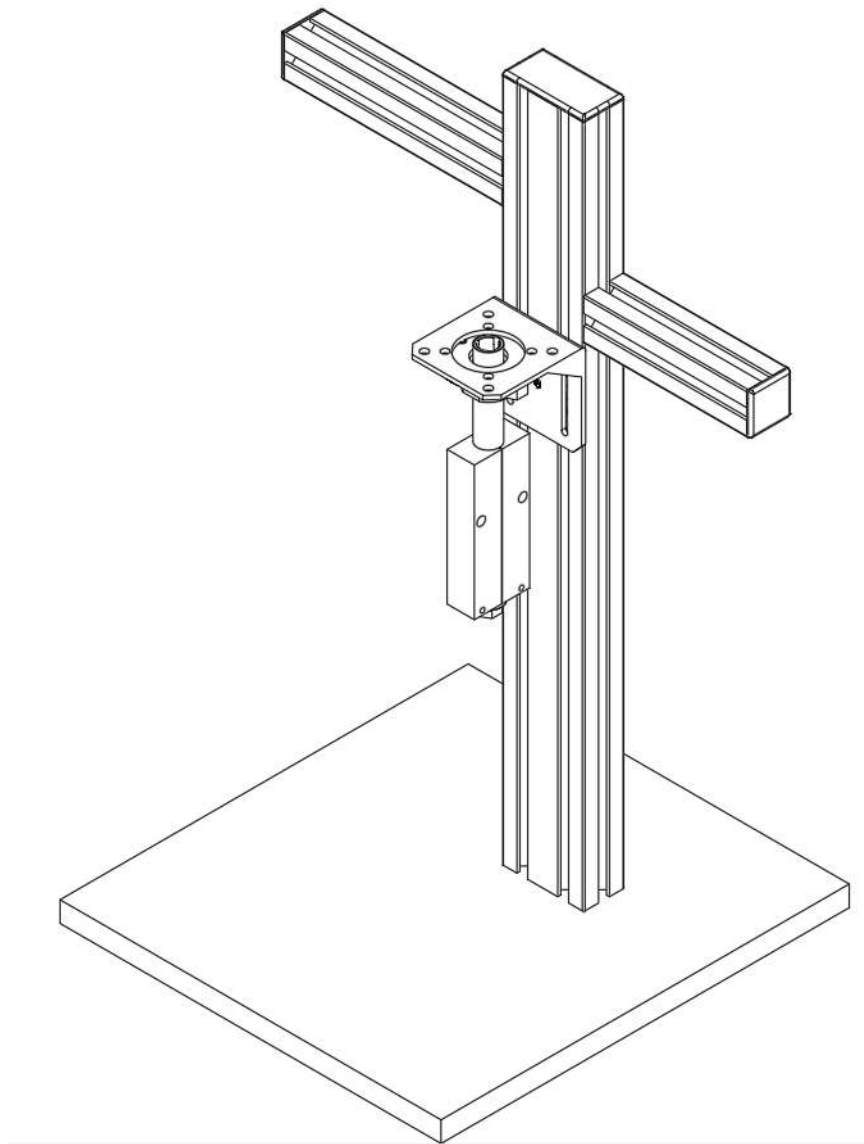


02 Extruder-Barrel assembly

Assembly instructions

Original Desktop Filament Extruder E1.6 by ARTME 3D

Version 04.01.2022





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Required tools for this body section:

Marking pin

vice

cleaning paper

cleaning alcohol or similar

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 3: 1x extruder tube (CM01.1), warding file square approx. 100mm long

3D printing: drawing template (EB10), clamp vice (EB11)



Step 2:

Tool: Marking pen

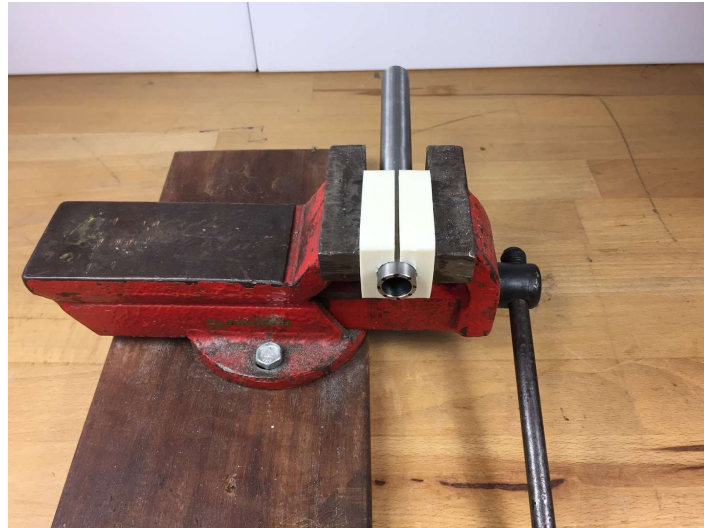
The drawing template is placed on the upper end of the tube. The thread of the tube is at the bottom. Draw in the holes with the pen. Remove the template again.



Step 3:

Tool: Vise

Clamp the tube in a vise. The 3D printed clamps provide support and prevent damage. Align the tube so that one of the marking points is facing down.



Step 4:

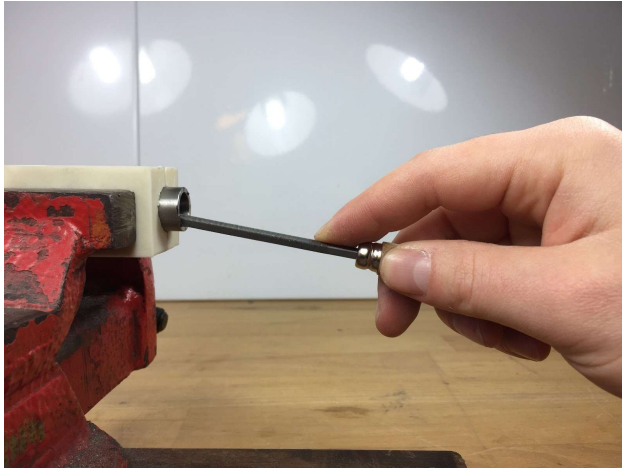
Tool from package 3: Lock file square 3-4mm, 100mm long.

The file is placed at the bottom above the marking point. The file is turned 45° so that the edge of the file rests on the tube. See next step.



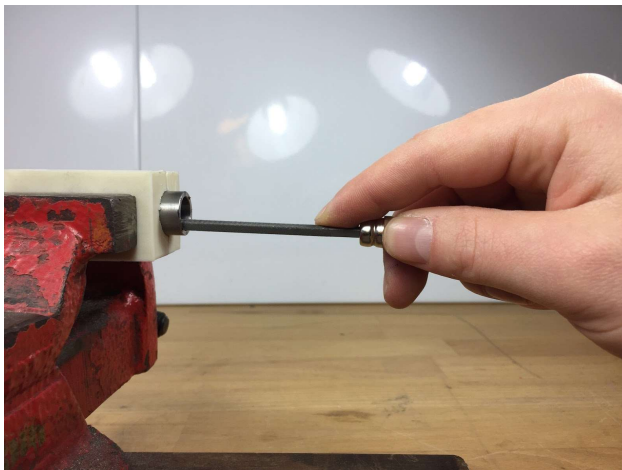
Step 5:

During the first movements of the file, tilt the file slightly downwards so that they create a notch, see picture. File with slow, firm movements. See picture, see next step.



Step 6:

Now the file is tilted slightly less downwards so that the notch created guides the file and the groove created becomes longer.



Step 7:

Now the file is lifted again a little so that almost only the front part of the file is still resting. This allows the groove to be filed into the tube even longer. Make sure that you stay in the groove and do not slip off to the outside. Make sure that the file remains rotated 45° and files only with the edge.

The groove should be 50 to 60mm long. The depth of the groove should be a maximum of 0.5mm to 0.7mm. This is achieved when the groove is visible along its entire length (see picture in the next step).



Step 8:

When a groove is finished, continue turning the tube to the next marking point. Make sure that the area to be machined always points downwards, this is the best way to file. When all the grooves have been filed, the marks can be removed with mineral spirits (or similar) and a cloth. All chips and debris inside the tube must be thoroughly removed.



