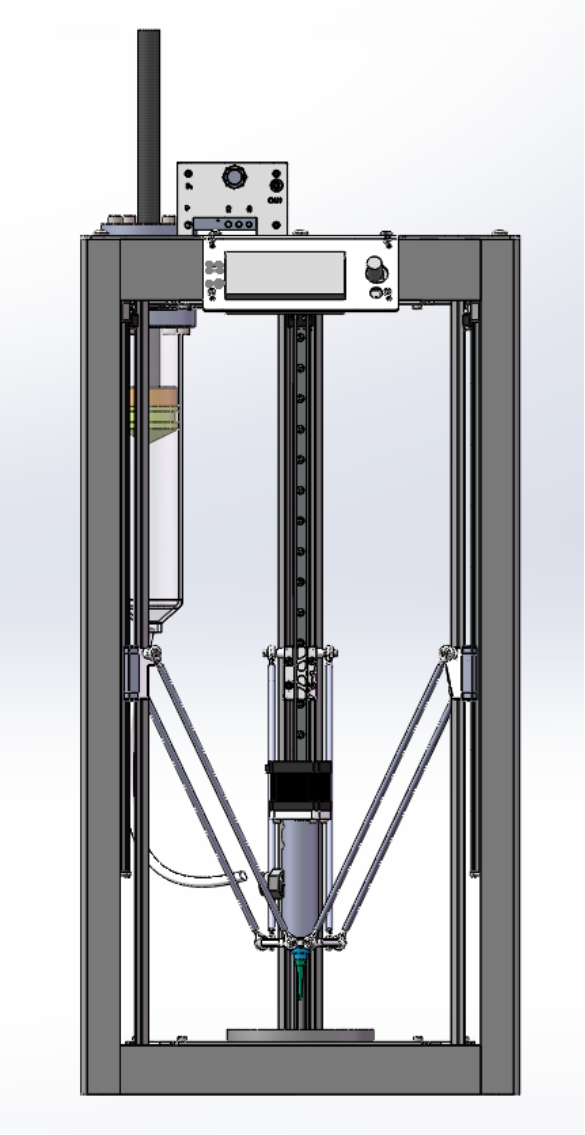

Cerambot 3.2.0

User Manual

济南辰坤智能科技有限公司

Jinan ChenKun Intelligent Technology Co., Ltd.

Safety Instructions

Beware of pinching, since the Cerambot 3D printer contains high-speed moving parts.

Use the Cerambot 3D printer in a spacious, well-ventilated environment.

When removing the model from the printing platform, be careful not to scratch your fingers.

Please note that the Cerambot 3D printer should be protected from rain and moisture.

Wear a goggle if you are assembling a Cerambot 3D printer or sanding the model.

Uploading incorrect firmware may result in damage to the machine or loss of functionality. If it is not necessary, it is not recommended to upgrade the firmware yourself.

It is not recommended to run the Cerambot 3D printer without supervision.

In case of emergency, please turn off the power of the Cerambot 3D printer directly.

After each printing, please clean the printer timely to prevent the soil from solidifying and blocking the printer pipe.

Release Notes

V1.3

(1) 7-Extrusion Nozzle Installation

No need for a 4.2×7 high column when the extrusion screw is connected to the coupling.

(2) 8-Extrusion Pusher Installation

Before connecting the stepper motor to the worm gear reducer, install the shaft sleeve on the motor shaft.

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Installation Section

1. A flat desktop is needed for assembling machine. It is recommended to place the parts in an orderly manner for quick searching and assembly.

2. The length of the bolt can be measured with a ruler during assembly to avoid mistakes.

3. Due to lighting rendering factors, some physical colors and sizes may differ from those shown in the documentation, but do not affect the assembly and use of the machine.

