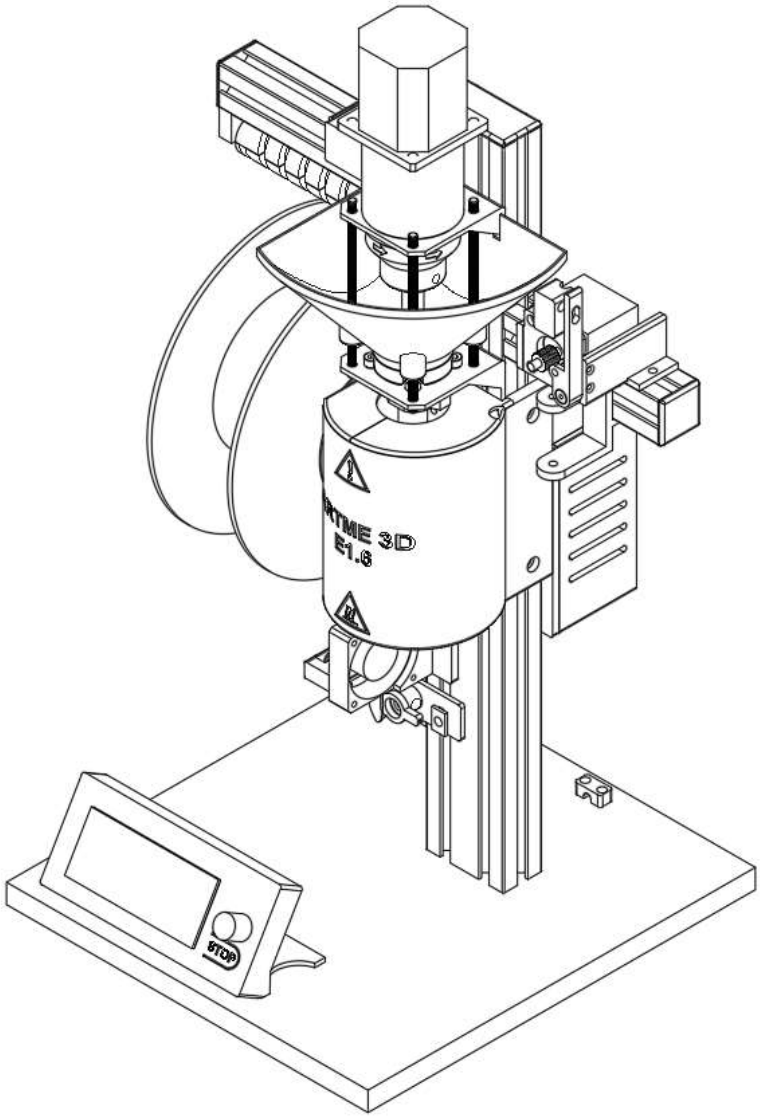
09 Puller assembly

Assembly instructions

Original Desktop Filament Extruder E1.7 by ARTME 3D

Version 28.02.2022



Required tools for this assembly section:
Phillips screwdriver PH1

Overview packages

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:

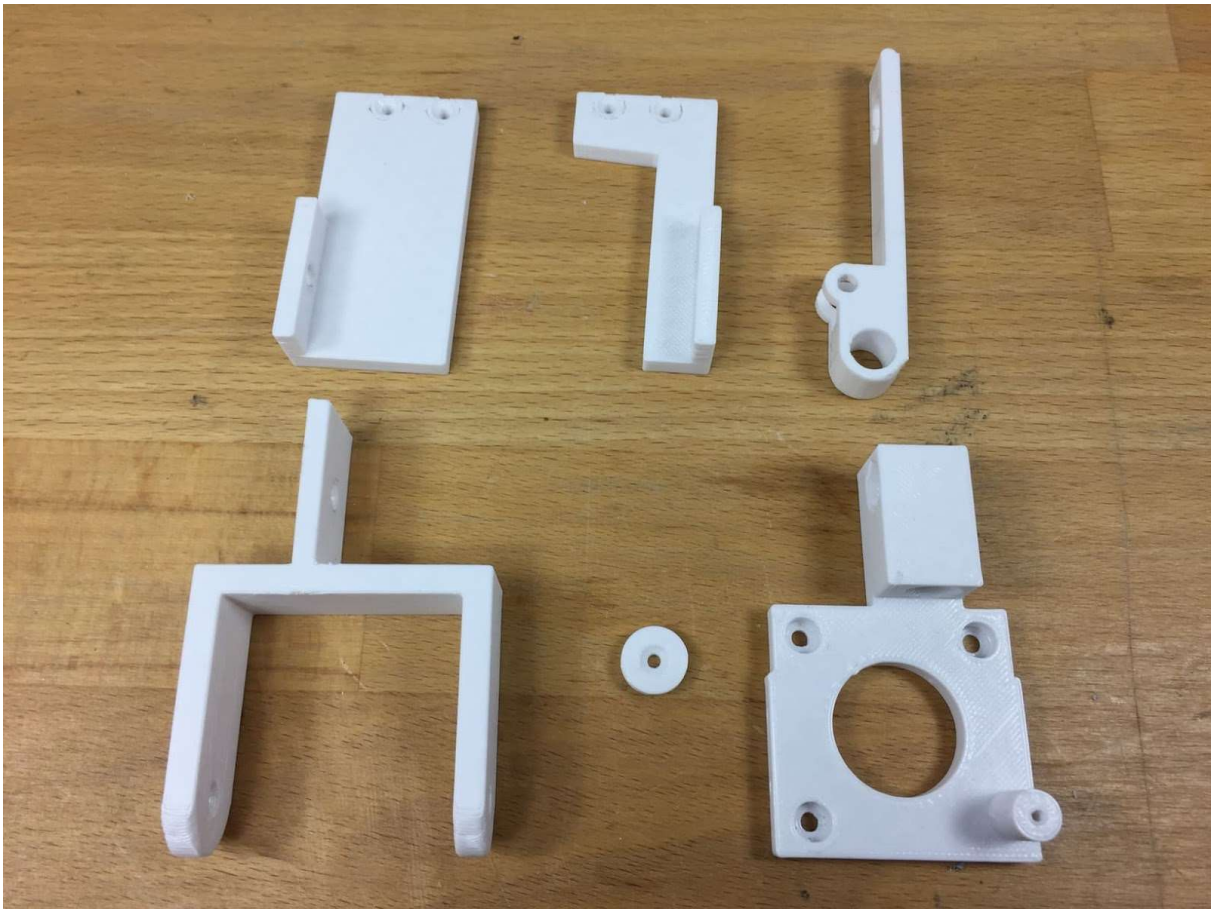
Remove from package 0 (delivered carton):
1x Nema 17 stepper motor (MO03)

Remove from package 1:
5x wood screw 2.5x12 SC01
3x cap head screw M3x6 SC03
4x cap head screw M4x10 SC04
1x nut M5 SC11
1x Hexagon screw M5x40 (20mm thread) SC16
3x Slot nut SC20

Remove from package 2:
U-ball bearing 4x13x4 mm SP19
1x Extruder feed wheel SP20
1x Spring 8mm SP21

Step 2:

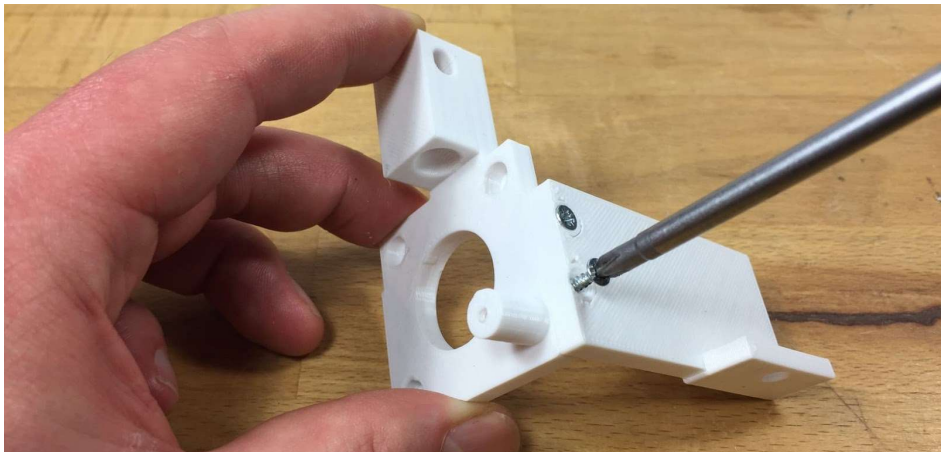
3D Print:
Motor holder part 1 (FP01)
Motor holder part 2 (FP02)
Motor holder part 3 (FP03)
Lever (FP04)
Washer (FP05)
Filament guide (FP06) (in the picture you can see an older version)