Step 9:

Remove from package 0:

1x mounting bracket (SP12)

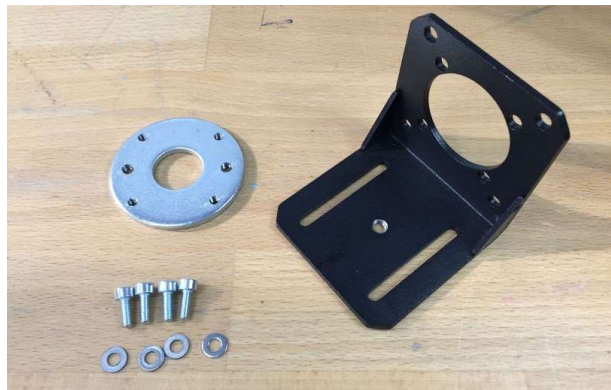
Remove from package 4:

1x adapter disk 55x20x3mm (EB01)

Remove from package 1:

4x cap head screw M4x10mm (SC04)

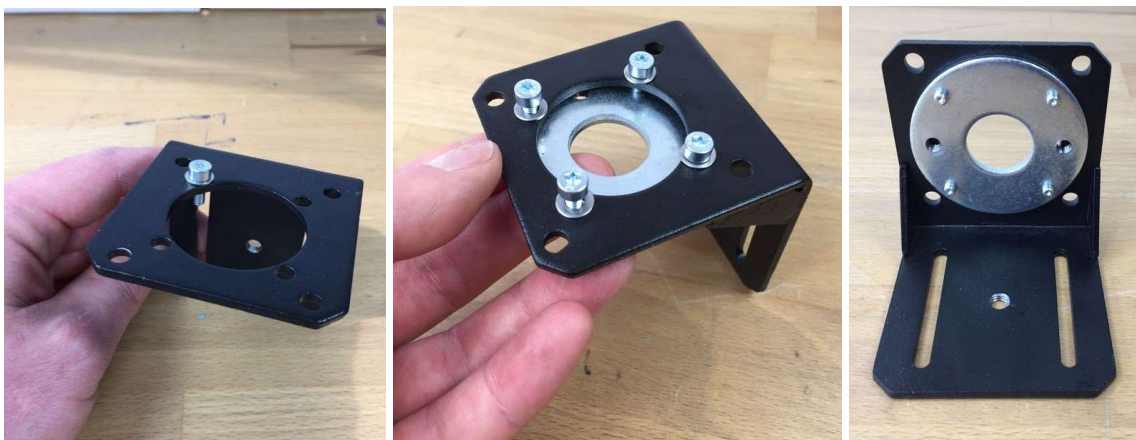
4x washer inside 4,2mm (SC13)



Step 10:

Tool from package 6: Allen key size 3 (TO06)

Insert the M4x10 cap screws with washers into the inner bends of the mounting bracket. Hold the adapter plate against it from below and screw in the screws. Align the adapter plate, see Fig. 3. The threaded holes must be aligned horizontally. Only apply the screws, do not tighten them yet.



Step 11:

Remove from package 4:

1x SHF16 shaft holder with M4 thread (EB02)

Remove from package 1:

2x cap head screw M5x14mm (SC5)

2x washer inside 5,2mm (SC14)



Step 12:

Tool from package 6: Allen wrench size 4

Insert the cap head screws with washers through the holes in the shaft holder and screw them into the threads. Do not tighten the screws yet.



Step13:

Remove from package 4:

2x heating cartridge (EB03, 53cm cable, ferrules)

1x thermistor (EB05)

Remove from package 3:

1x heating element (CM03.1)

1x heating element (CM03.2)

