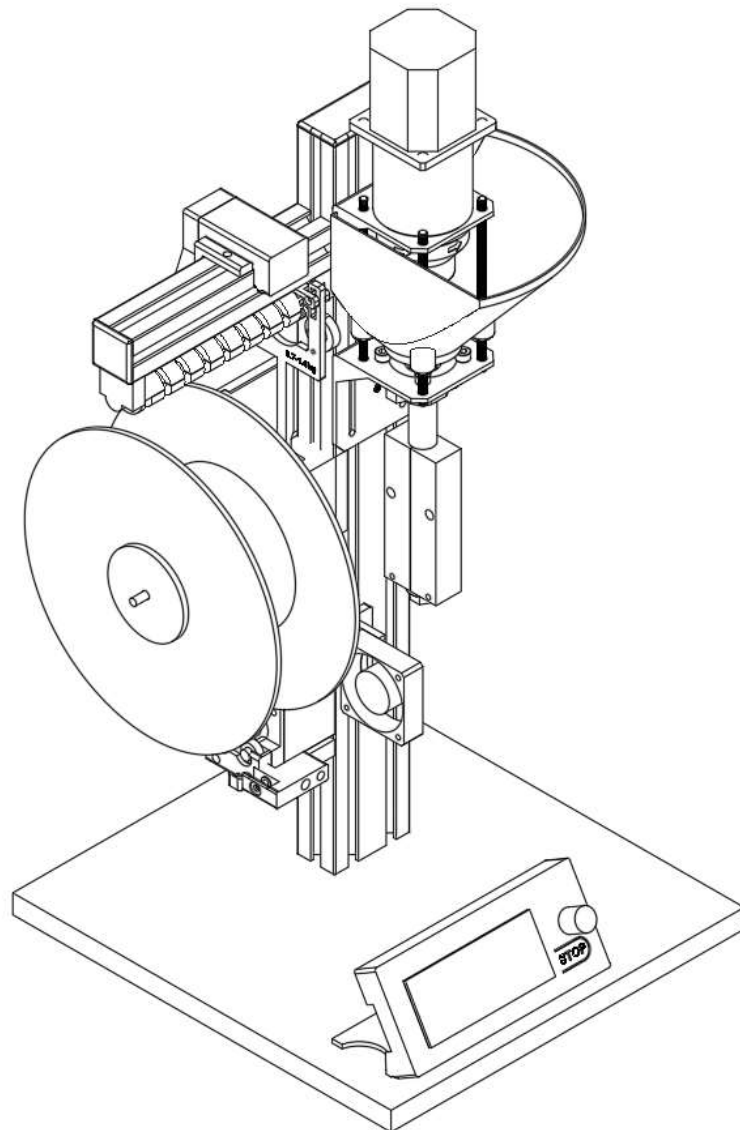


# 06 Filament guide assembly

## Assembly instructions

Original Desktop Filament Extruder E1.7 by ARTME 3D

Version 28.02.2022





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### **Required tools for this assembly section:**

Phillips screwdriver PH1

if necessary drill with 3,5mm drill bit

### **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)

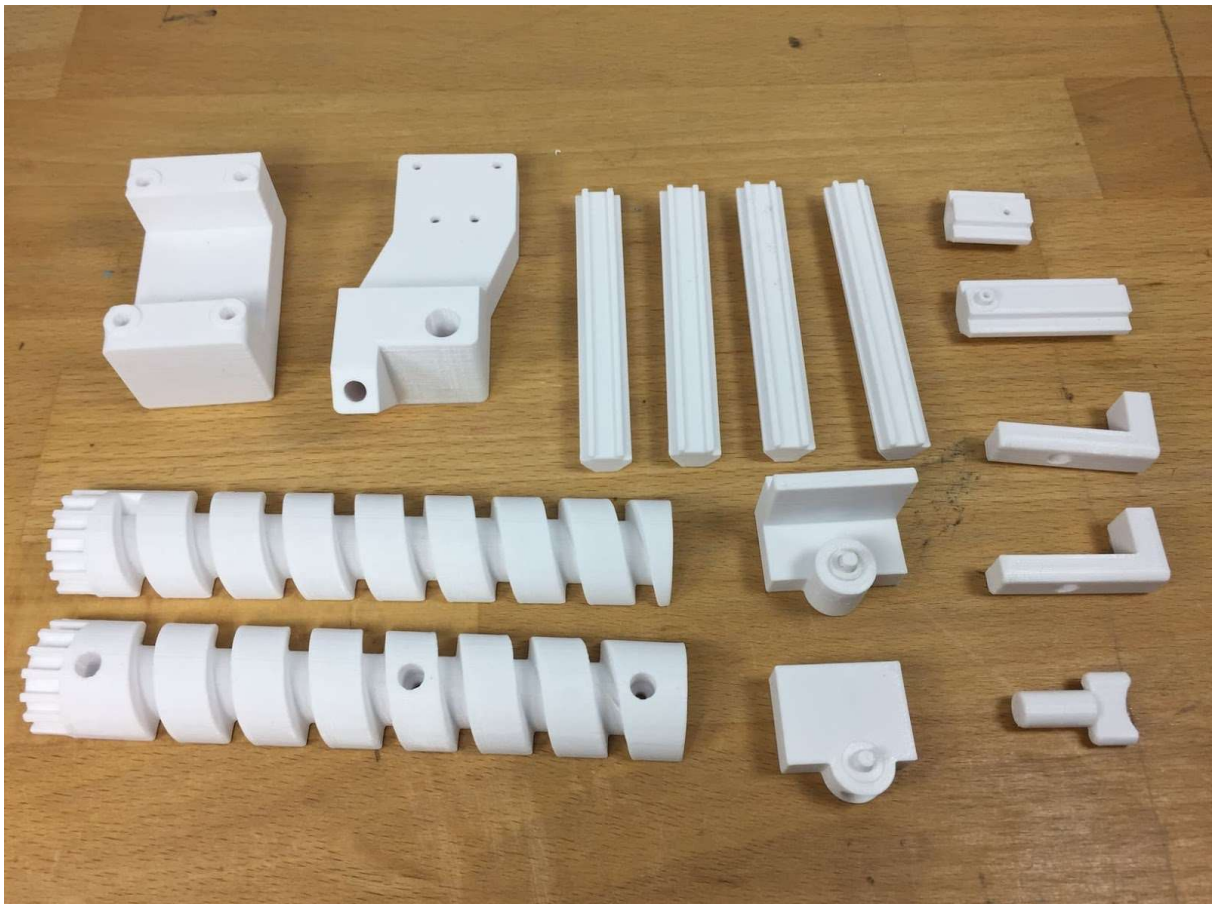
Package 6: Tools (TO)

