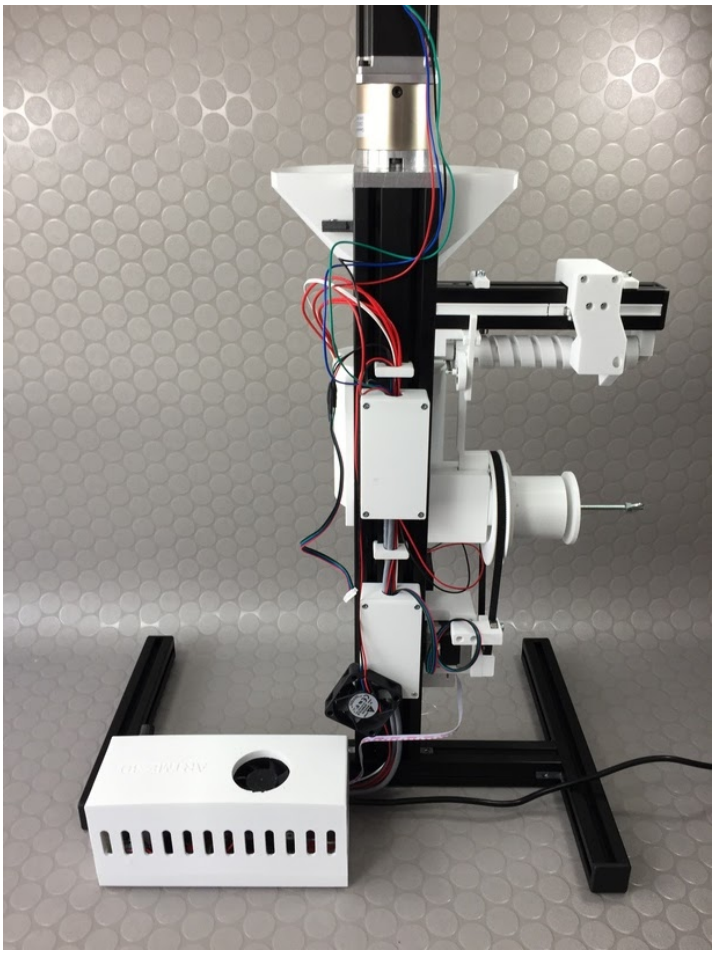






Step 12:

Turn the entire extruder so that you are looking at it from behind.

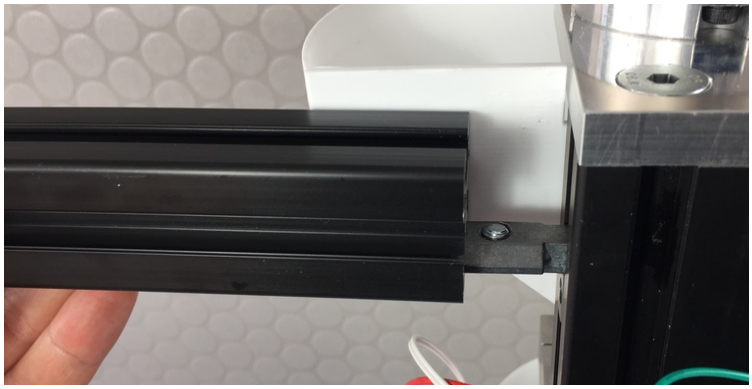


Step 13:

Remove from package 0: Aluminum profile 240mm (FR04)

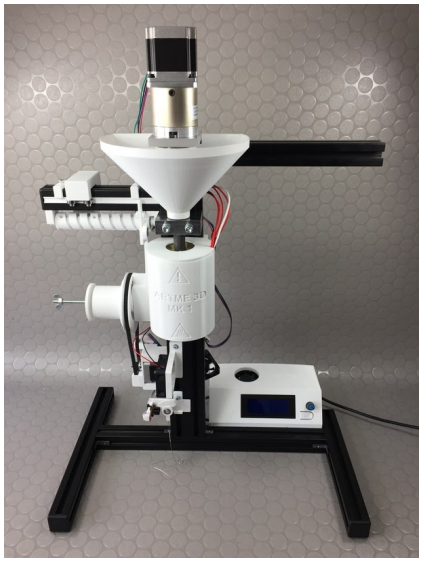
Step 14:

Plug the aluminum profile to the prepared connector on the left side of the extruder (seen from the rear). The connector is inserted into the lower groove of the aluminum profile and the clamping screw is tightened.