Parts list

Number	Description	Count		Notes
		Pro version	Air version	
①	**Limit switch**	**3**	**3**	
②	**Limit switch positioning block**	**3**	**3**	
③	**Clamp**	**2**	**2**	
④	**60° corner prism**	**3**	**3**	
⑤	**Guide and slider**	**3**	**3**	
⑥	**40 double flat aluminum**	**3**	**3**	
⑦	**50 double flat aluminum**	**3**	**3**	
⑧	**Under the base plate**	**1**	**1**	
⑨	**Top circuit board**	**1**	**1**	
⑩	**Idler wheel**	**3**	**3**	
11	**Chain wheel**	**3**	**3**	
12	**42 stepper motor**	**4**	**4**	
13	**57 stepper motor**	**1**		
14	**worm gear reducer**	**1**		
15	**Belt connector**	**3**	**3**	
16	**Belt**	**3**	**3**	
17	**Torsional spring**	**3**	**3**	
18	**Carbon rod**	**6**	**6**	
19	**Fish eye bearing**	**12**	**12**	
20	**economizer**	**1**	**1**	
21	**Fixed plate**	**1**	**1**	
22	**coupling**	**1**	**1**	
23	**Sealed silica gel acrylic fixed**	**1**	**1**	
24	**Silicone pad**	**1**	**1**	
25	**Screw**	**1**	**1**	

26	**Quick connector**	**1**	**1**	
27	**Outer expansion sleeve**	**1**	**1**	
28	**Shaft sleeve**	**1**		
29	**PVC pipe**	**1**	**1**	
30	**PVC barrel fixing flange**	**1**		
31	**anti-rotation flange**	**1**		
32	**Rubber piston**	**1**	**1**	
33	**Piston**	**1**		
34	**Fixed plate of reduction gear**	**1**		
35	**G1/2 Pneumatic quick joint**		**1**	
36	**PVC pipe fixing plate**		**1**	
37	**LCD fixed plate**	**1**	**1**	
38	**LCD2004**	**1**	**1**	
39	**42 Stepper motor drive plate**	**4**	**4**	
40	**57 Stepper motor drive plate**	**1**		
41	**RAMPS1.4**	**1**	**1**	
42	**Arduino Mega2560**	**1**	**1**	
43	**cerambot kit**	**1**	**1**	
44	**LCD Adapter**	**1**	**1**	
45	**LCD Cable**	**2**	**2**	
46	**Front cover**	**1**	**1**	
47	**G1/4 Pneumatic quick joint**		**1**	
48	**catheter**	**1**	**1**	
49	**M3 x 12 wood bolt**	**6**	**6**	
50	**M3×10 hexagon bolt**	**28**	**28**	
51	**M3×16 hexagon bolt**	**36**	**36**	
52	**M3×20 hexagon bolt**	**3**	**3**	
53	**M3×25 hexagon bolt**	**12**	**12**	
54	**M3×30 hexagon bolt**	**3**	**3**	

55	**M4×10 hexagon bolt**	**12**	**12**	
56	**M5×12 hexagon bolt**	**6**		
57	**M6×20 hexagon bolt**	**8**		
58	**Top silk**	**12**	**12**	*
59	**M3 Square nut**	**42**	**42**	
60	**M4 Square nut 母**	**12**	**12**	
61	**M3nu**	**9**	**9**	
62	**M5nu**	**2**		
63	**Torque nut**	**6**	**6**	
64	**M3 padding posts**	**12**	**12**	
65	**padding posts 10**	**4**	**4**	
66	**padding posts 15**	**4**	**4**	
67	**PCB plate padding block**	**3**	**3**	
68	**PCB plate**	**1**	**1**	

*At present, part of the version has been changed into assembled and interlink connecting rod

1. Linear Guide Tower Assembly

①Use M3×12 wood bolts to install the limit switch to the limit switch positioning block.

②Pass the M3×20 hexagon socket bolt through the positioning block and screw the M3 square nut on the end of the bolt.

③Through the fixture positioning, the above components are inserted into the middle groove of the 60° corner prism and the M3×20 hexagon socket bolts are tightened.