Step 3:

Tool: Phillips screwdriver PH1

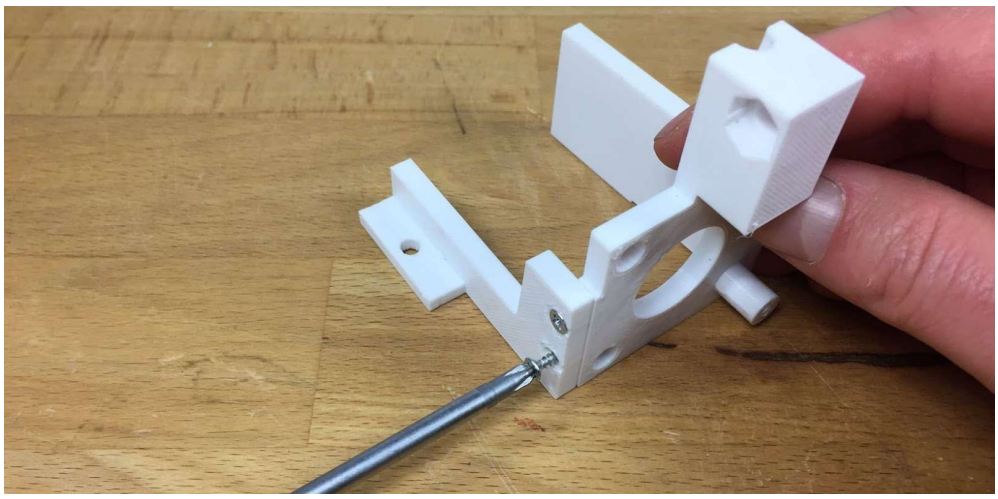
Screw the motor holder part 2 (FP02) to the motor holder part 1 (FP01) using two wood screws 2.5x12 SC01. Alignment see picture.



Step 4:

Tool: Phillips screwdriver PH1

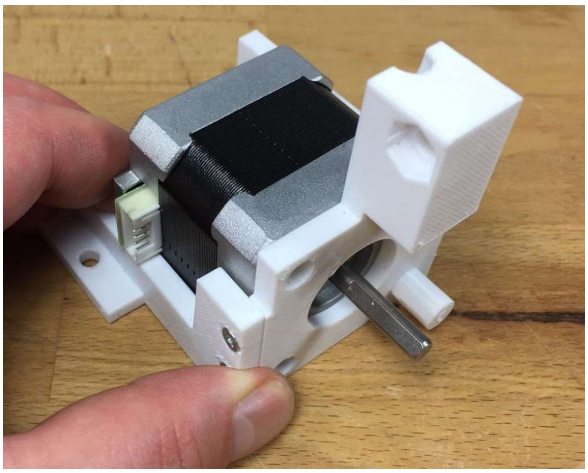
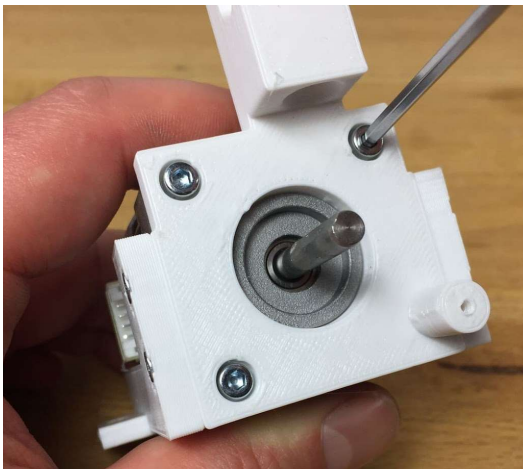
Screw the motor holder part 3 (FP03) to the motor holder part 1 (FP01) with two wood screws 2.5x12. Alignment see picture.



