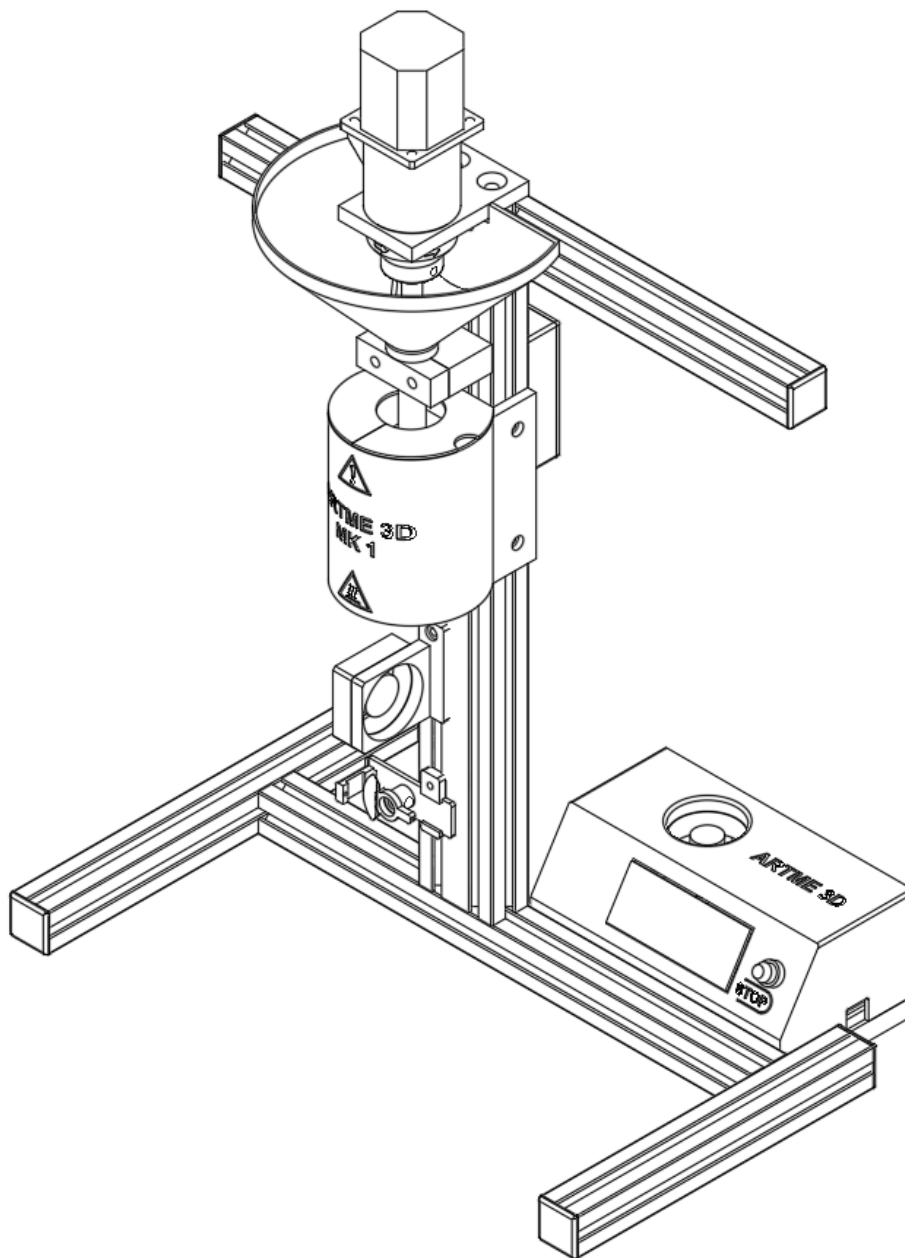


Assembly instructions

04 Sensor

Original Desktop Filament Extruder MK1 by ARTME 3D

Version 30.05.2022





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Additional tools required for this assembly section:

Phillips screwdriver PH1

Needle nose pliers

Combination pliers

hammer/vice if necessary

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)

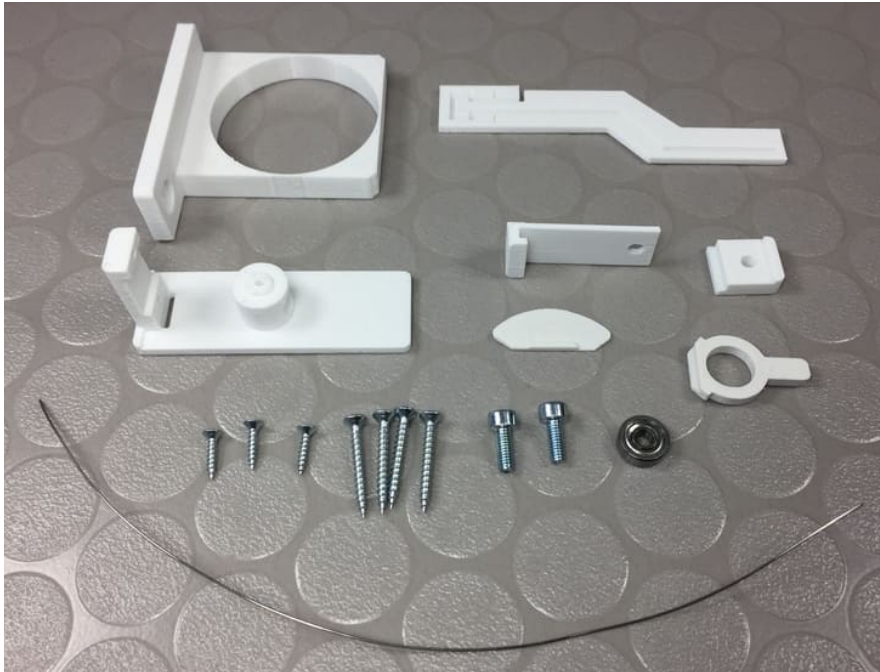
Step 1:

3D Printing:

Sensor mount part 1 (SO01), Sensor mount part 2 (SO02), Sensor body (SO03), Sensor arm (SO04), Sensor bezel (SO05), Bending aid (SO06), Fan mount (EL20).