## Step 1:

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3D printing:

- 4x Rails FG07
- 1x slide part 1 FG08
- 1x slide part 2 FG09
- 1x spiral axis for 1,75mm part 1 FG10.1
- 1x spiral axis for 1,75mm part 2 FG10.2
- 1x Axis holder right FG11
- 1x notch part 1 FG12
- 1x notch part 2 FG13
- 1x Plow FG14
- 1x Axle holder left FG15
- 2x Stopper FG16



## Step 2:

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Remove from package 1:

9x wood screw 2.5x12 (SC01)

7x cap head screw M4x10 (SC04)

1x hammer nut (SC10)

1x slot nut (SC20)

Remove from package 2:

8x ball bearing 4x13x5 (SP14)

1x compression spring 6mm (SP22)

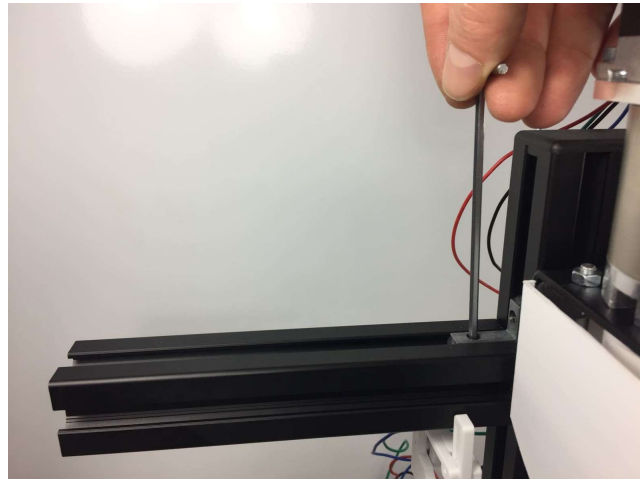


### Step 3:

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Tool from package 6: Allen wrench 3mm

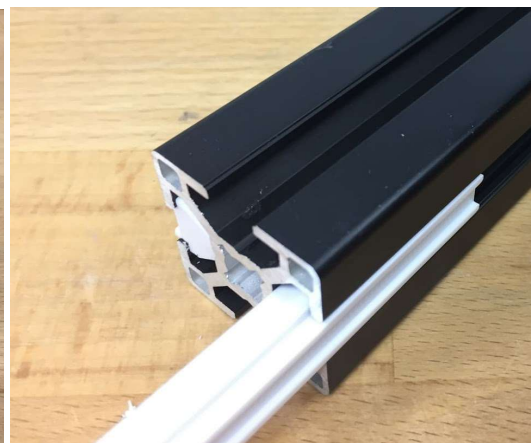
Dismantle the 160mm long aluminum profile on the left side of the main frame.



### Step 4:

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Insert the four FG07 rails into the groove of the aluminum profile. Two pieces opposite each other.





## Step 5:

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Tool: Key file square

Use the key file (square) to process the transition points of the print parts. There must be no edge or unevenness at the transition.



## Step 6:

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Tool from package 6: Allen wrench 3mm

Attach four ball bearings 4x13x5 with a cap head screw M4x10 each to the carriage part 1. If the holes are too small, you can drill them with a 3.5mm drill bit. If the holes are too large, you can additionally secure the screws with some glue.