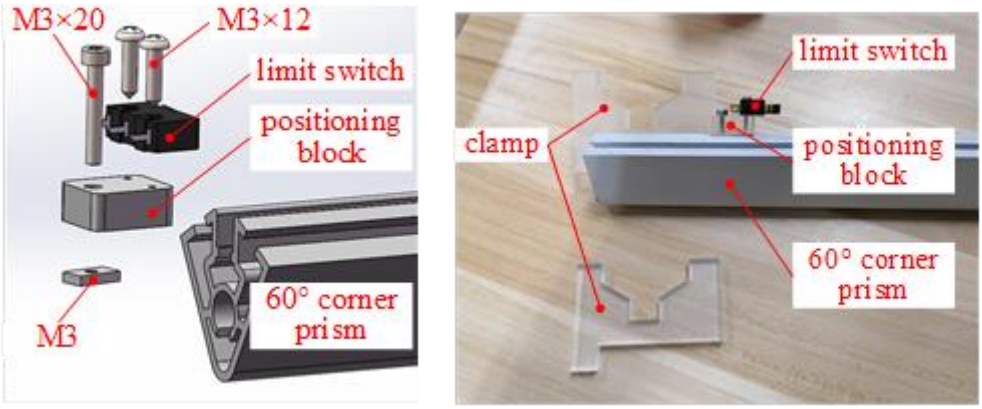


Figure1 Installation of limit switch

④Pass the M3×16 hexagon socket bolt through the guide rail and screw the M3 square nut at the end of the bolt.

⑤As shown in Figure 2 (b), the guide rail is inserted into the 60° corner prism.

⑥As shown in Fig. 2(c) and (d), push one end of the guide rail to the limit switch positioning block. After fixing the guide rail with two clamps, tighten the M3×16 hexagon socket screw.

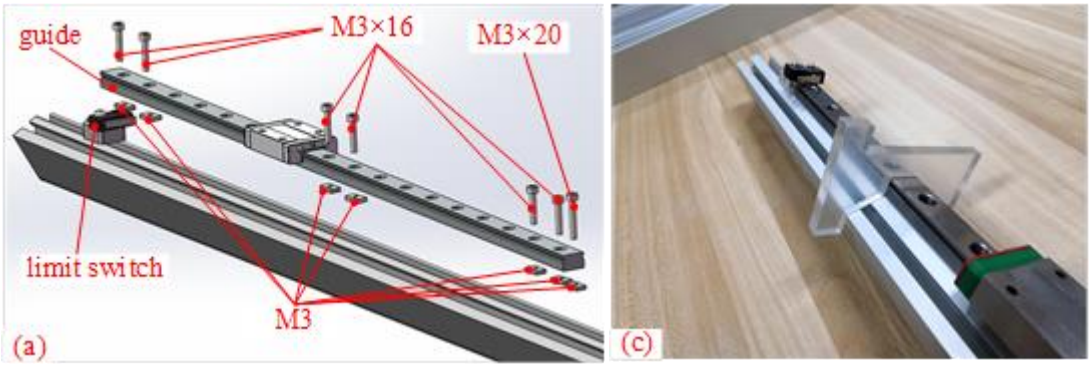


Figure2 Installation of guide rail

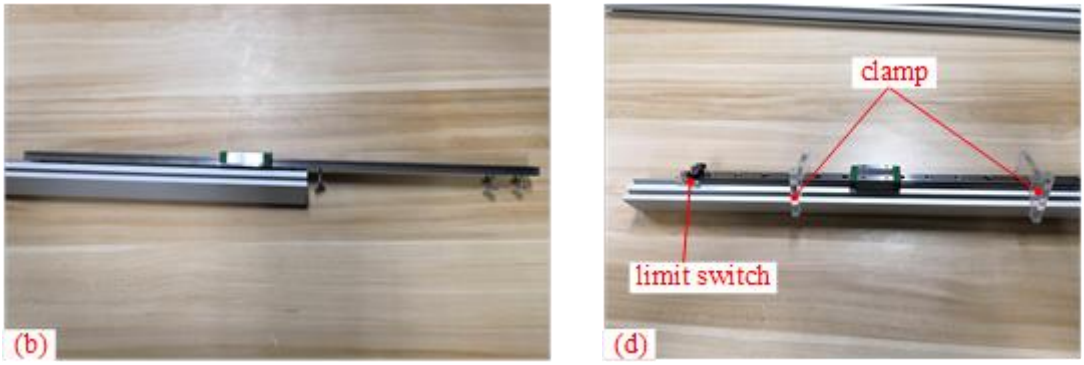
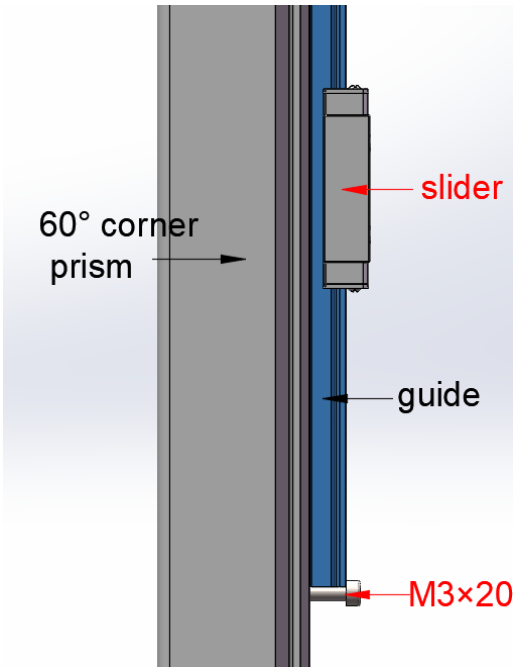