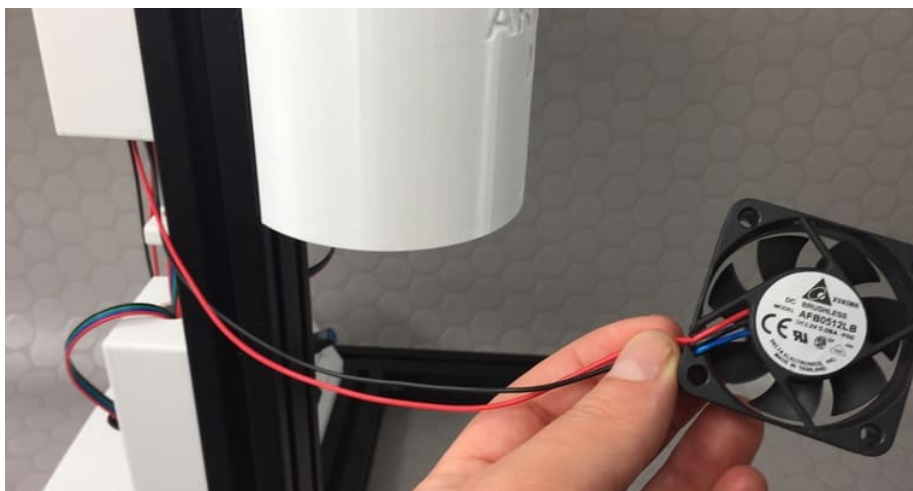
Remove from package 1: 3x wood screw 2.5x12 (SC01), 4x wood screw 3x25 (SC02), cheese head screw M4x10 (SP05)

Remove from package 2: Ball bearing 4x12x4 (SP07), Wire 0.6x210mm (SP06)



Step 2:

Pick up the filament cooling fan on the nozzle (connected through the lower opening of the upper junction box on the back).



Step 3:

Tool: Phillips screwdriver

Take the fan bracket to hand. Align the fan and the bracket with each other, see picture. Pay attention to the position of the fan's connecting cables. Then fasten the fan with the four wood screws.



Step 4:

Tool from package 6: Allen wrench size 3 (TO07).

Insert the cap screw through the hole provided for it in the fan holder and use it to screw the fan holder to the aluminum profile. The sliding blocks for this are already prepared in the groove of the aluminum profile. Screw the screw into the upper slot nut and push the fan holder slightly

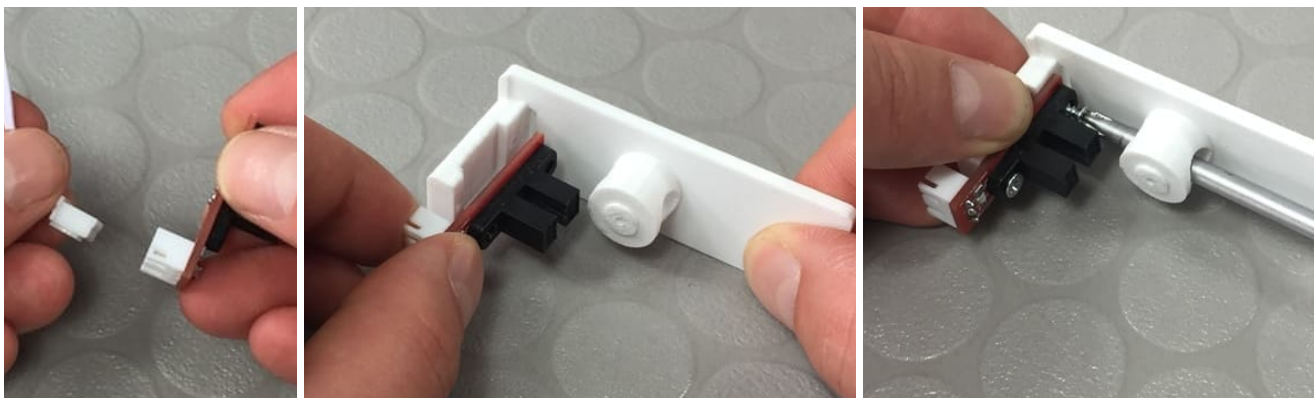
upwards. The position of the fan holder can be changed later by loosening and tightening the screw.



Step 5:

Tool: Phillips screwdriver PH1

Detach the sensor from the connecting cable and fasten it to the sensor holder with two wood screws. Alignment see picture.