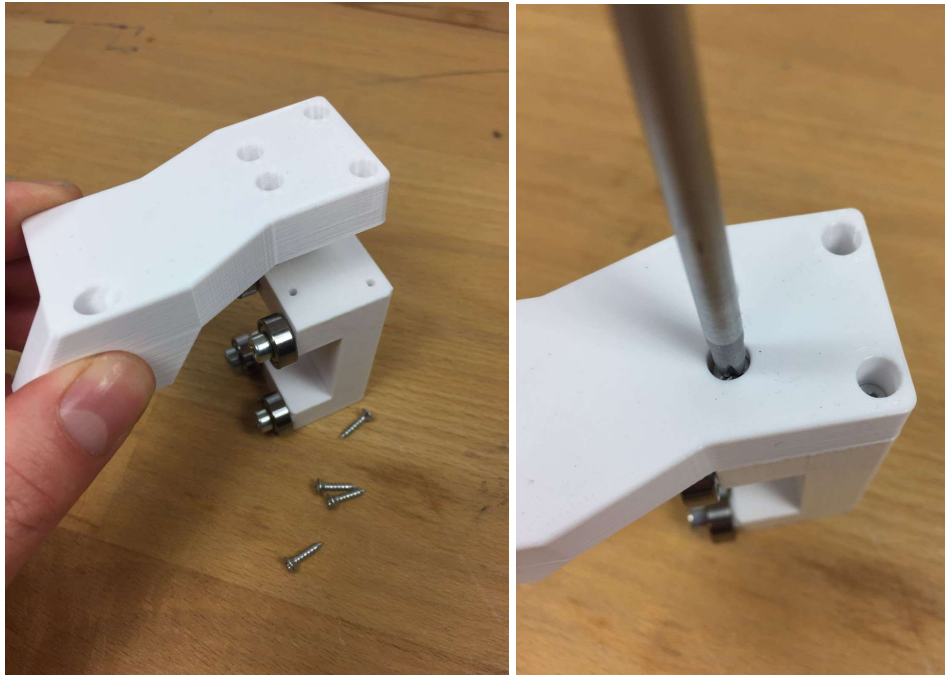


## Step 7:

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Tool: Phillips screwdriver PH1

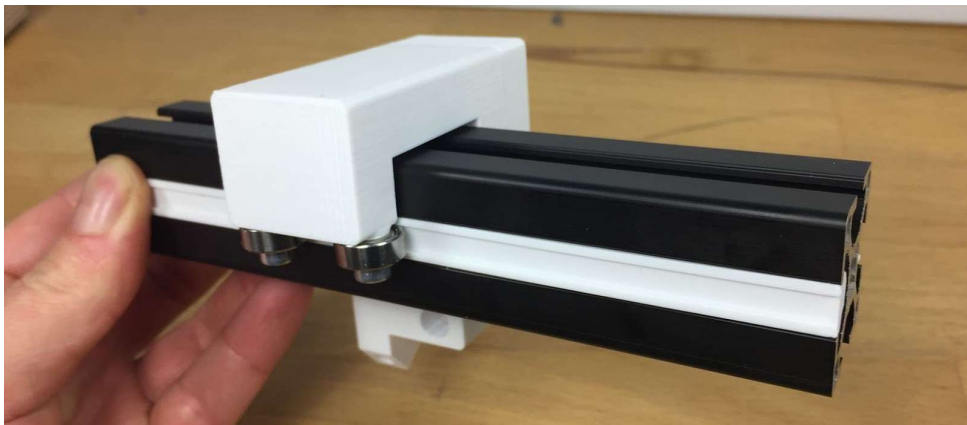
Fasten the carriage part 2 to the carriage part 1 using the wood screws 2.5x12. Drill holes are provided in the carriage part 1 for this purpose.



## Step 8:

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Now push the carriage onto the aluminum profile. The ball bearings must run in the guide rails. The carriage should be able to be pushed with slight resistance without hooking. If this is the case, the guide rail can be reworked with the key file.

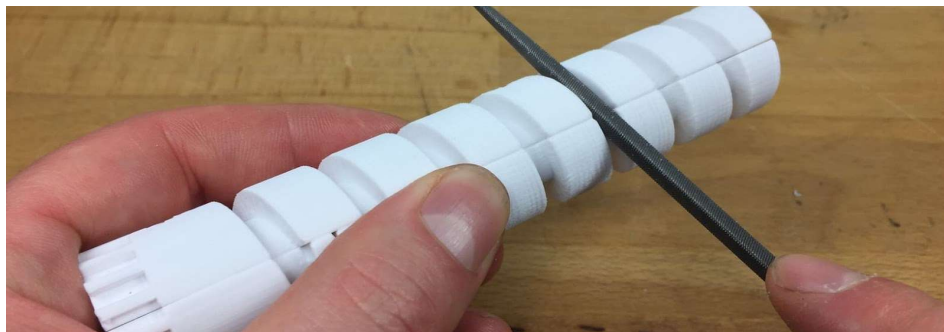


## Step 9:

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Tools: Phillips screwdriver PH1, key file square.

Place the two parts of the spiral axle on top of each other and insert two ball bearings 4x13x5 into the designated places at the ends of the axle. Pay attention to the alignment. The lateral holes for the screws must fit on each other. The two parts of the spiral axle are screwed together with three wood screws 2.5x12. Finish the spiral with the key file so that the edges at the junctions of the two parts are removed and all surfaces are relatively smooth. Be careful not to remove too much material.