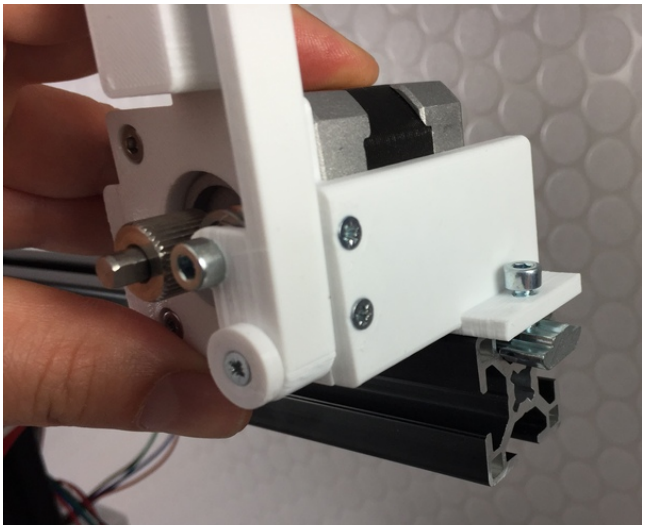
Step 15:

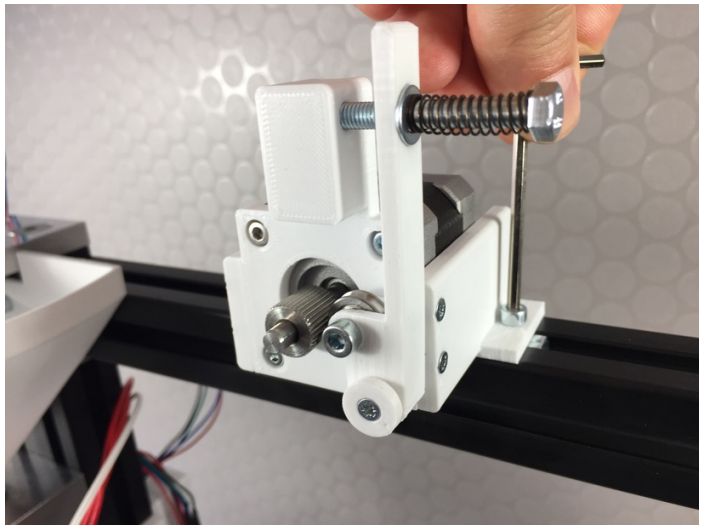
Turn the entire extruder again so that you are looking at it from the front.



Step 16:

Place the motor holder on the 240mm aluminum profile (on the right of the main frame) by inserting the sliding blocks into the upper groove. Position the motor holder approximately in the center of the aluminum profile. Tighten the cap screws.