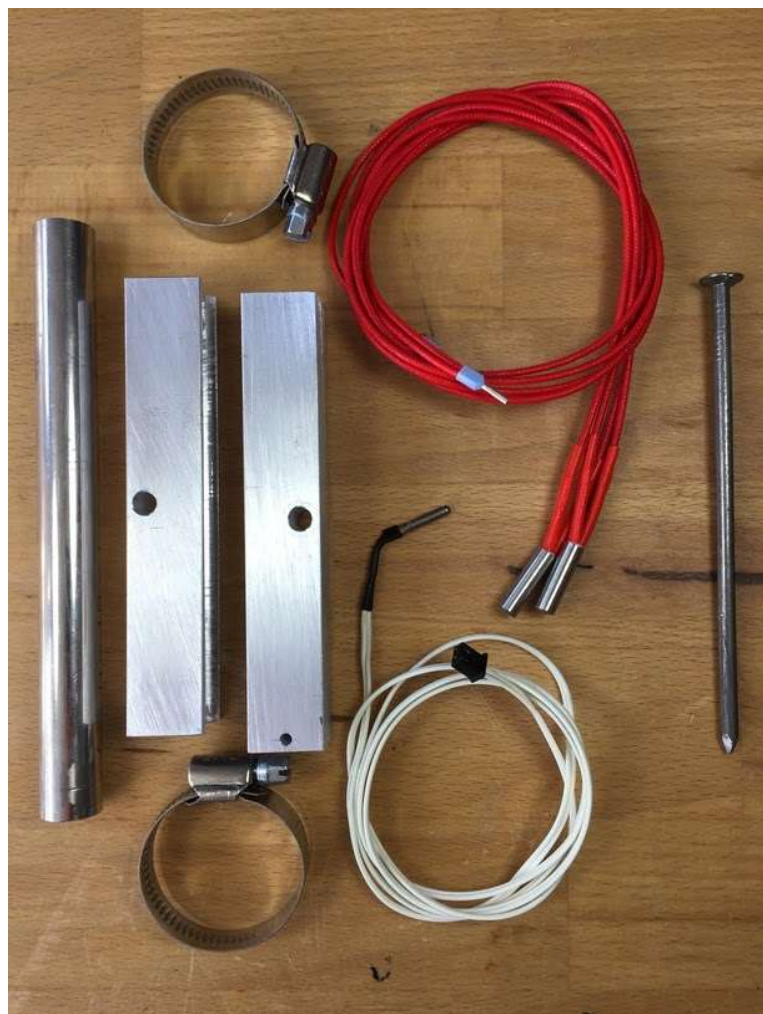
Remove from package 2:

1x nail (SP15)

2x hose clamp (SP16)

Tool:

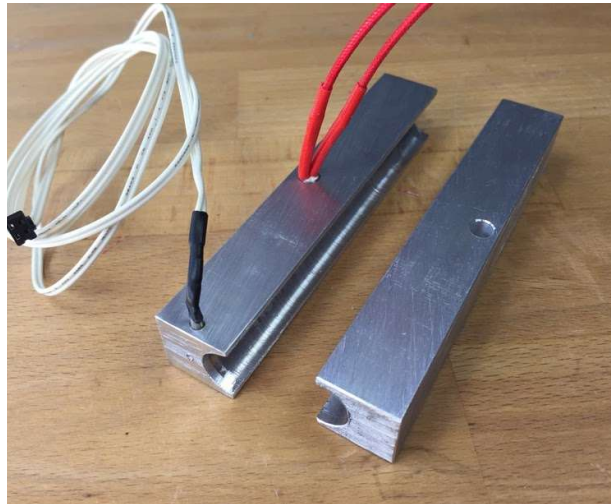
Hammer



Step 14:

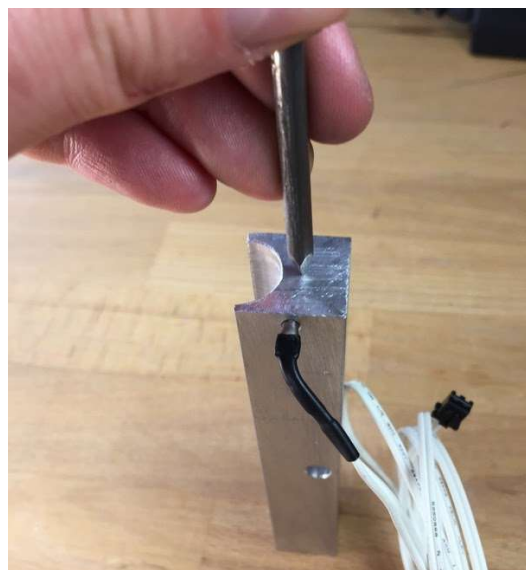
(The heating elements of the latest generation of the extruder are slightly shorter than the heating elements in the photo. But the installation is identical)
The heating elements are aligned as shown. The semicircular cutouts point inwards. The hole for the thermistor points downward.