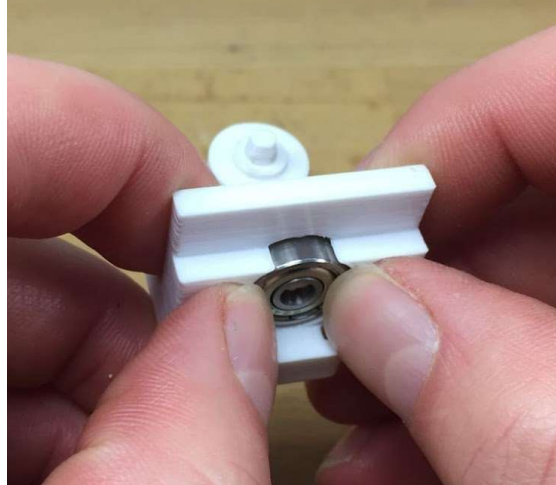




## Step 10:

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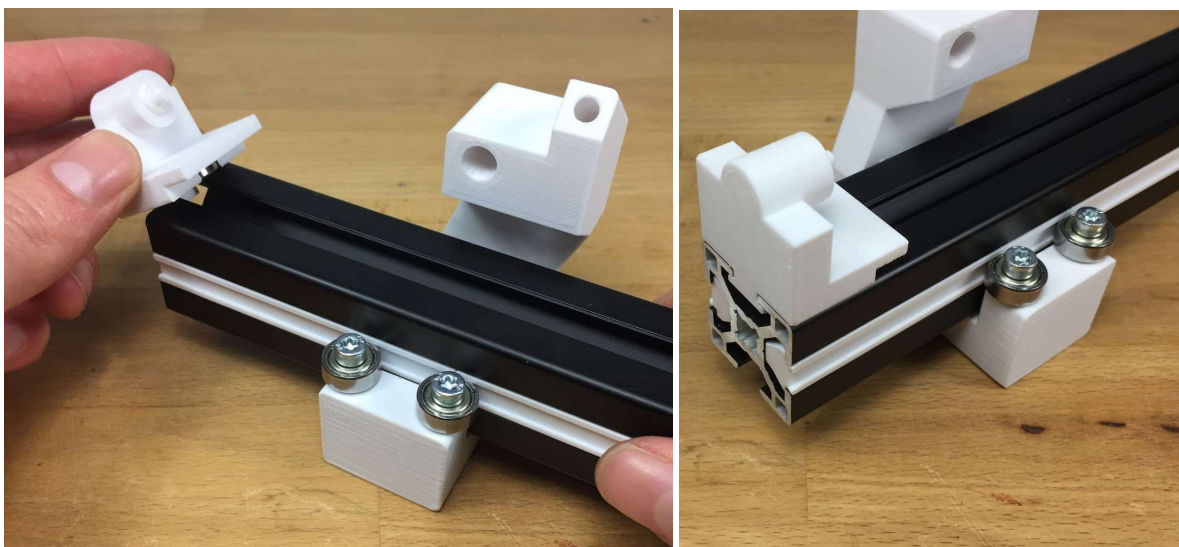
Insert a ball bearing 4x13x5 into the axis holder on the right (FG11). The printed part must be reworked so that the ball bearing can be pushed in completely and does not protrude.



## Step 11:

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The axis holder on the right (FG11) is placed on the aluminum profile. Push the axis holder into the groove until it is flush with the face of the aluminum profile. See picture. Depending on the print tolerance, the print part may have to be reworked by filing or grinding.



## Step 12:

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Tool: Phillips screwdriver PH1

A ball bearing 4x13x5 is screwed with a wood screw 2,5x12 onto the notch part 1 FG12 with a wood screw 2.5x12. The ball bearing must be centered on the elevation provided for this purpose.

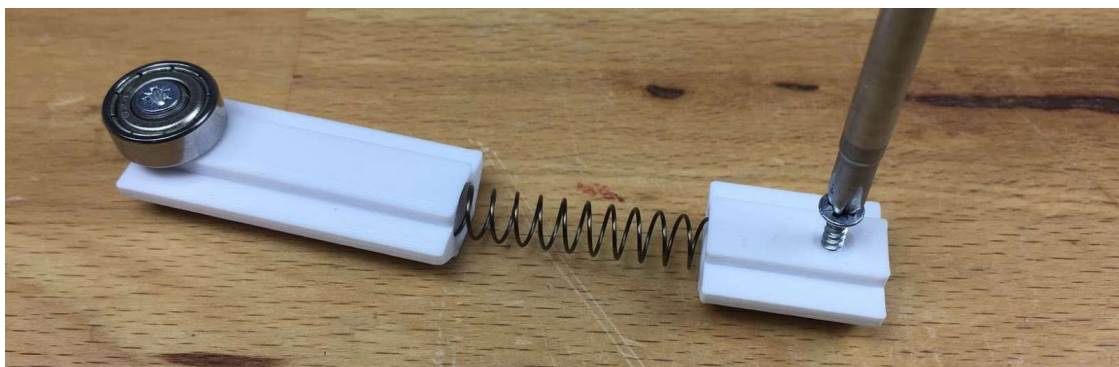


## Step 13:

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Tool: Phillips screwdriver PH1

Screw a wood screw 2.5x12 into the notch part 2 (FG13). Screw in the screw only so far that it does not come out on the opposite side. Align the two parts so that the side holes face each other. Then you can place the 6mm compression spring (SP22) between them and insert the ends of the spring into the holes.



## Step 14:

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Tool: Phillips screwdriver PH1

The now assembled latch mechanism is inserted into the groove of the aluminum profile. See picture. If the parts do not slide freely, the print parts must be reworked by filing or grinding. Tension the spring by pushing the detent part 2 further into the groove. The correct spring tension is achieved when there is approx. 65mm distance to the outer edge of the groove. Then tighten the wood screw so that nothing can move. See pictures. Then check whether the ball bearing can be moved and is pushed back to its original position.



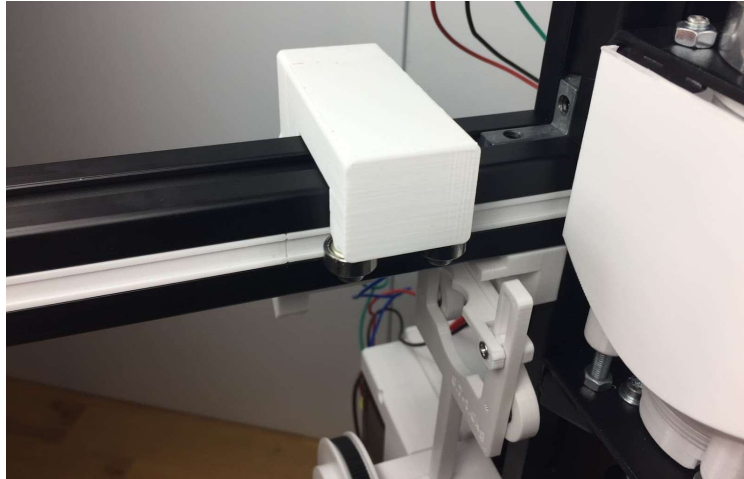


## Step 15:

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Tool from package 6: Allen wrench size 3