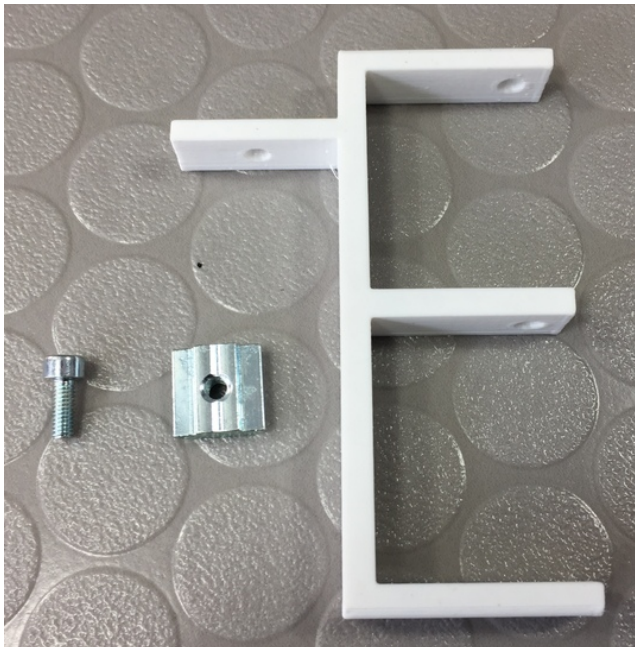


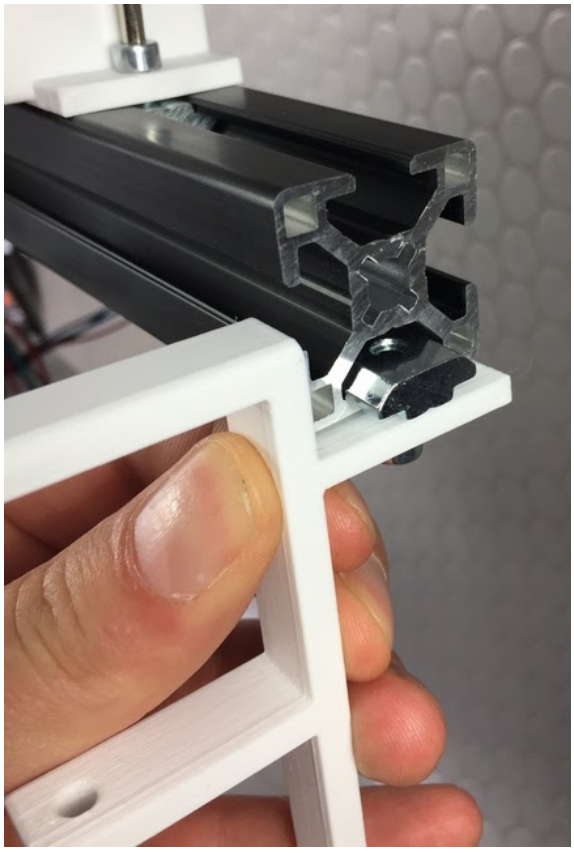


Step 17:

Tool from package 6: Allen wrench size 3

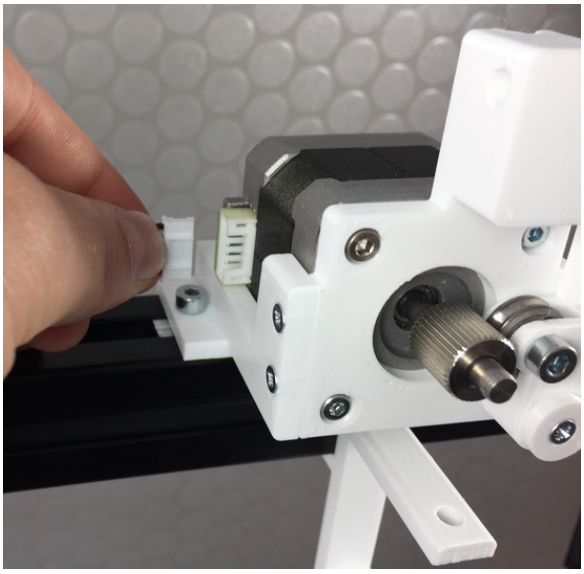
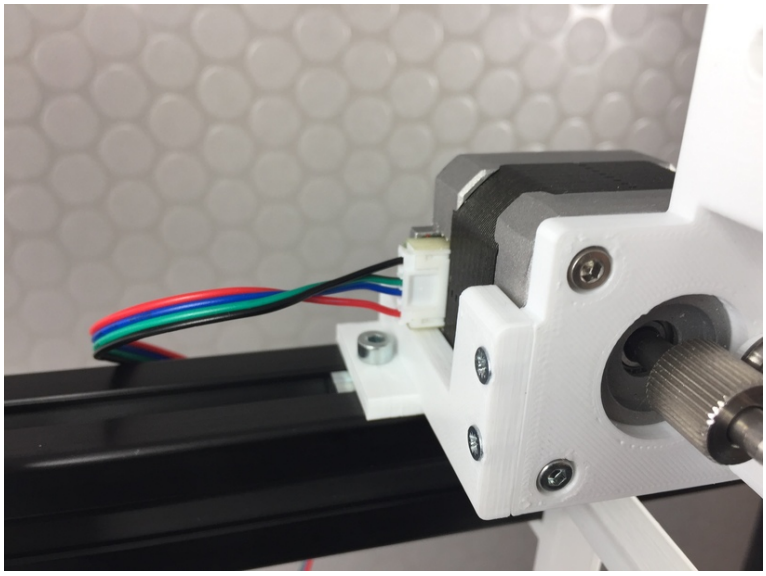
Insert a socket head screw M4x10 into the hole on the filament guide and screw a slot nut onto it. Alignment see picture. Fasten the filament guide to the aluminum profile by pushing the slot nut into the lower slot of the aluminum profile. Align the filament guide so that it sits under the feed wheel of the stepper motor. Then tighten the cap screw.