The heating cartridges and the thermistor are inserted into the corresponding holes.



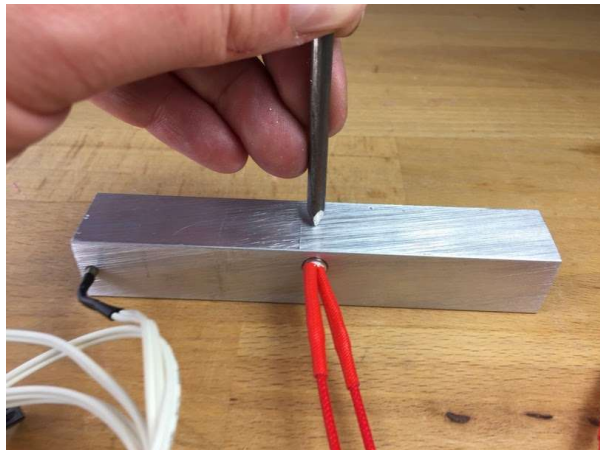
Step 15:

The thermistor is secured against slipping out. Place the nail on the face of the heating element and align it so that it sits over the thermistor. Now hit the nail with the hammer. The resulting indentation will hold the thermistor in place. Check that it is securely seated and repeat the process if necessary.



Step 16:

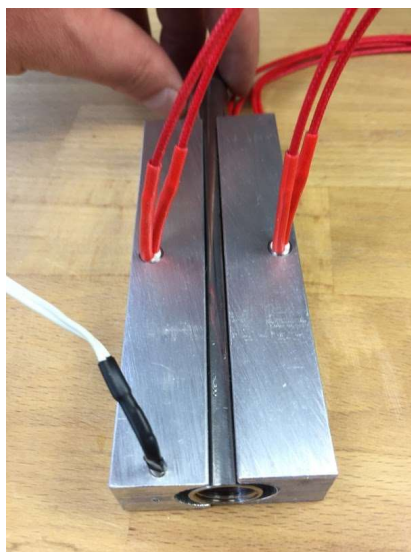
The two heating cartridges are secured against slipping out. Place the nail on the side surface of the heating element and align it so that it sits above the heating cartridge. Now hit the nail with the hammer. The resulting indentation will hold the heating cartridge in place. Check that it is securely seated and repeat the process if necessary. Carry out this procedure for both heating cartridges.



Step 17:

The extruder tube is pushed between the two heating elements in the following orientation:

The thread in the tube faces the thermistor and is flush with the heating elements. The feed zone of the tube with the 3mm milling protrude on the other side.