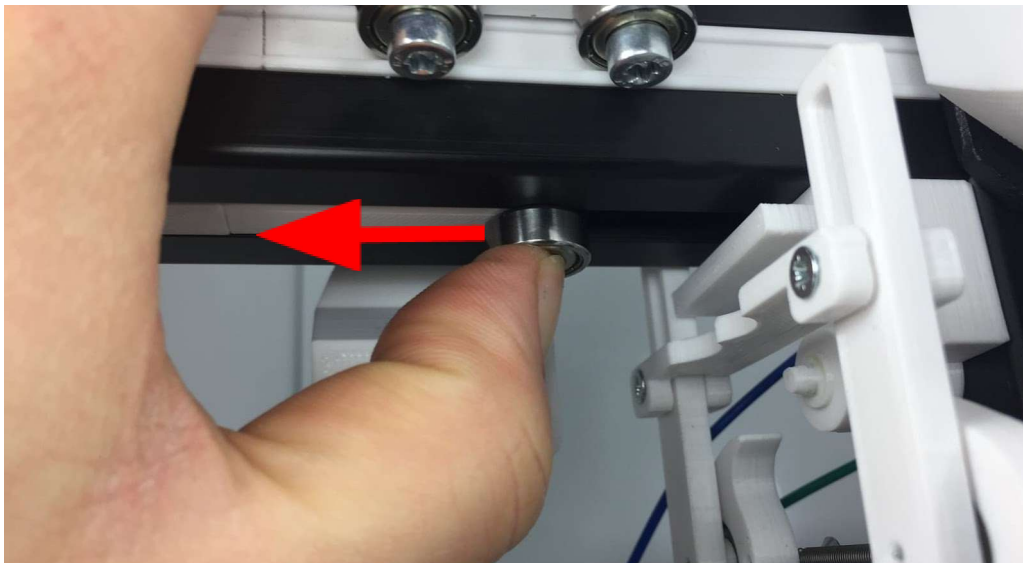
The aluminum profile can now be remounted on the main frame. If the swing arm is in the way, it can be lowered by turning the coil holder disc. The locking mechanism points downwards.



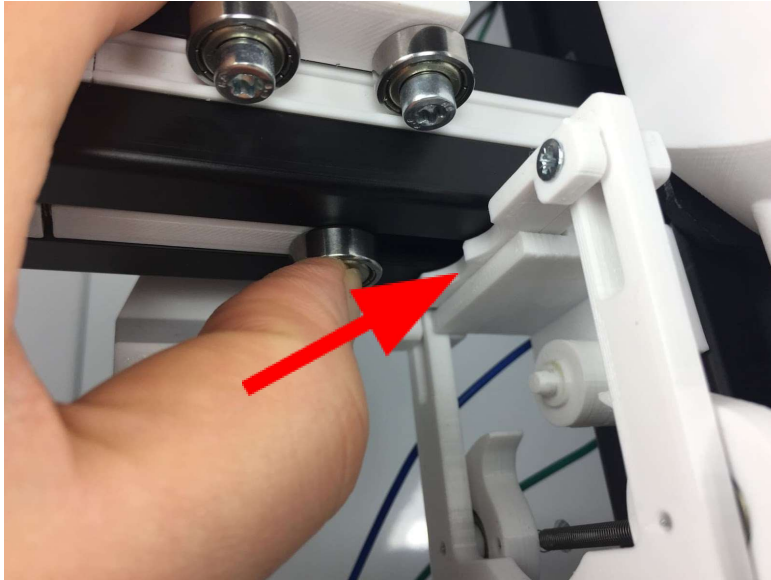
## Step 16:

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Pull back the ball bearing of the detent mechanism and insert the cross strut into the recess provided on the axis holder. Then release the ball bearing again. (See also pictures next page)



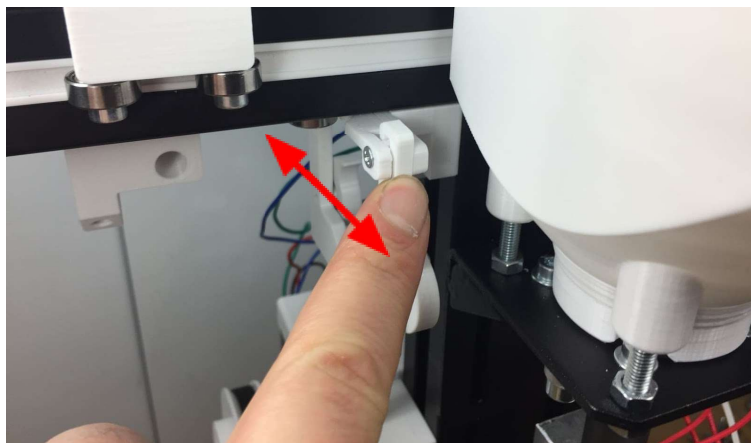




## Step 17:

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Now check whether the swing arm can be pushed back and forth. The spring tension should allow the swingarm to move with some resistance and engage in the end position. If something hooks or is stiff, the print parts may need to be reworked.