Step 6:

Tool: vice if necessary

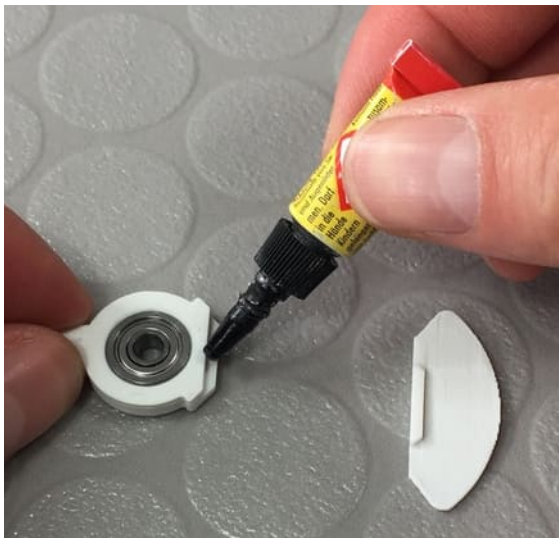
Press the ball bearing into the sensor arm. This may require some force. Rework the hole if necessary or press the bearing in with a vice. If you do not have these tools, you can use light hammer blows in a pinch. But be careful: Be sure to place a piece of wood (or similar) on the ball bearing before using the hammer. Do not damage the ball bearing! The ball bearing must be flush with the surface of the sensor arm.

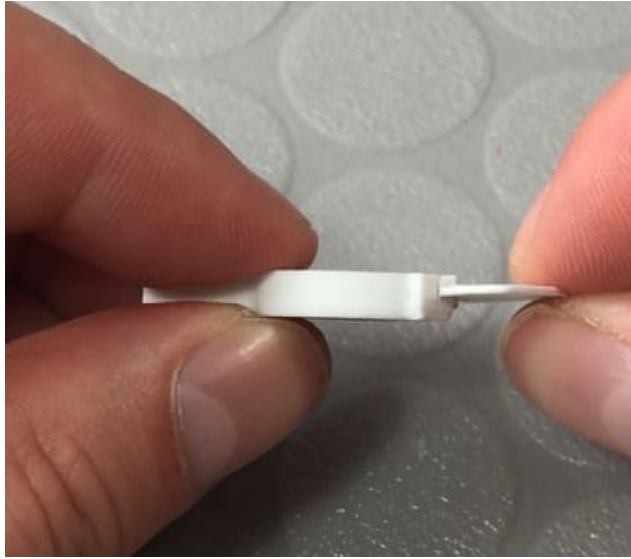


Step 7:

Tool: Superglue

Alignment of the aperture before mounting. Important: The aperture and the sensor arm must be aligned as shown in the picture. The aperture lies flat. The small shoulder points upwards. The sensor arm lies flat with the small recess pointing up. Then glue the aperture to the sensor arm in this orientation. Hold the parts in this position until the glue is solid. The aperture must not bend while drying. (See also picture next page)

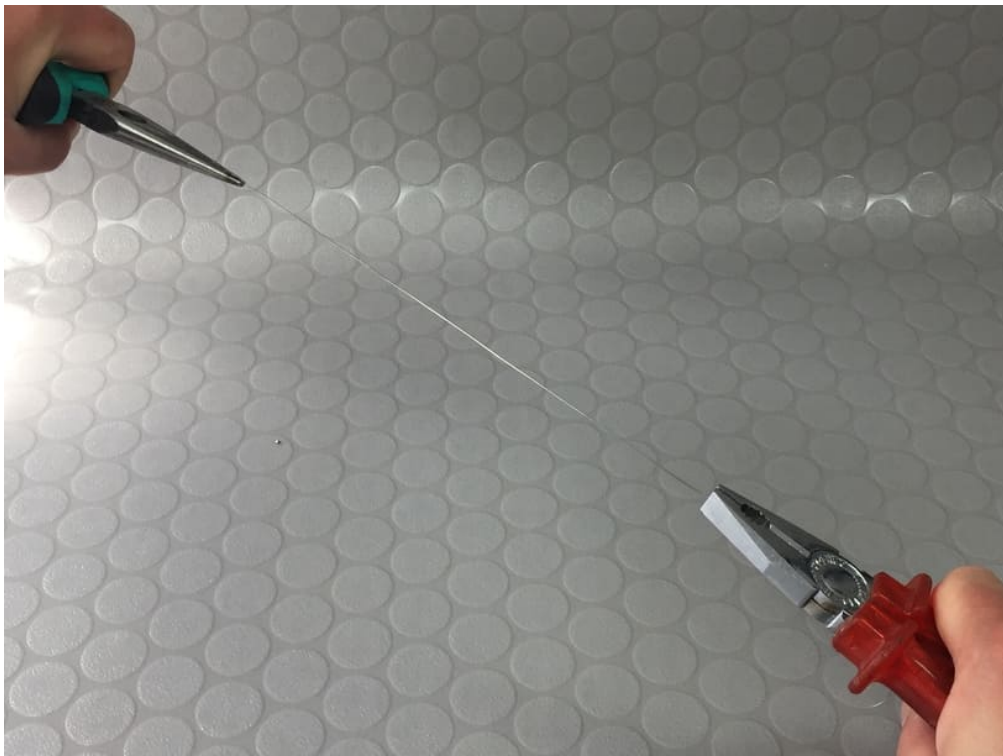




Step 8:

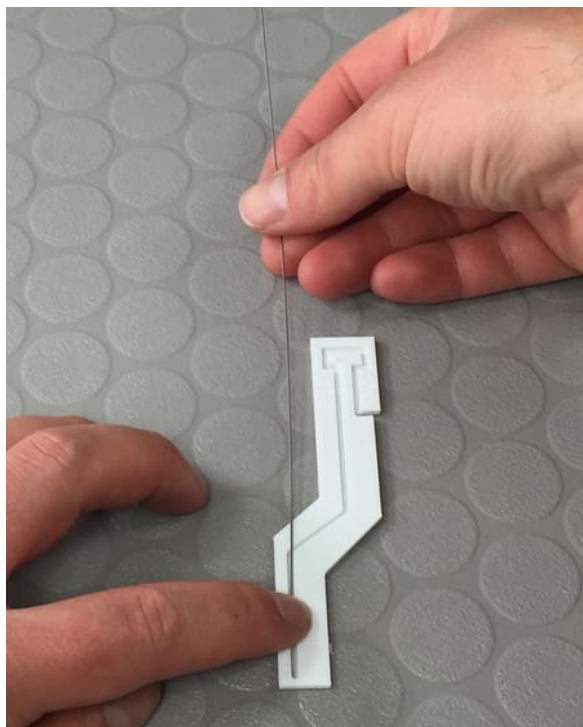
Tools: combination pliers, needle nose pliers

Pull the wire straight. To do this, pinch the ends of the wire between two pairs of pliers and pull firmly. Then the wire should be straight. Alternatively, one end of the wire can be clamped in a vise.



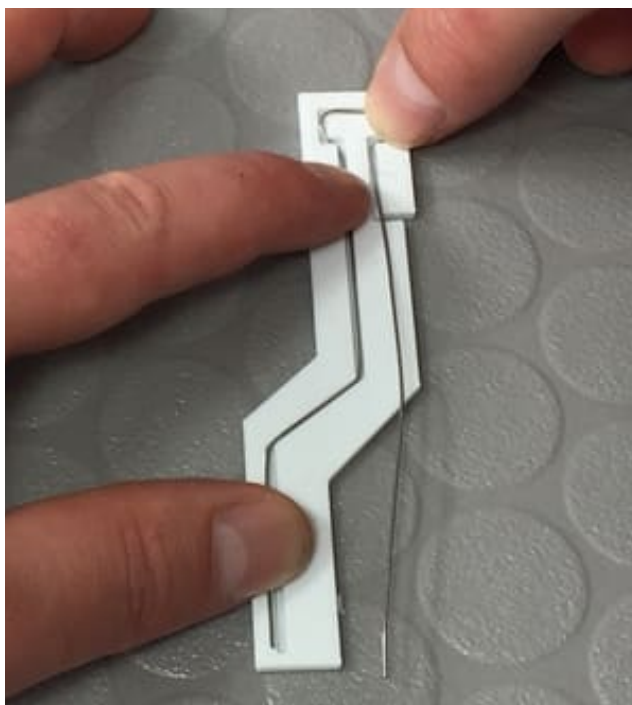
Step 9:

The wire is placed in the mold in the bending aid. See picture for starting point.



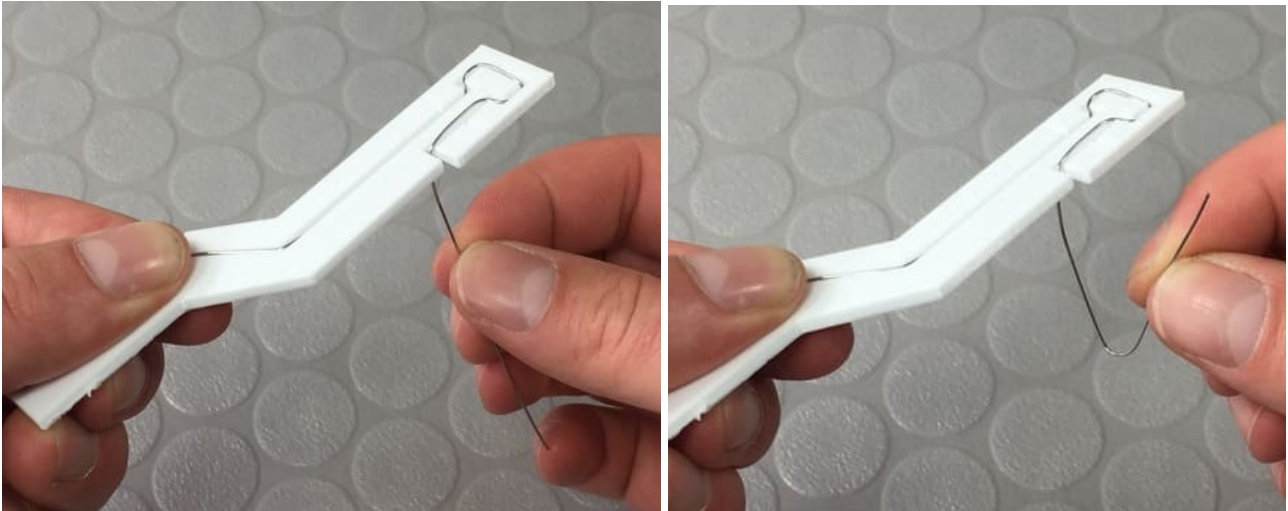
Step 10:

Now bend the wire along the shape. You can use needle-nose pliers to make the bends more precisely. End point see picture.