Step 5:

Tool from package 6: Allen key size 3

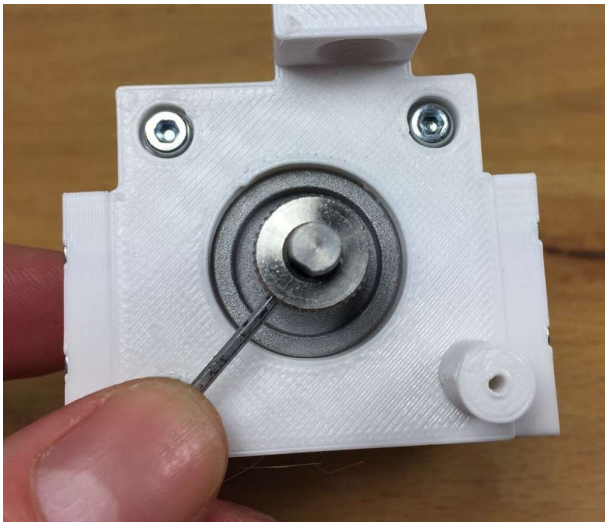
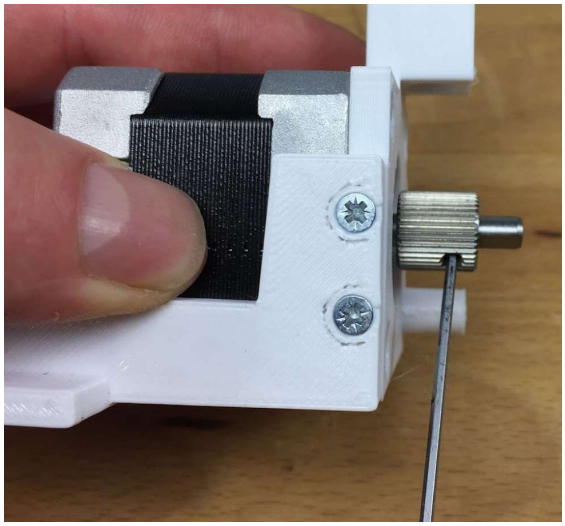
Slide the Nema 17 stepper motor (MO03) into the motor holder. Fasten the motor with three M3x6 cylinder screws. The connection for the cable points to the side.

Step 6:

Tool from package 6: Allen key size 1,5

Slide the SP20 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. Do not overtighten the screw.

Step 7:

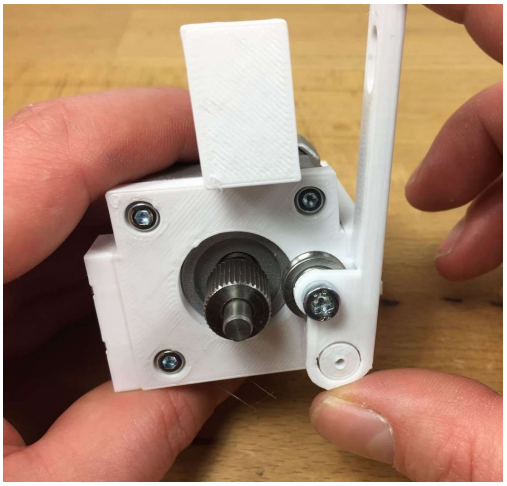
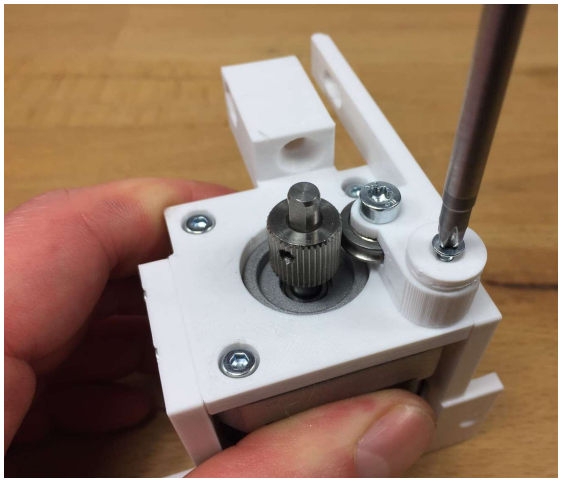
Tool from package 6: Allen key size 3