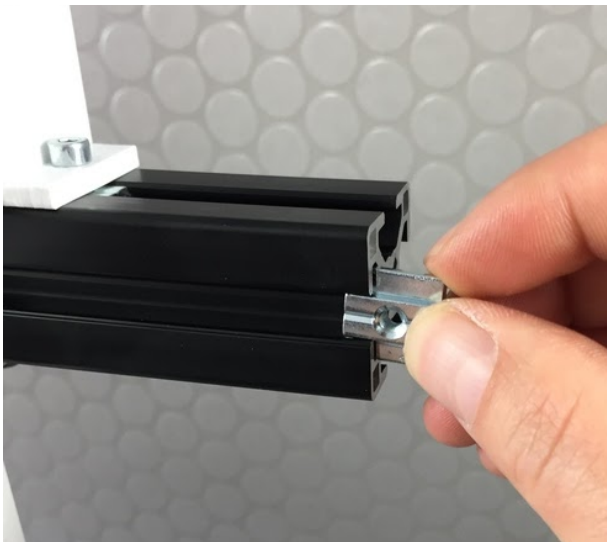

Step 18:

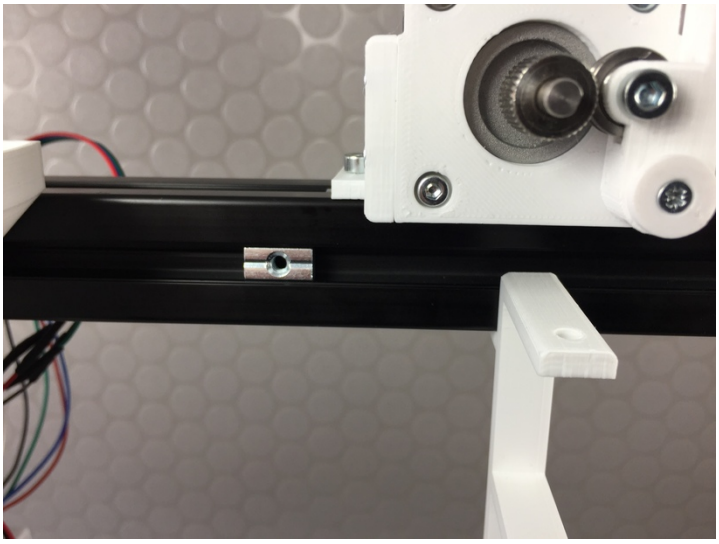
The stepper motor cable, which is led out of the upper terminal box on the rear side, is connected to the stepper motor. The connector is coded, pay attention to the correct orientation.

Step 19:

Insert a slot nut (SC17) into the front slot of the aluminum profile and push it to behind the filet guide.