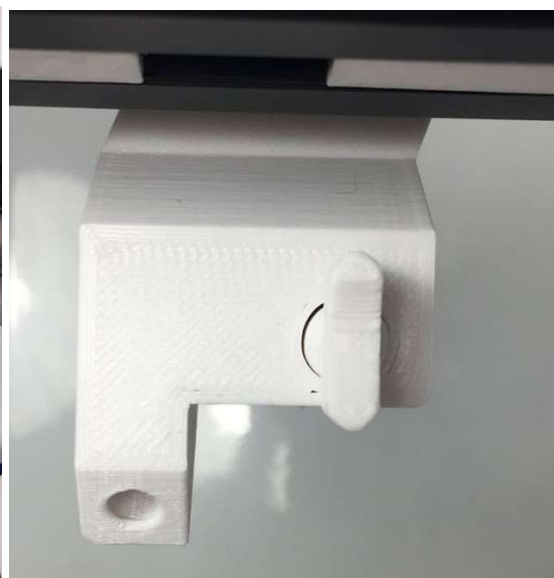
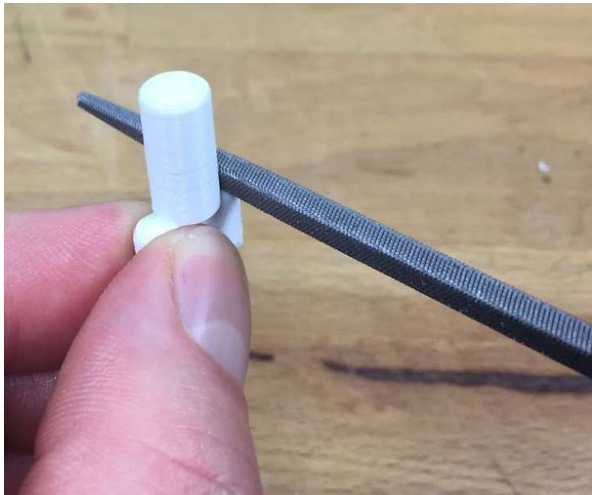


## Step 18:

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Tool: key file square

Rework the plow (FG14) with the key file so that all surfaces are smooth. Be careful not to remove too much material. Then insert the plow into the hole provided for it in the carriage.

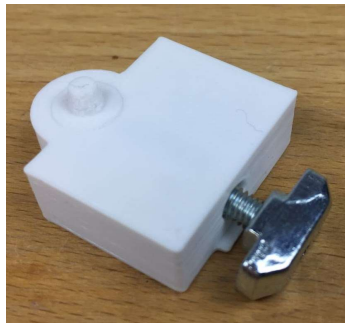


## Step 19:

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Tool from package 6: Allen wrench 3mm

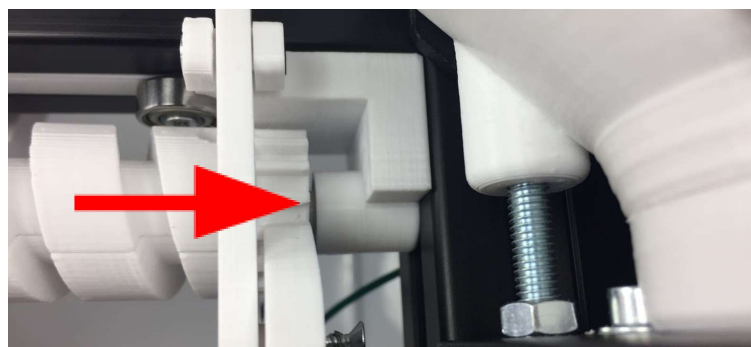
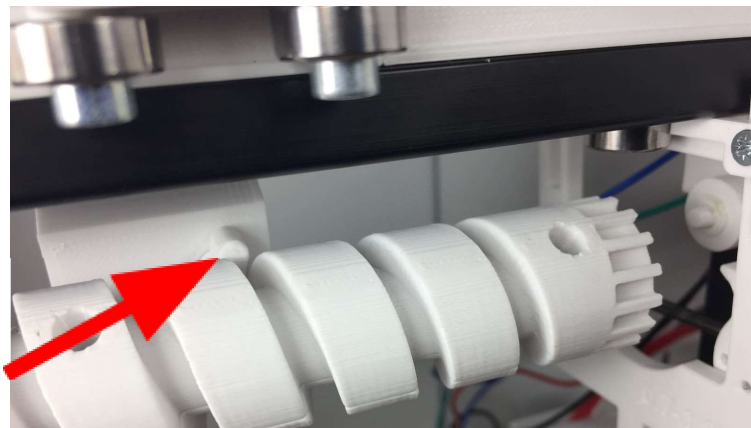
1x hammer nut (SC10) A socket head screw M4x10 is inserted into the axle holder left FG15 and a hammer nut is turned onto the thread.



## Step 20:

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The spiral axle is inserted. To do this, align the axle so that the end with the teeth faces the swing arm. First insert the plow into the spiral, then push the axle to the right and put the ball bearing at the end of the axle onto the axle holder. Hold the other end of the axle by hand.