Insert the U-ball bearing 4x13x4 mm SP19 into the lever and fix it with a cap head screw M4x10.


Step 8:

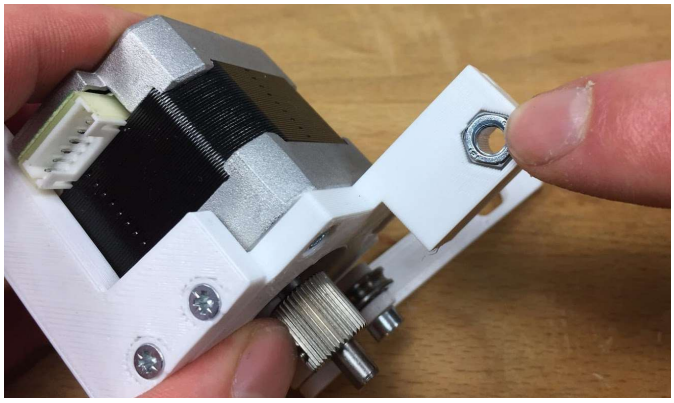
Tool: Phillips screwdriver PH1

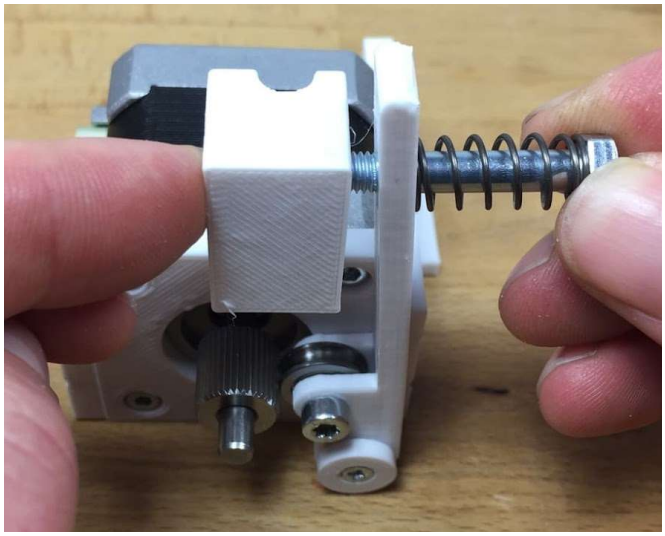
Place the lever on the elevation provided for this purpose on the motor holder. Alignment see picture. Place the washer on the elevation and fasten it with a wood screw 2.5x12.

Step 9:

Slide the 8mm SP21 spring onto the M5x40 SC16 hex bolt. Insert an M5 nut into the recess provided for this purpose in the motor holder. Insert the hexagon head screw through the opening in the lever and turn it into the nut. Screw in by hand only a few turns.