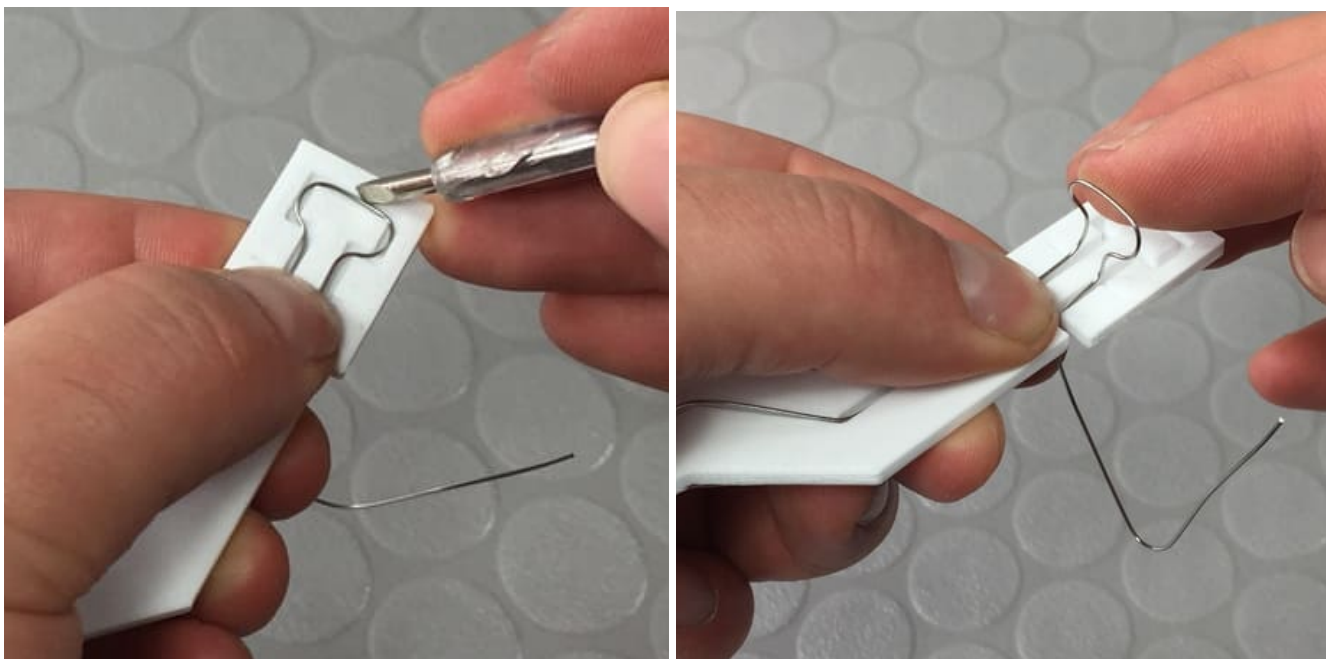
Step 11:

Lift the mold and bend the end piece down at a 90° angle, there is a notch in the mold for this purpose. Then bend the downward wire piece back up in half, creating a V shape. See pictures. This is to hang a small weight on this spot later if needed.



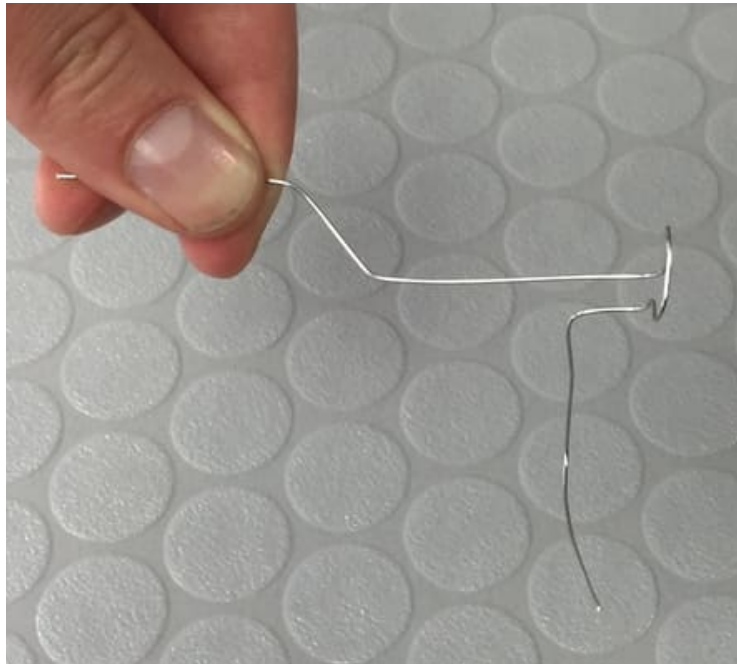
Step 12:

The eyelet-shaped piece is bent upwards at a 90° angle, see picture. The bending point is marked in the mold. Place your thumb there and bend the eyelet-shaped piece upwards. If the wire is difficult to get out of the mold, use e.g. a screwdriver to help.



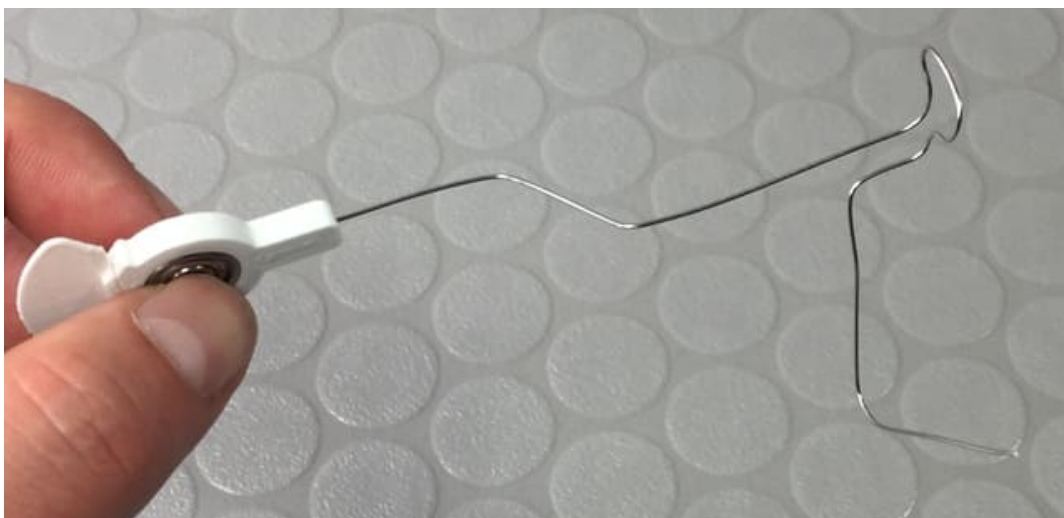
Step 13:

Remove the wire from the mold. This is how the wire should look now:



Step 14:

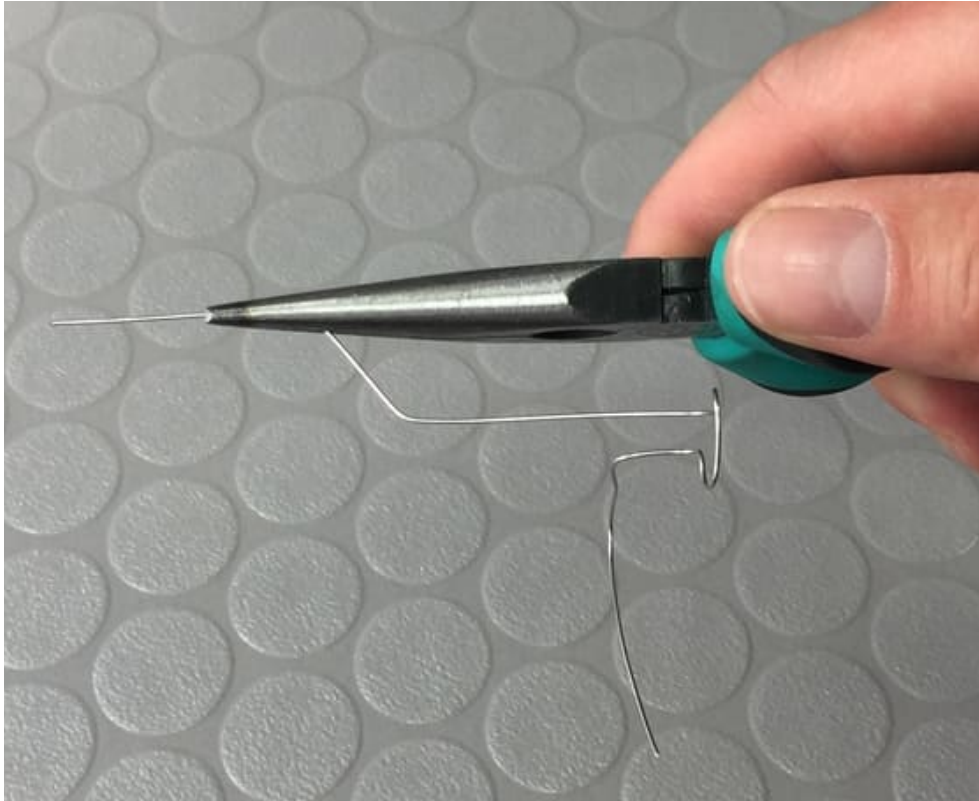
In the following steps, the wire is connected to the sensor arm. Before this is done, all parts must again be properly aligned. The sensor arm is aligned so that the thinner end of the aperture points upwards. The wire is aligned so that the eyelet shaped piece faces up. See pictures. How to make the connection follows in the next step.