Figure2 Installation of guide rail



⑦Insert the M3×20 hex socket bolt and square nut at the open end of the guide rail (to prevent the slider from slipping out).

⑧Is installed in the same way the other two linear guide column.

Attention：Do not slide the slider out during installation, and there is a risk of steel balls falling out. If the steel ball falls, you need to manually put the steel ball back into the slider slot.

2. Frame Assembly

①Install 40, 50 double flat aluminum at both ends of the linear guide tower by tightening the bolts in the red ring， Install 50 pairs of flat aluminum near the position switch, and install 40 pairs of flat aluminum at the other end.

②After screw M4 square nut on the end of M4×10 hexagon socket bolt (do not screw it down), slide it into the groove of flat aluminum. Put two sets of M4×10 hexagon socket bolt and M4 square nut into each flat aluminum.

③Connect the double flat aluminum and the 60° corner prism to complete the outer frame assembly.

Attention：When the frame cannot be connected as a whole, loosen the bolts in the ring properly and tighten all the bolts after connecting into a whole frame.

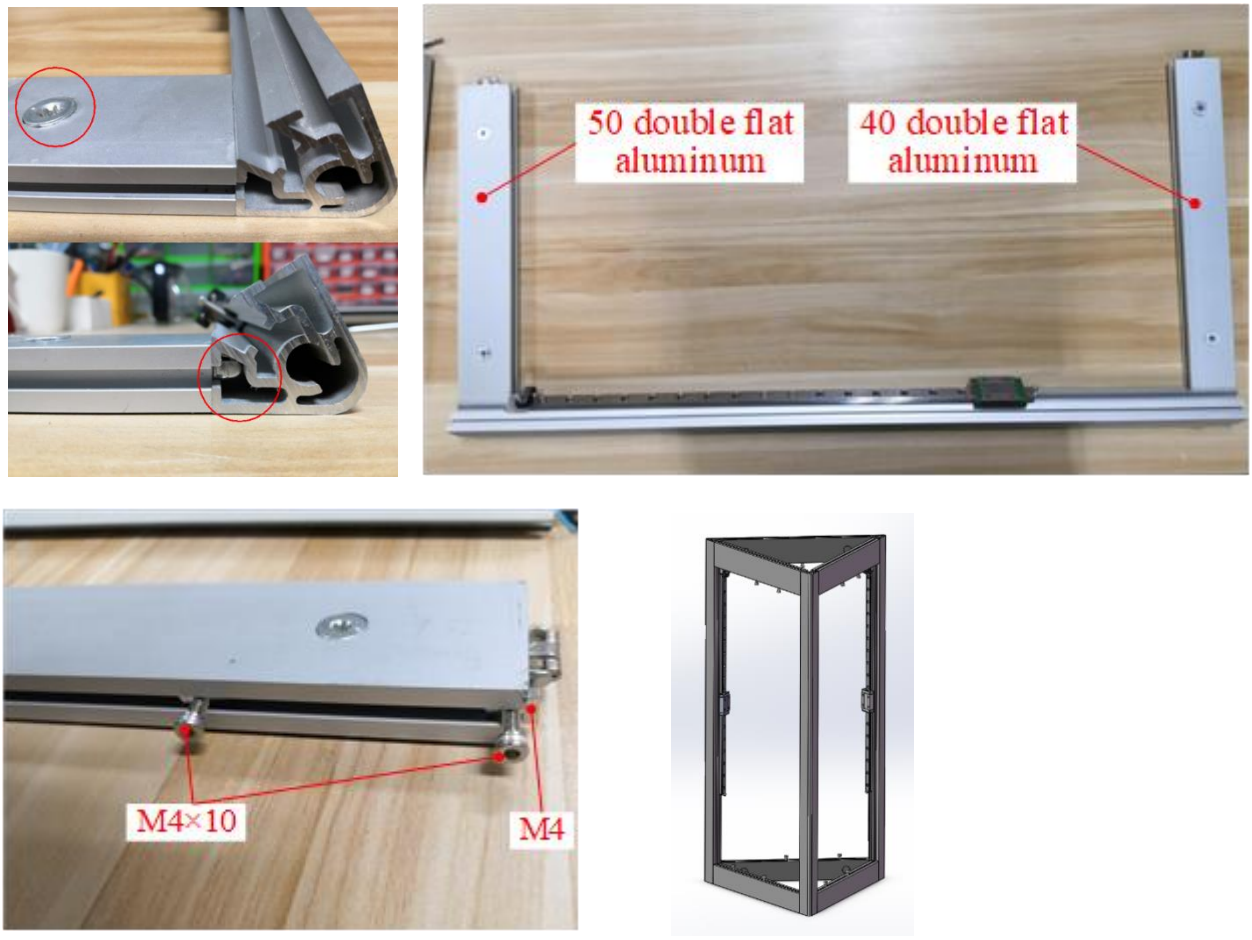


Figure3 Installation of the frame

3. Lower Plate Assembly

①Install the idler pulley to the bent foot of the lower plate through the M3×25 hex bolt and two torque nuts.

②Repeat to get the image below.

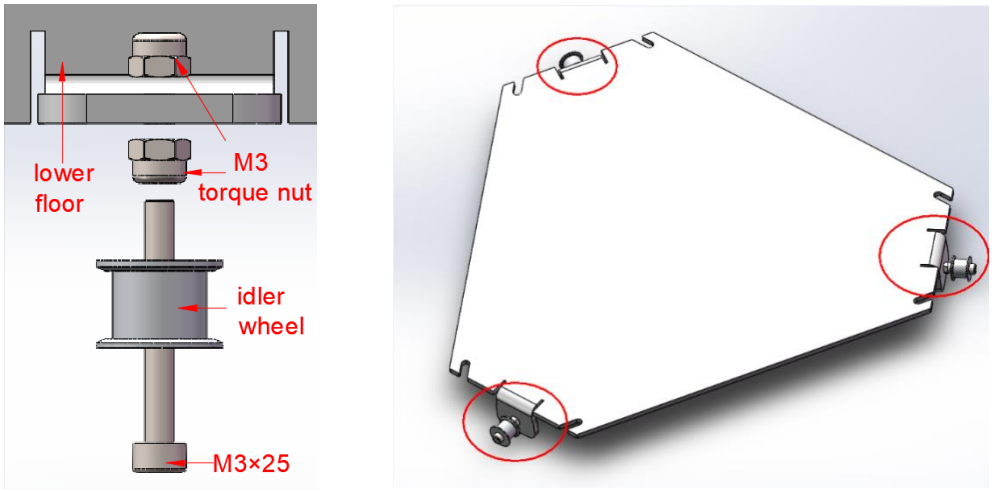
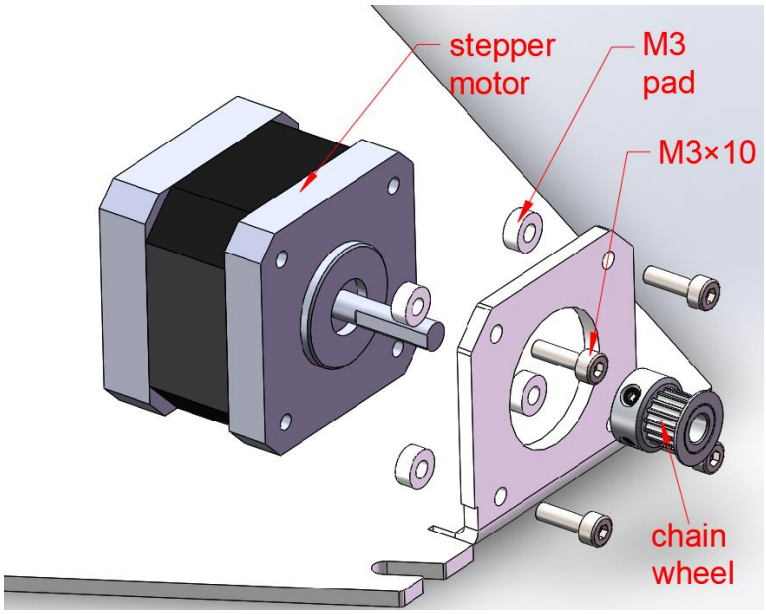