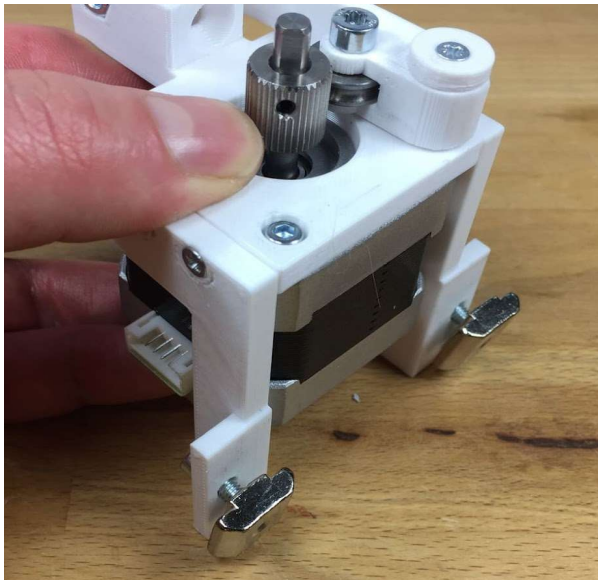


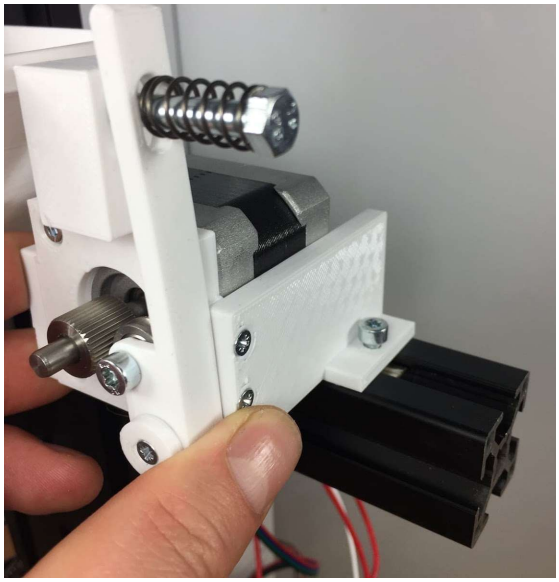
Step 10:

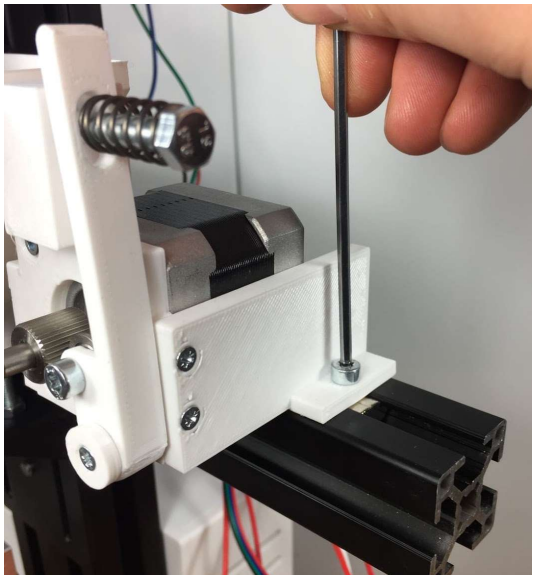
Tool from package 6: Allen key size 3

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

Place the motor holder on the 120mm aluminum profile (on the right of the main frame) by guiding the sliding blocks laterally into the groove. Position the motor holder as close as possible to the hopper without touching it. Tighten the cap screws.