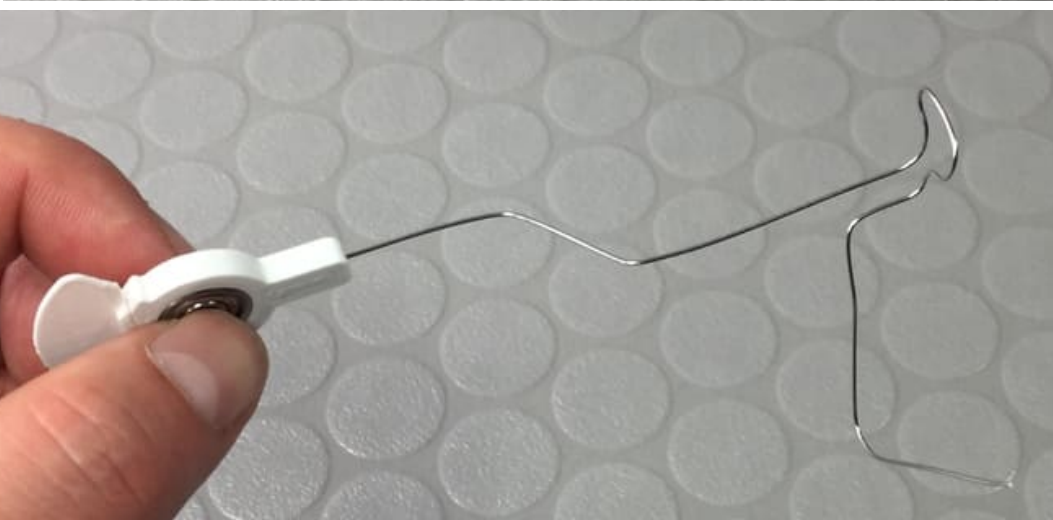
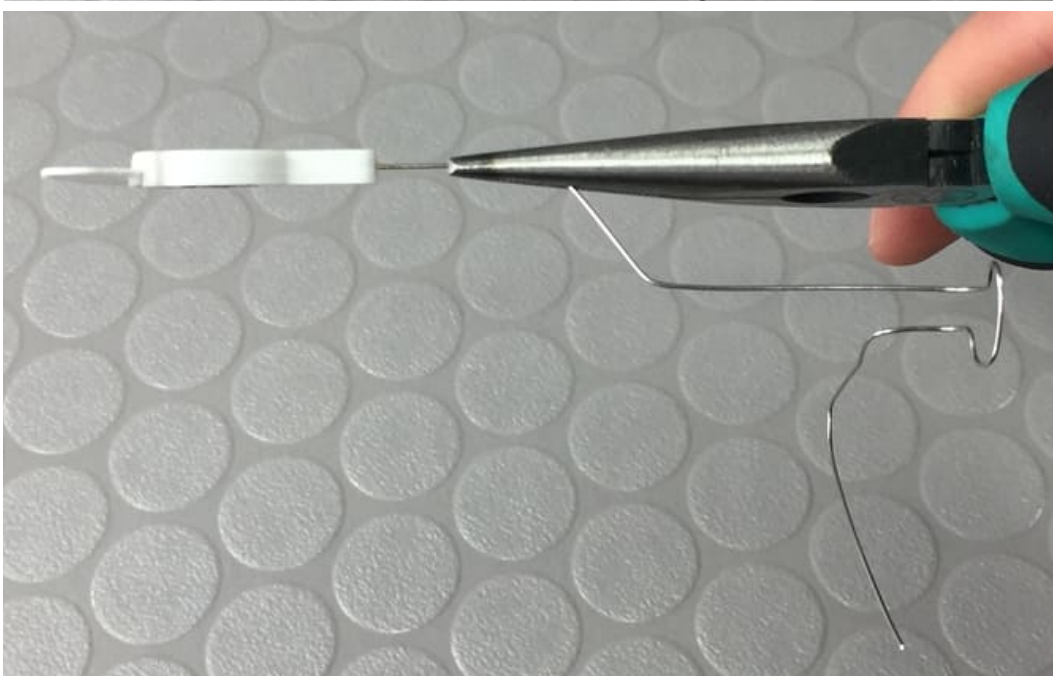
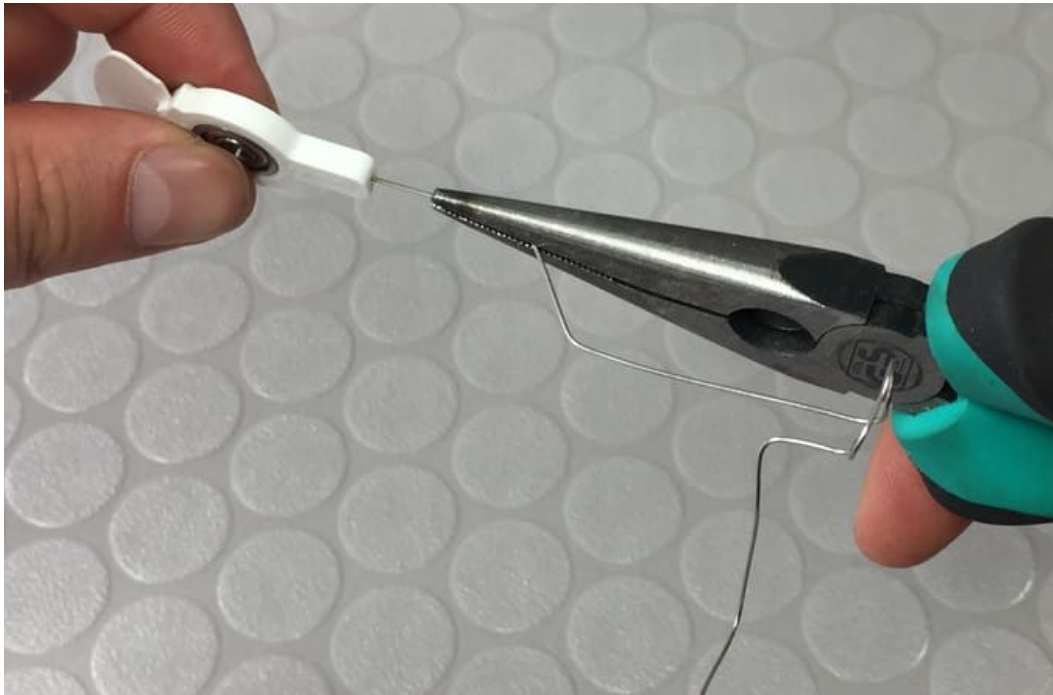


Step 15:

Tools: needle-nose pliers, lighter

Hold the initial piece of wire with needle nose pliers. Leave about 15mm of wire protruding. Heat this protruding piece of wire with a lighter. Press the hot wire into the small hole in the sensor arm and hold it until it has cooled down. The wire should now be firmly glued. Caution: Be sure to align the sensor arm as explained in the previous step. The thinner end of the orifice plate points upwards. See also pictures next page.