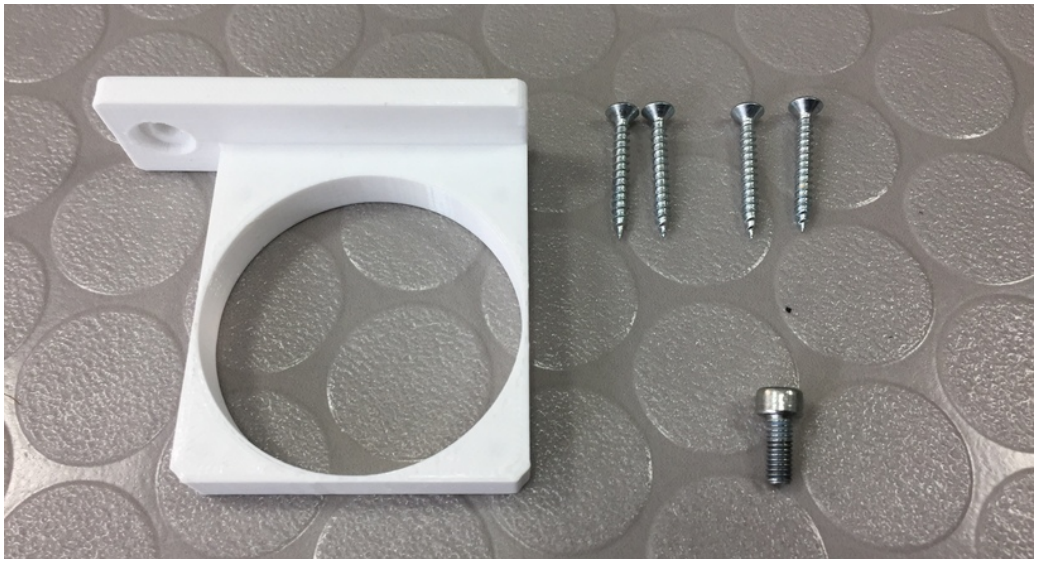




Step 20:

Remove from package 1: 4x wood screw 3x25 (SC02), 1x cylinder screw M4x10 (SC05)

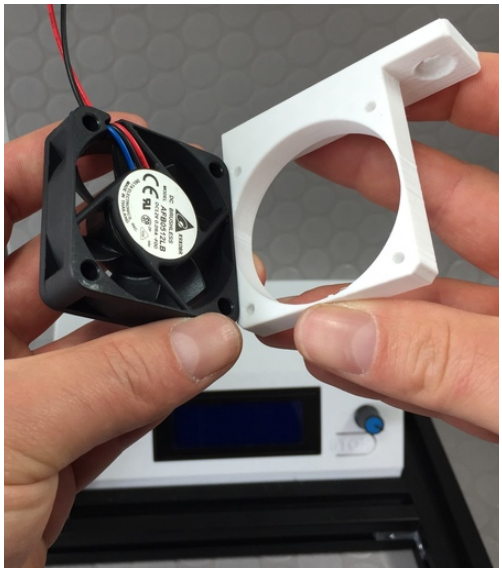
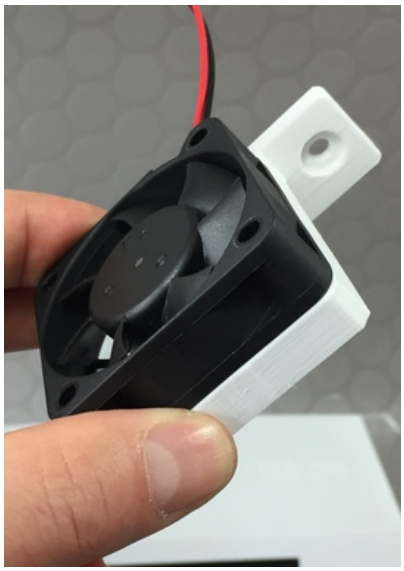
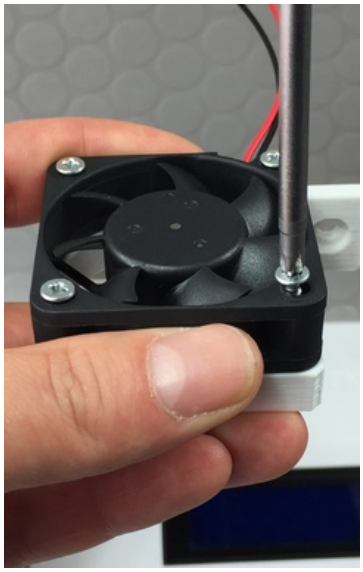
3D printed part: fan holder (EL20)



Step 21:

Tool: Phillips screwdriver PH1

Take the already connected fan to hand and align it to the fan holder (EL20) as shown. Pay attention to the position of the connecting cable. Then screw the fan tight with the 4 wood screws.