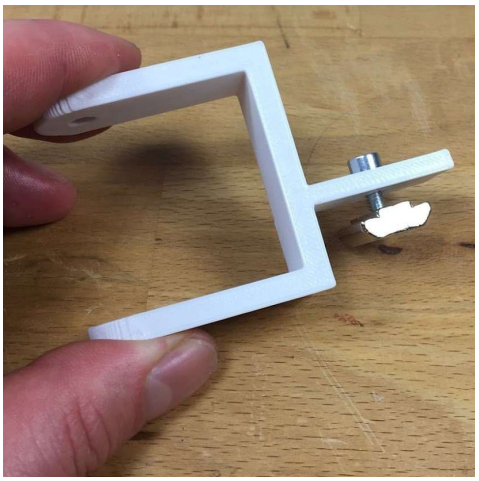


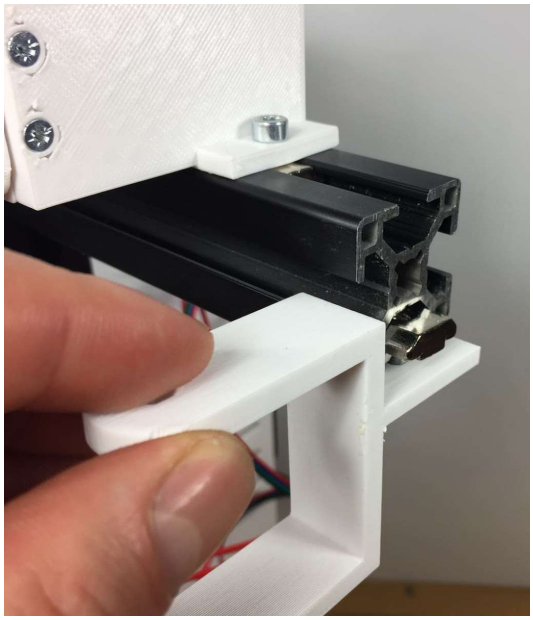
Step 11:

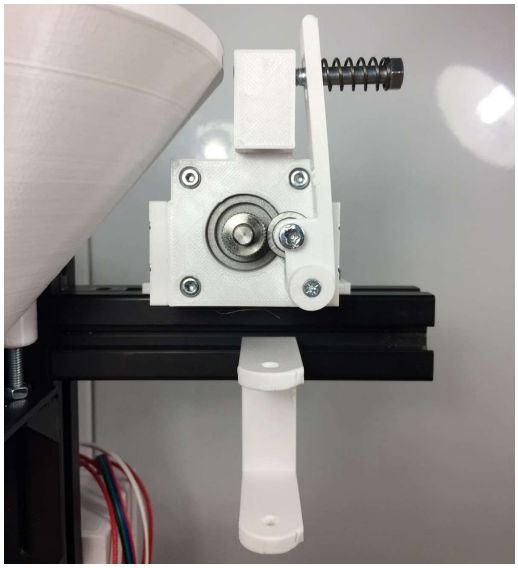
Tool from package 6: Allen key size 3

Insert a socket head screw M4x10 into the hole on the filament guide and screw a slot nut onto it. (In the picture you can see an older version) Alignment see picture.

Fasten the filament guide to the aluminum profile by pushing the slot nut sideways into the slot. Align the filament guide so that it sits under the feed wheel of the stepper motor. Then tighten the cap screw.







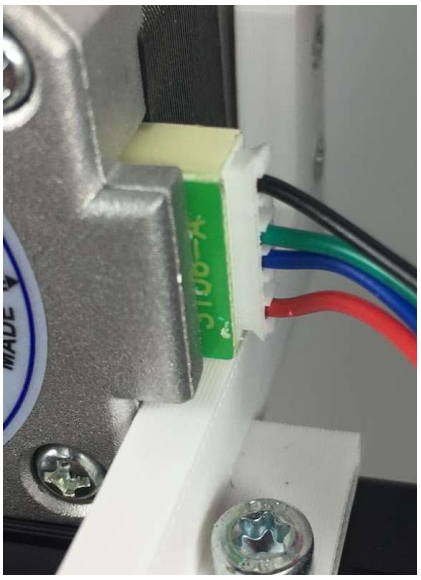
Step 12:

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

Place the cover cap on the end of the 120mm aluminum profile.

Step 13:

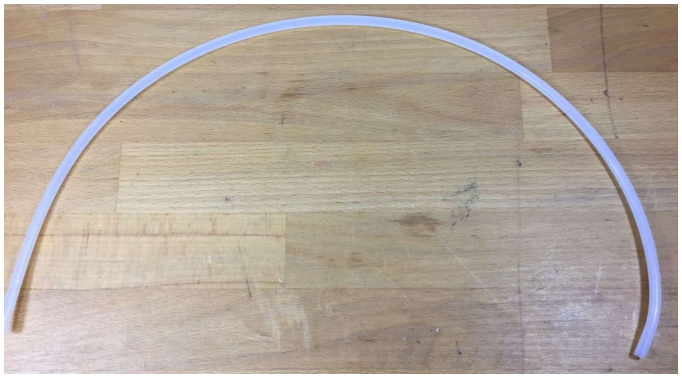
The stepper motor cable, which is led upwards out of the Arduino housing, is connected to the stepper motor. The connector is coded, pay attention to the correct orientation.