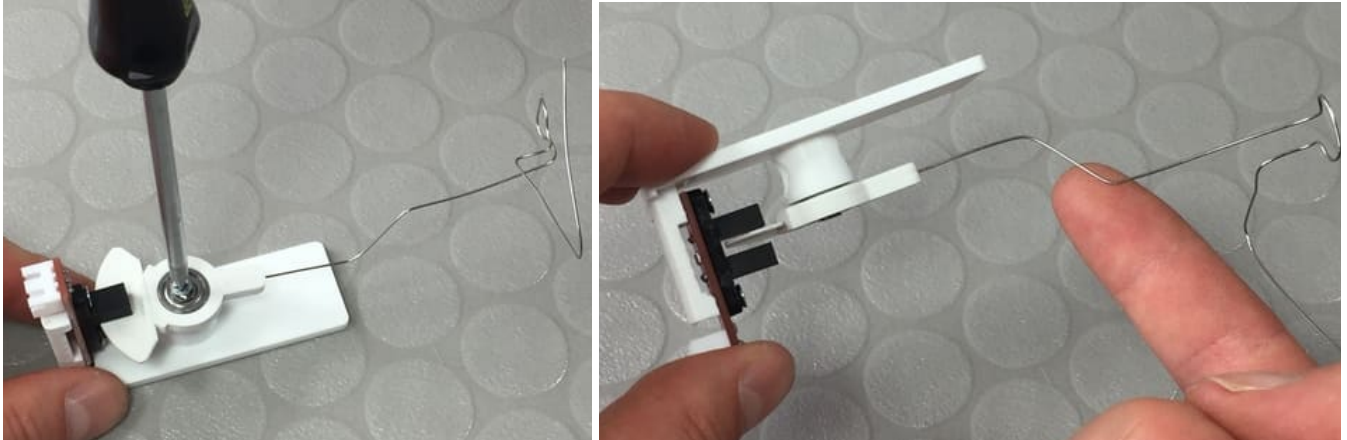




Step 16:

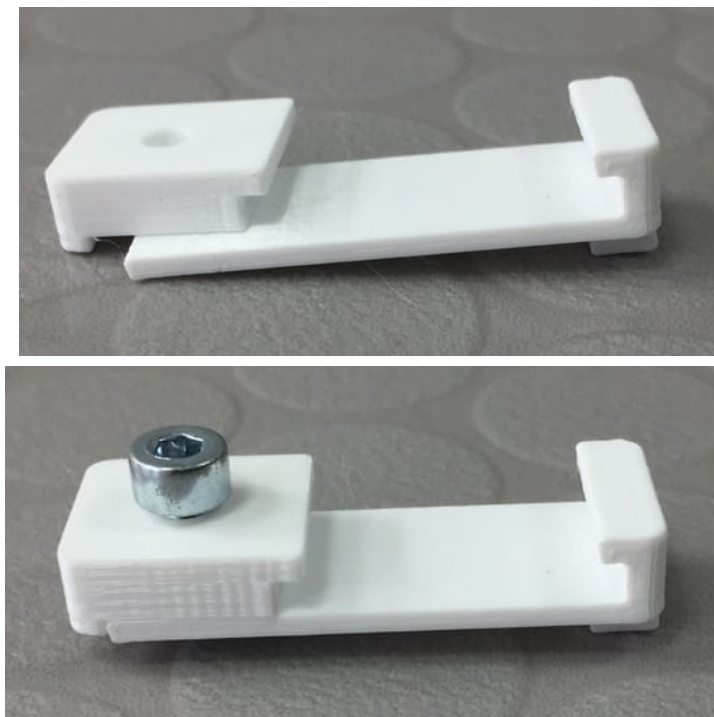
Tool: Phillips screwdriver PH1

Screw the sensor arm onto the sensor body with the wood screw. See picture for alignment. Then check if the sensor arm can be moved freely. If the orifice on the optical limit switch is dragging, rework pressure parts.



Step 17:

Align sensor holder parts 1 and 2 as shown in the picture. Then insert/turn the cap screw through the hole provided.



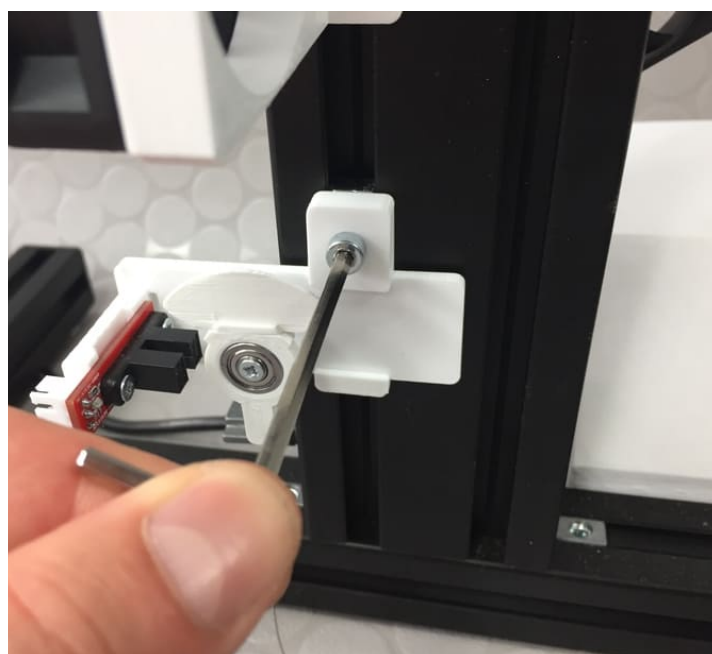
Step 18:

The cylinder screw of the sensor holder is then screwed into the prepared slot nut on the aluminum profile. If necessary, lift the sliding block slightly. See picture for alignment.



Step 19:

Slide the sensor body into the sensor holder from the left side. For this purpose, the cap screw may have to be loosened again. By loosening and tightening the cap screw, you can change the position of the sensor later.



Step 20:

Remove from package 2: 1x cable tie (SP11).

Reconnect the connection cable to the sensor and secure it against tensile load by pushing a cable tie into the slot between the optical limit switch and the sensor body and fastening it.



Done:

Now continue with assembly instructions "05-Spool drive assembly".