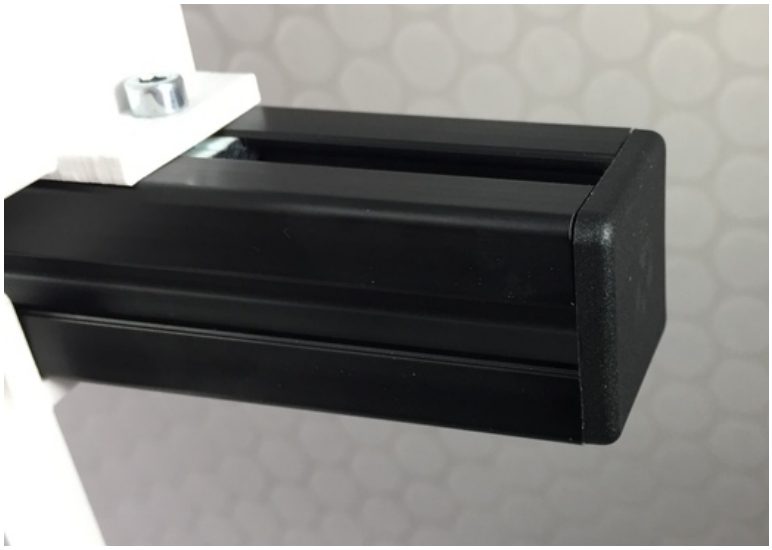
Step 22:

Insert the M4x10 cap screw (SC05) into the hole provided on the fan holder (EL20) and screw it into the prepared slot nut.


Step 23:

Remove from package 2: Cover cap 30x30 (SP01)

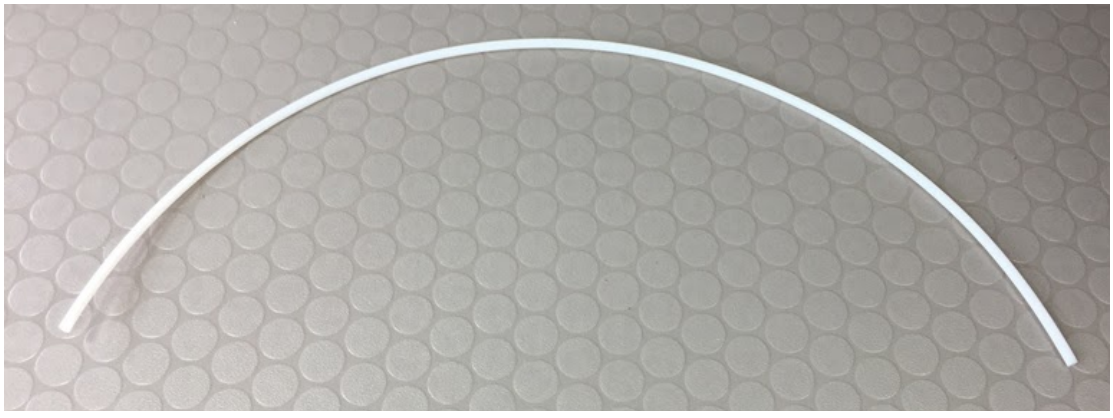
Place the cover cap on the end of the 120mm aluminum profile. Some cover caps, depending on the manufacturer, are very tight and may need to be hammered in. Some cover caps sit very loosely and may need to be glued in place.