Figure4 Installation of lower plate

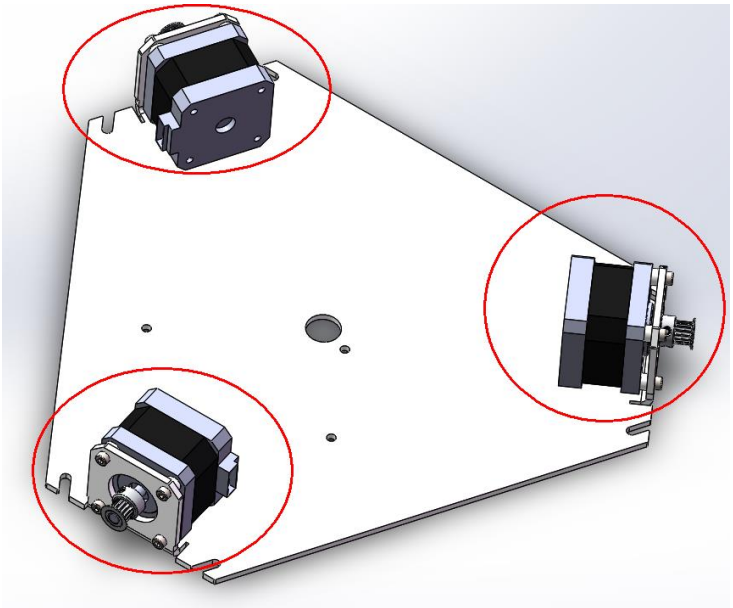
③Place the lower plate on the 40 double flat aluminum of the lower end of the frame, and adjust the hexagon socket bolts installed in step 2-② to complete the lower plate installation.In case of installation problems, please refer to the following video : https://youtu.be/M_x0IhclkHo.

4. Top Board Installation



①Install the 42 stepper motor to the top board bent foot using M3×10 Hexagon bolts and M3 pad.

②Install the chain wheel on the motor shaft and tighten the locking bolts on the chain wheel.



③Repeat steps ①~② to get the left image.

④Mount the PCB board to the top board using M3×30 hex socket bolts, PCB board pad, M3 nuts.