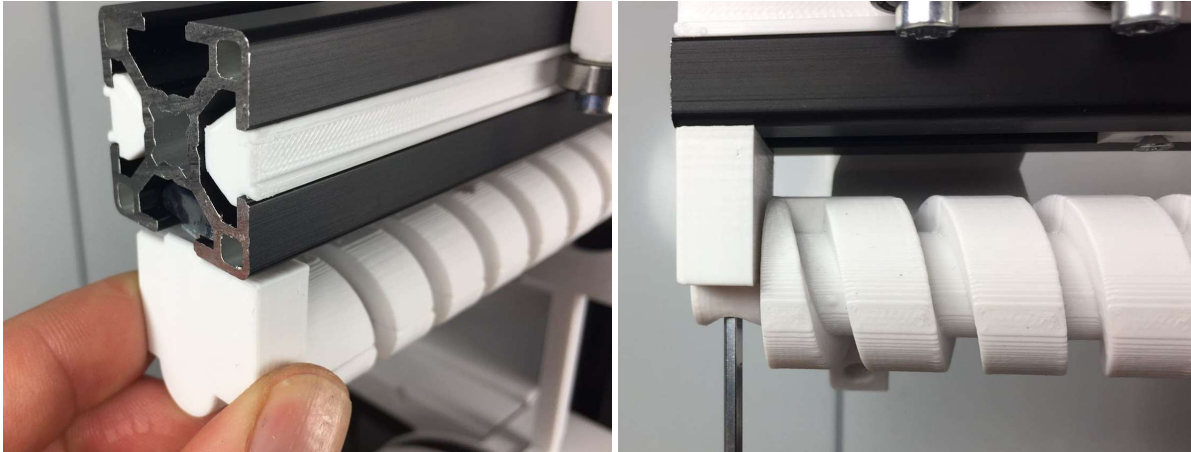


## Step 21:

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Tool from package 6: Allen wrench 3mm

Now put the axle holder on the left side of the axle and insert the hammer nut into the groove of the aluminum profile. Screw the cap screw tight. It should not be possible to move the axle to the right and left, only to turn it.



## Step 22:

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Now turn the spiral axis. It should be possible to turn it with slight resistance. The carriage must move back and forth when you turn the axis in both directions. If it hooks at some points or becomes sluggish, repeat the reworking of the print parts (see steps 9 and 18). Then check again.





## Step 23:

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Tool from package 6: Allen wrench 3mm

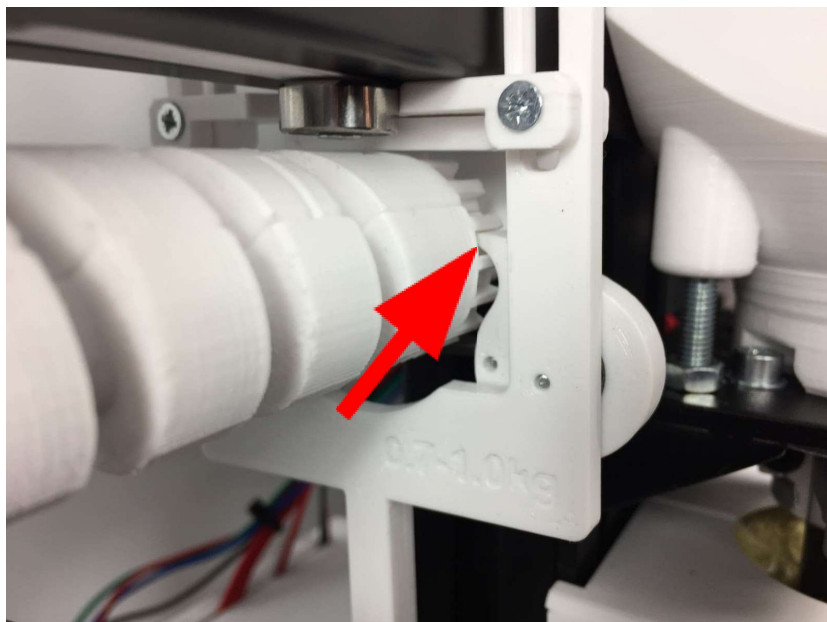
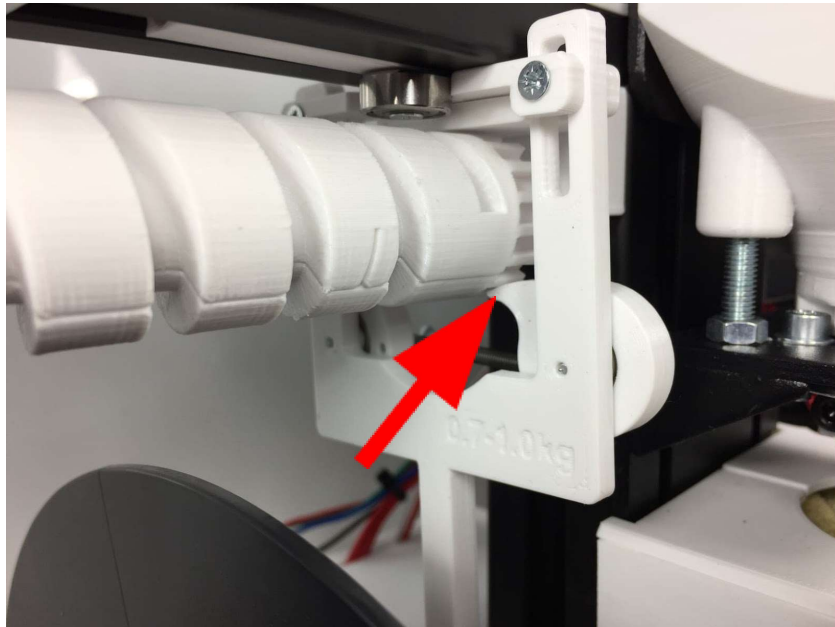
Slide two sliding blocks (SC20) into the groove of the aluminum profile. Push one of the two sliding blocks under the carriage. Then screw one FG16 stopper each to the sliding block using an M4x10 cylinder screw. The stoppers serve as a stop for the carriage and ensure that the carriage changes direction.