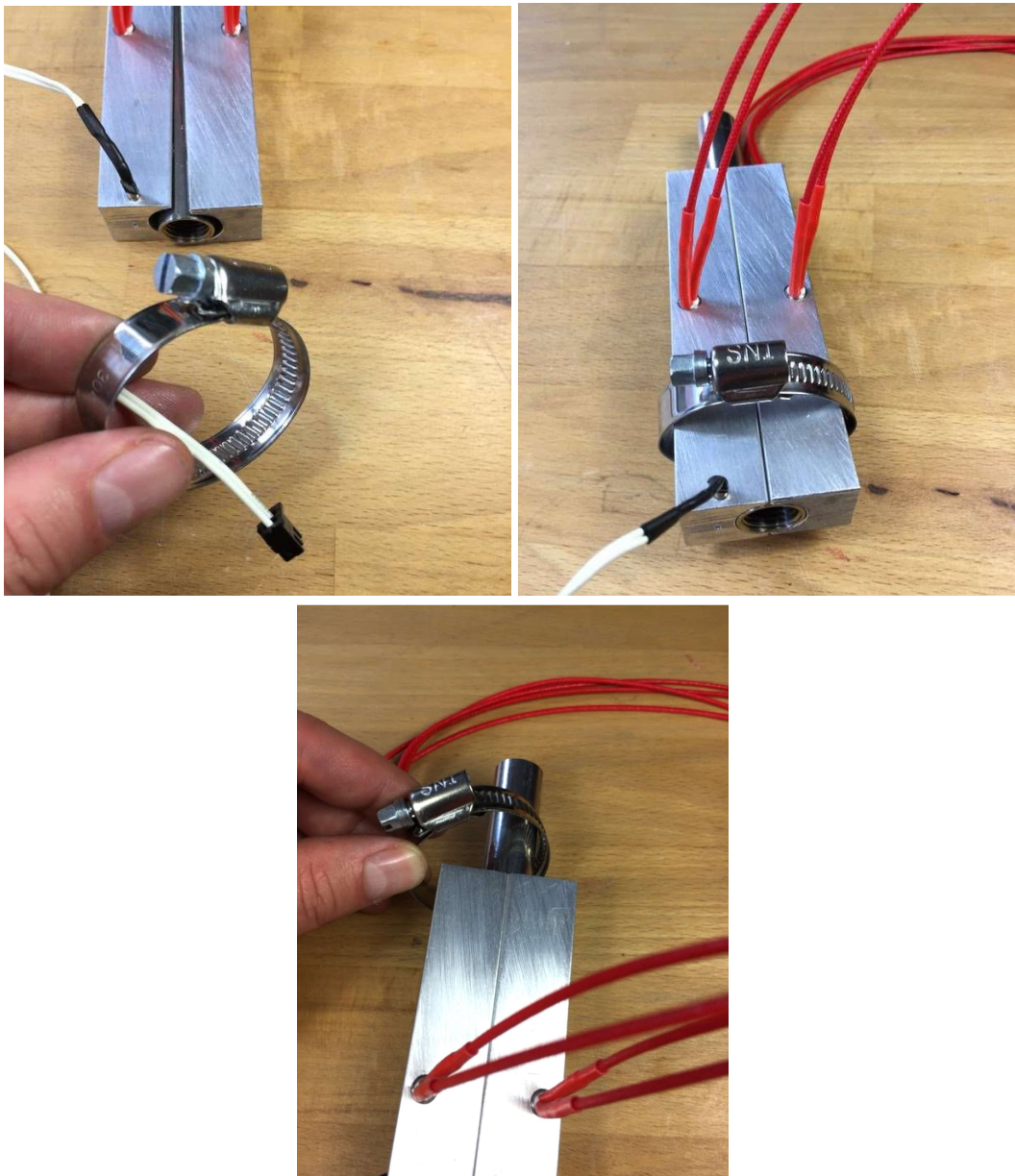


Step 18:

Tool from package 6: Tubular Socket Wrench 6x7mm (TO01)

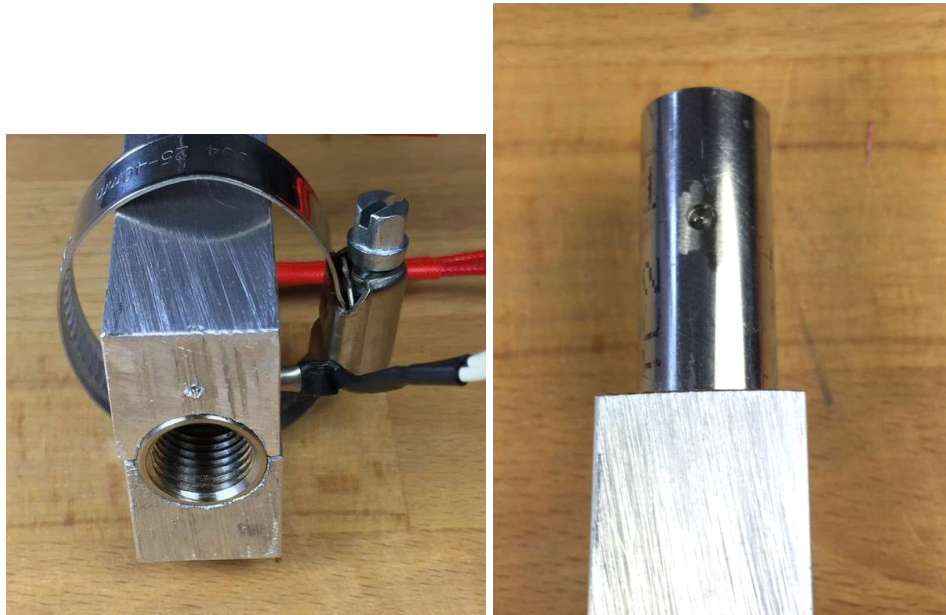
Align the first pipe clamp as shown in the figure. Pass the connecting line of the thermistor through the clamp and pull the whole line through.