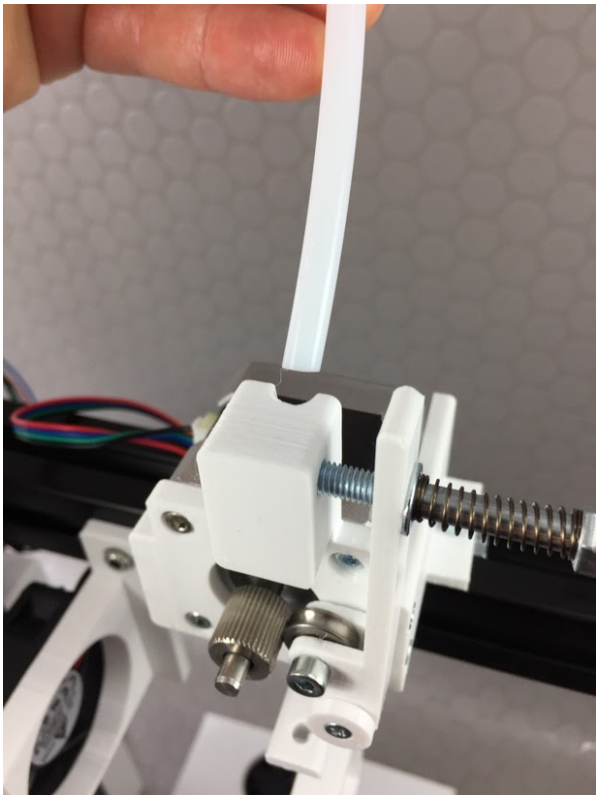


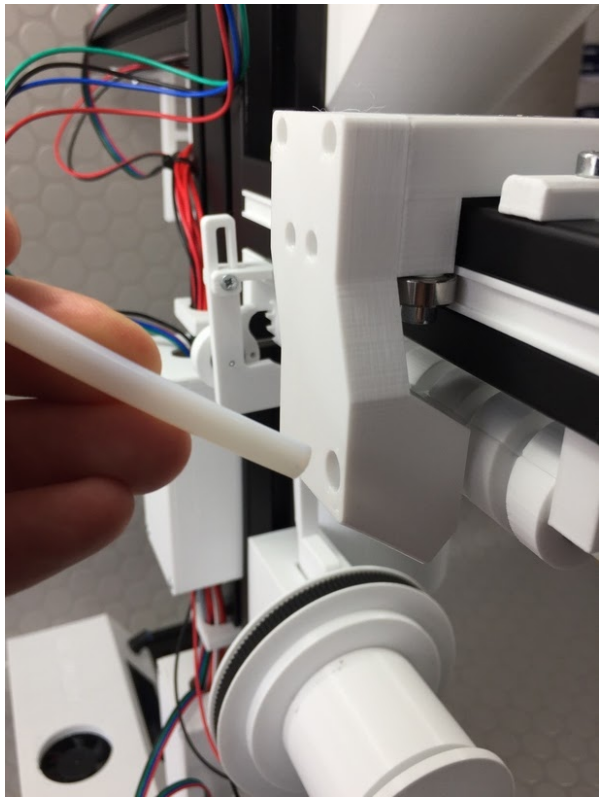
Step 24:

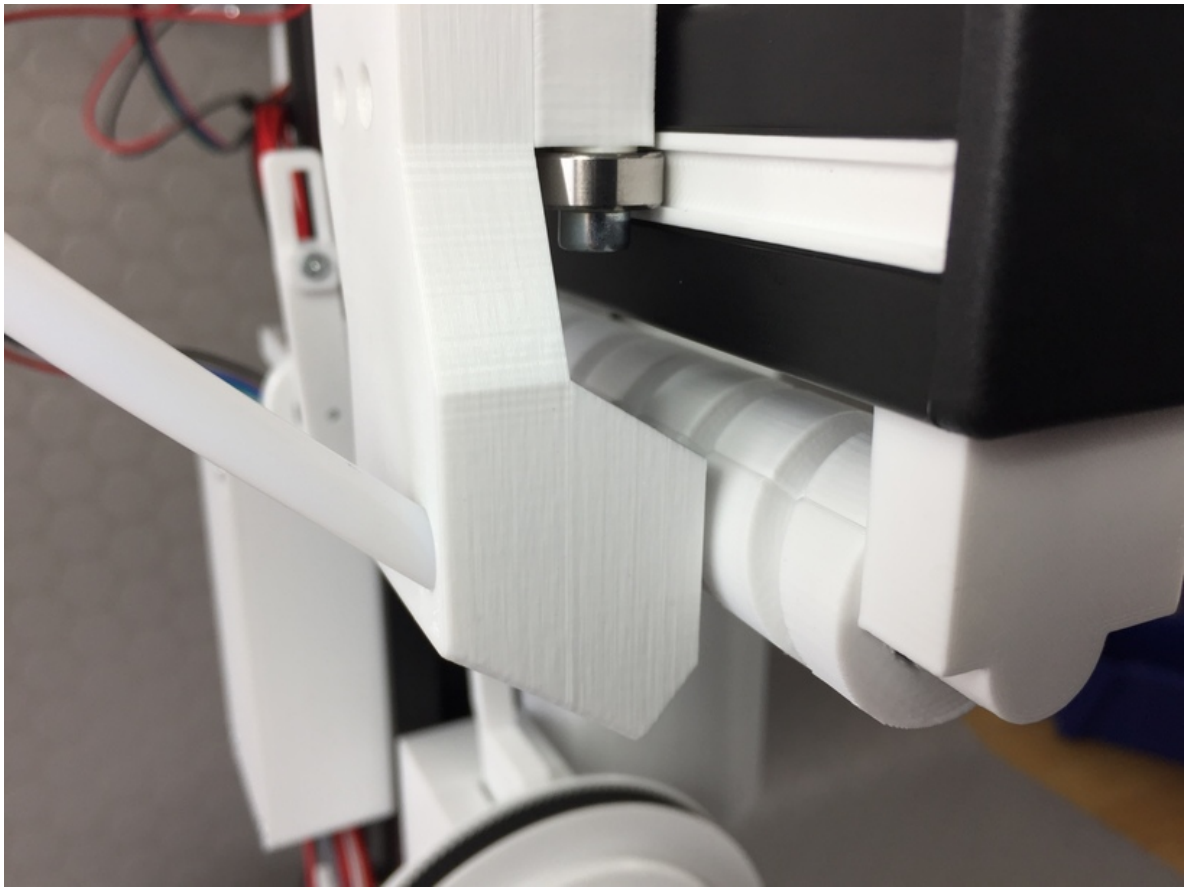
Remove from package 0:
1x PTFE tube 6x4x630 (SP24)