## Step 24:

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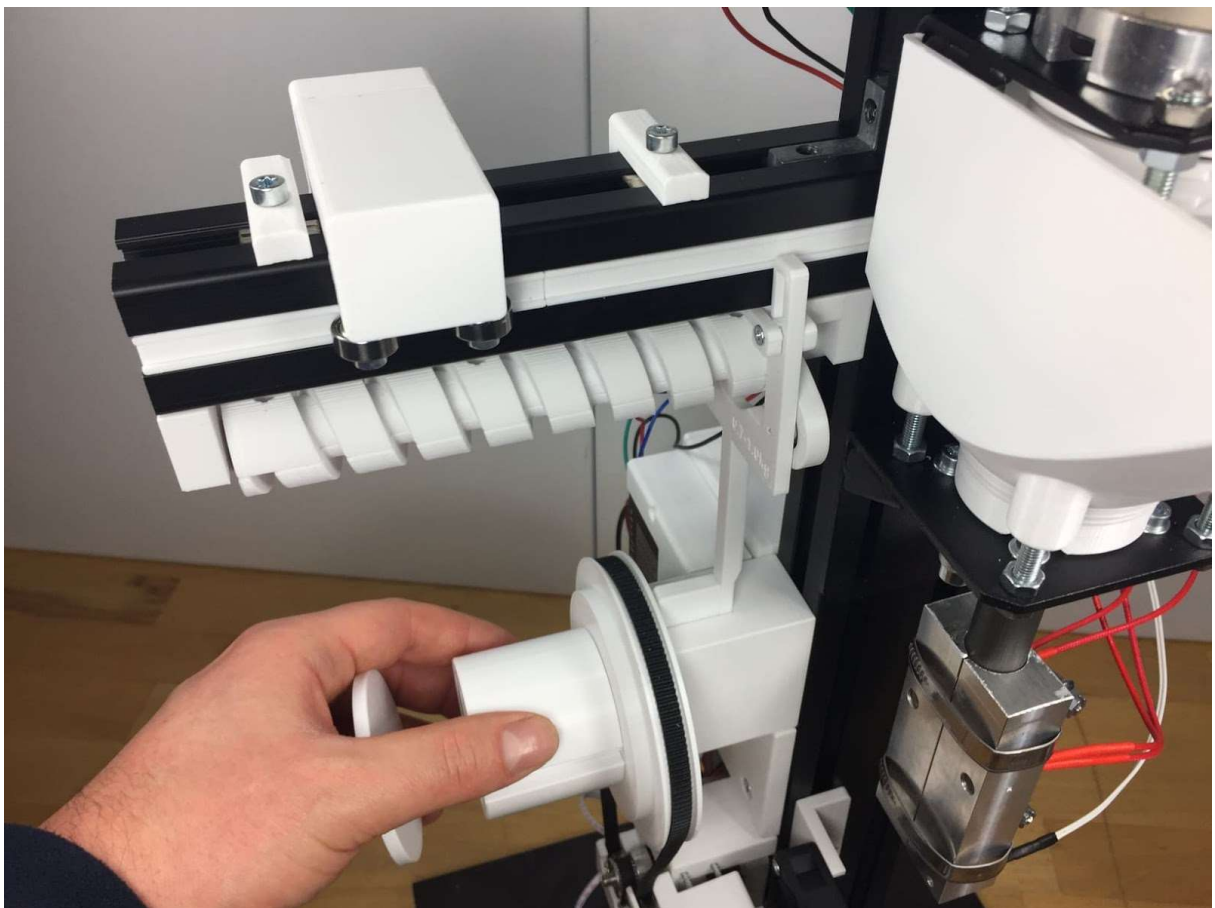
Now switch the swing arm to the front and rear position so that the serrated drivers straighten up if they have twisted downwards due to the rotation of the spiral axis.



## Step 25:

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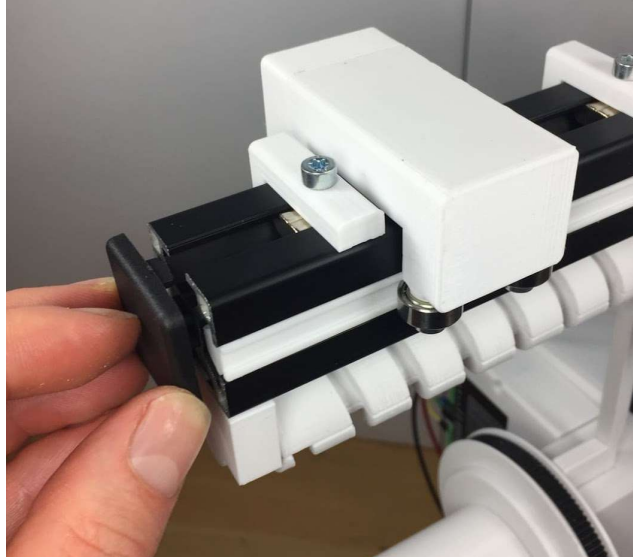
Now you can check the correct function of the filament guide. Turn the spool holder disk by hand. The toothed belt must be loose for this. If not, adjust the belt tensioner if necessary or loosen the motor bracket of the stepper motor on the toothed belt. When you turn the spool holder disk, the swing arm moves up and down. The serrated drivers rotate the spiral axis a small amount with each upward movement. This causes the carriage to move. When the carriage arrives at the stopper, the rocker switches to the other position. This changes the direction of rotation of the axis and thus the direction of the carriage. Do not turn the drive too fast, to judge the correct function, take your time to move the carriage back and forth several times. If the direction of rotation changes too early, although the carriage has not yet arrived at one of the two stoppers, the spiral axis and the plow may have to be reworked again or the spring tension on the detent mechanism increased.



## Step 26:

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Remove from package 2: Cover cap 30x30 (SP01).  
Now you can put the cover cap on the end of the aluminum profile.



## Done:

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Now continue with assembly instructions "07-Insulation assembly".