Place the clamp as shown in the illustration. If necessary, the clamp must be loosened slightly by turning the fastening screw counterclockwise with the tubular socket wrench (7mm) or a screwdriver. You can also bend the clamp a little oval by pressing it slightly together. The second clamp is placed on the other side.



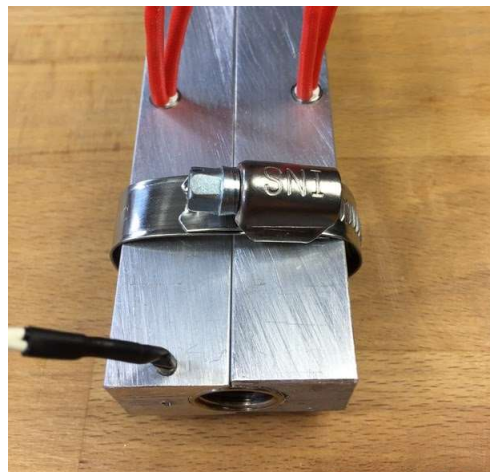
Step 19:

Turn the component so that it stands upright. The tube must be rotated until the small 3mm milling points upwards.



Step 20:

Now the two hose clamps can be tightened. Use the size 7 tubular socket wrench. You can insert the nail into the hole in the socket wrench to apply more force when turning. Do not overtighten the screw, however. Make sure that the alignment of the tube does not slip. Now the tube must be cleaned inside. There must be absolutely no chips or impurities. Use e.g. a cloth with cleaning alcohol and pull it through the tube.

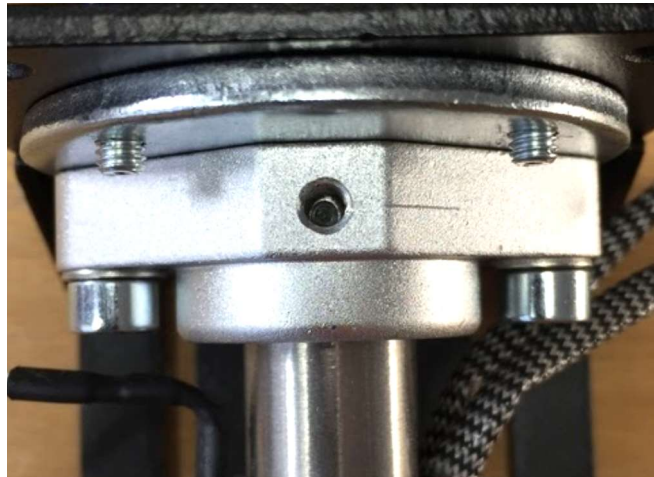


Step 21:

Remove from package 1: 1x Grub screw M4x10mm (SC15).
Tool from package 6: Allen wrench 2mm

Slide the extruder tube into the shaft holder on the mounting bracket. The 3mm milling points upwards.

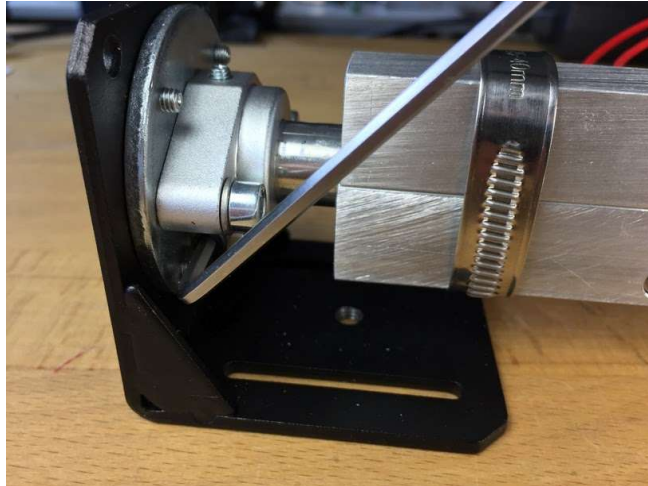
The tube is aligned so that the 3mm milling can be seen through the threaded hole in the shaft holder. Screw the grub screw into the thread in the shaft holder. Make sure that the grub screw hits the 3mm milled hole. Caution: tighten the grub screw only moderately.