The PTFE tube is used to connect the pull motor and carriage to the filament guide. Insert the ends of the tube into the holes provided. If the tube is very difficult to push in, you can rework the holes by carefully turning a 6mm drill bit in (e.g. with pliers) and pulling it out again. If you use a drill or cordless screwdriver for this, be very careful that you do not drill the hole too deeply or not continuously.





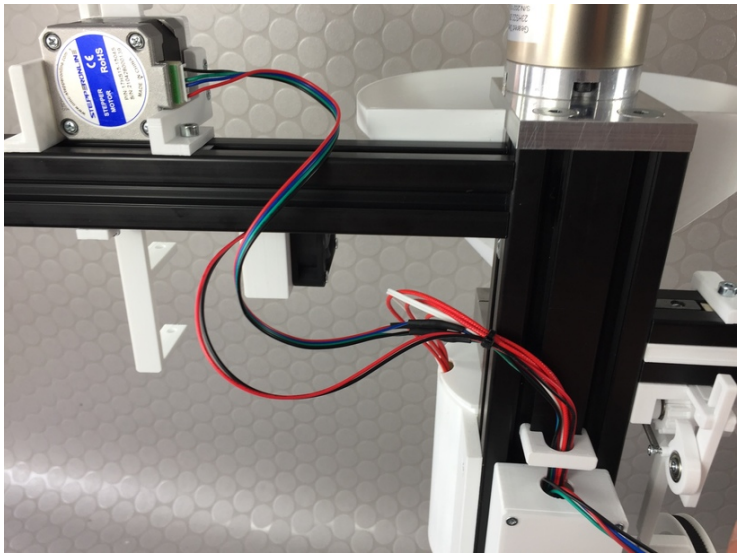


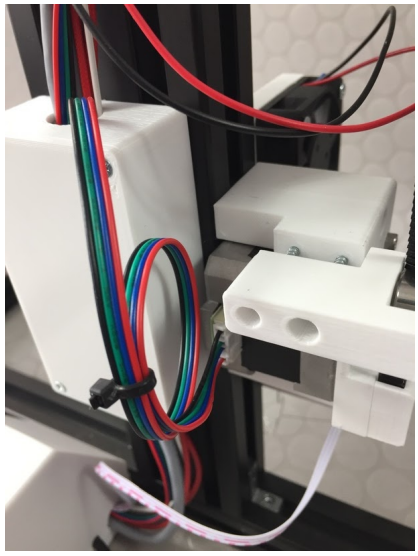


Step 25:

Remove from package 2: 3x cable ties

Now organize all the cables on the back of the extruder, lay them neatly and fix them with the cable ties. The protruding ends on the cable tie can be cut off. The connecting cable of the large Nema 23 stepper motor should remain loose in case the extruder screw needs to be removed. Leave some wire movable on the sensor and fans so that they can be moved in height and position.





Done:

Now continue with assembly instructions "08 Nozzle with melt filter assembly".