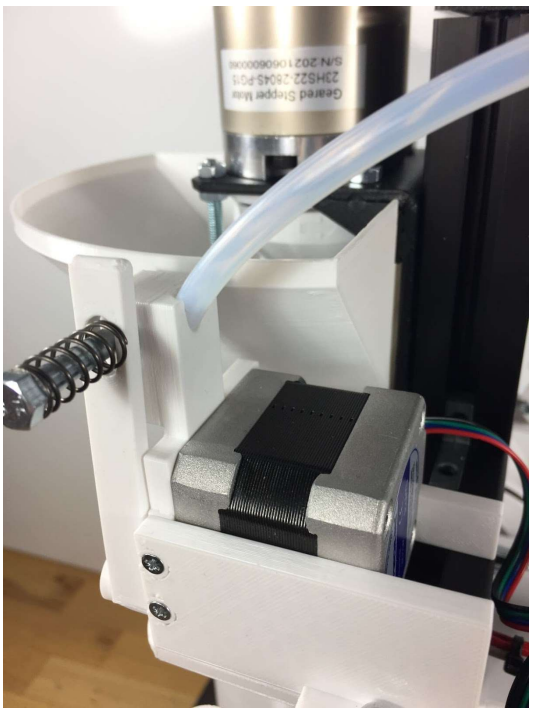


Step 14:

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

The PTFE hose is used to connect the puller and carriage to the filament guide. Insert the ends of the hose into the holes provided. If the tubing 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. (see also pictures on the next page)

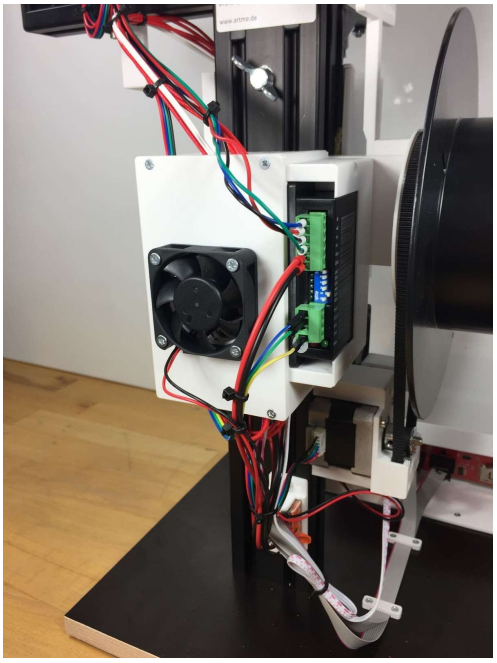


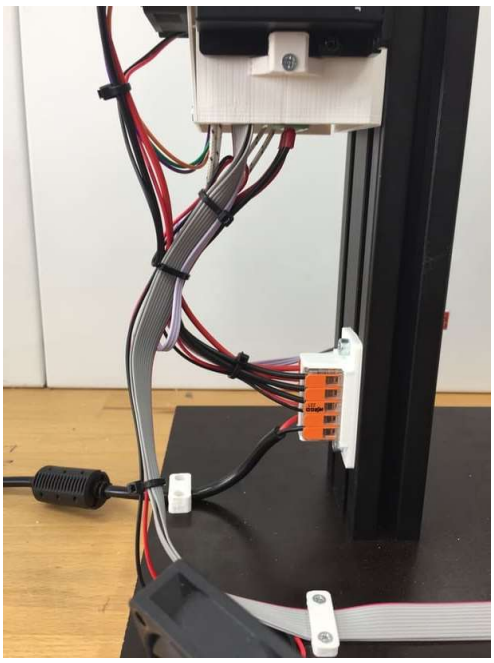


Step 15:

Remove from package 2: 11x cable ties

Now organize all the cables on the back of the extruder, lay them neatly and fix them with the cable ties. Leave some wire movable at the sensor and at the fan, so that they can be adjusted slightly in height and position. The protruding ends on the cable tie can be cut off.





Done:

Congratulations! The assembly of the original desktop filament extruder E1.6 is now complete. **Before you start up the extruder, please be sure to read the operating instructions (02-operation manual)!**