Step 22:

Tool from package 6: Allen wrench 3mm

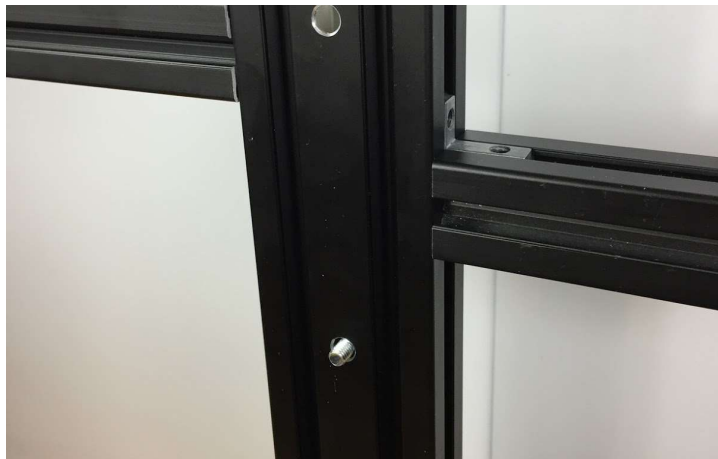
Tighten the clamping screw on the shaft holder.



Step 23:

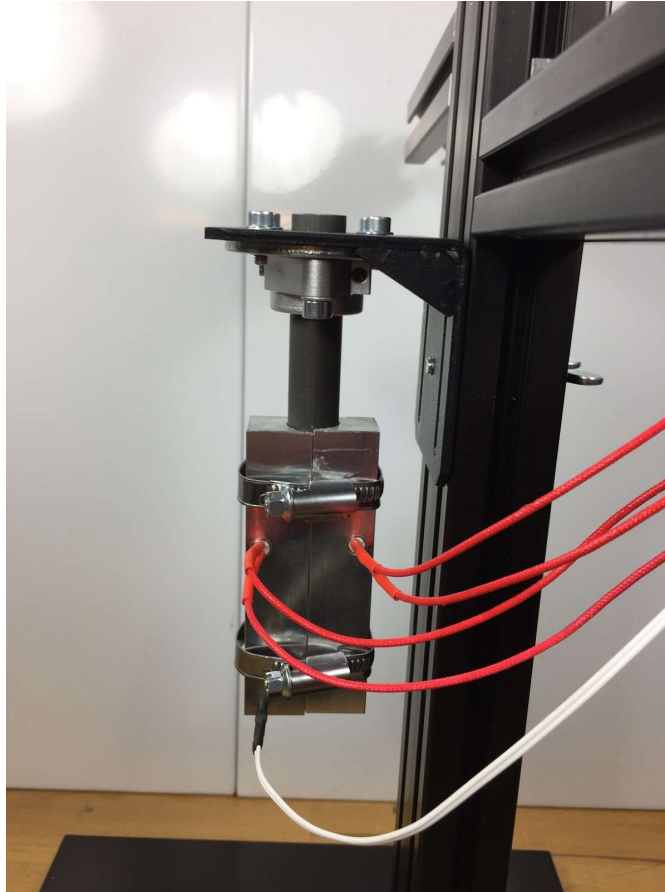
Remove from package 1:
Wing screw M6x35 (SC19)

The wing screw is guided from behind through the lower hole in the aluminum profile



Step 24:

The mounting bracket with the extruder tube is attached to the aluminum profile. To do this, screw the wing screw into the M6 thread in the mounting bracket.



Step 25:

The installation and sealing of the nozzle is described in the operating instructions under points 3.16 to 3.18. The nozzle must be installed before start-up.

Done:

Now continue with assembly instructions "03-Extruder drive assembly".