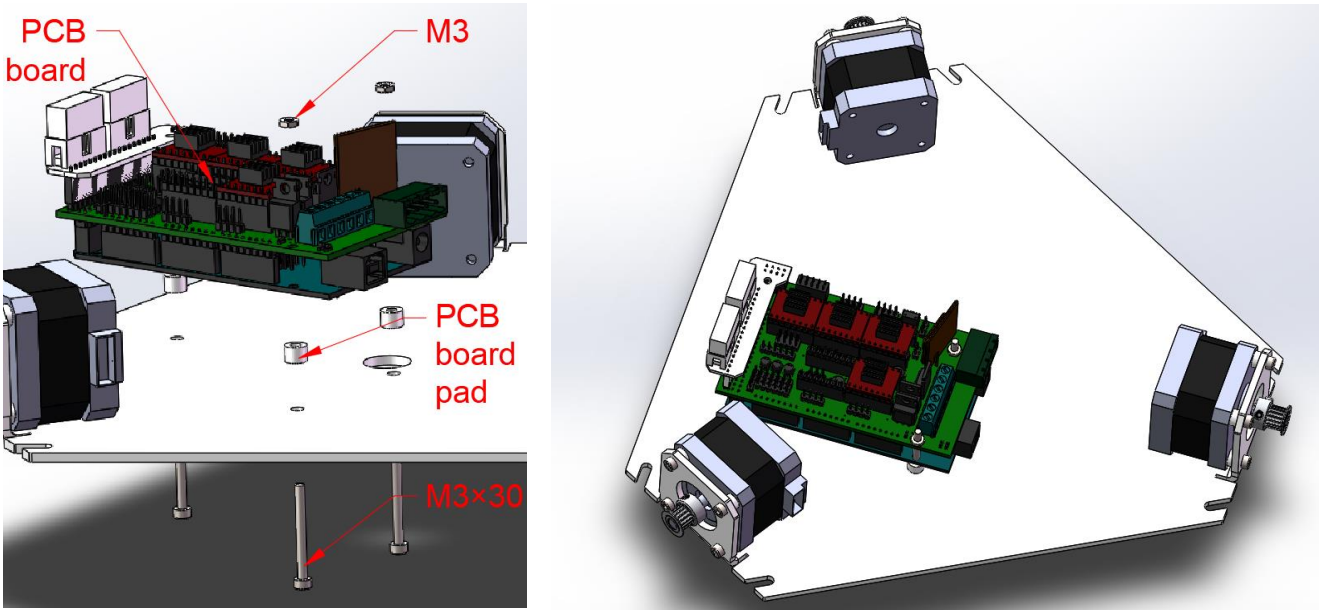


Figure6 Installation of top board

⑤Attach the top board to the upper 50 double flat aluminum and adjust the hexagon socket bolts installed in step 2-② to complete the top board installation.

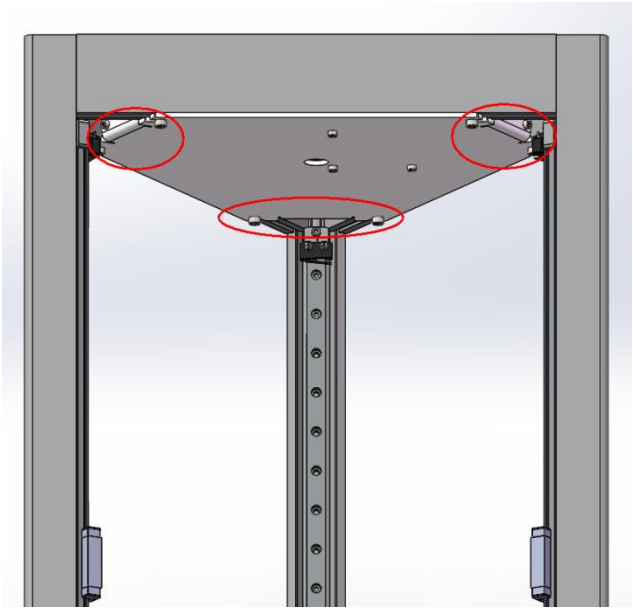


Figure7 Rendering of the top board

5. Carbon Rod Installation

①Install the headless screw on the fisheye bearing.

②A fisheye bearing is installed at each end of the carbon rod and glued with glue (the

flat faces of the two fisheye bearings are parallel).

③Load the M3 nut at the red ring on the back of the belt connector.

④With the belt connector facing up and the effector facing up, tighten the M3×25 hexagon bolt through the fish-eye bearing, the belt connector and the M3 nut put into the 5-③, as shown in Figure 8 for installation.(If the M3 nut cannot be screwed here, smash the M3 nut down to ensure that its internal thread is aligned with the hole of the belt connector)

Attention:

Three sets of carbon rods need to be installed on the effector. Lubricants such as grease can be added to the fisheye bearing to reduce friction.

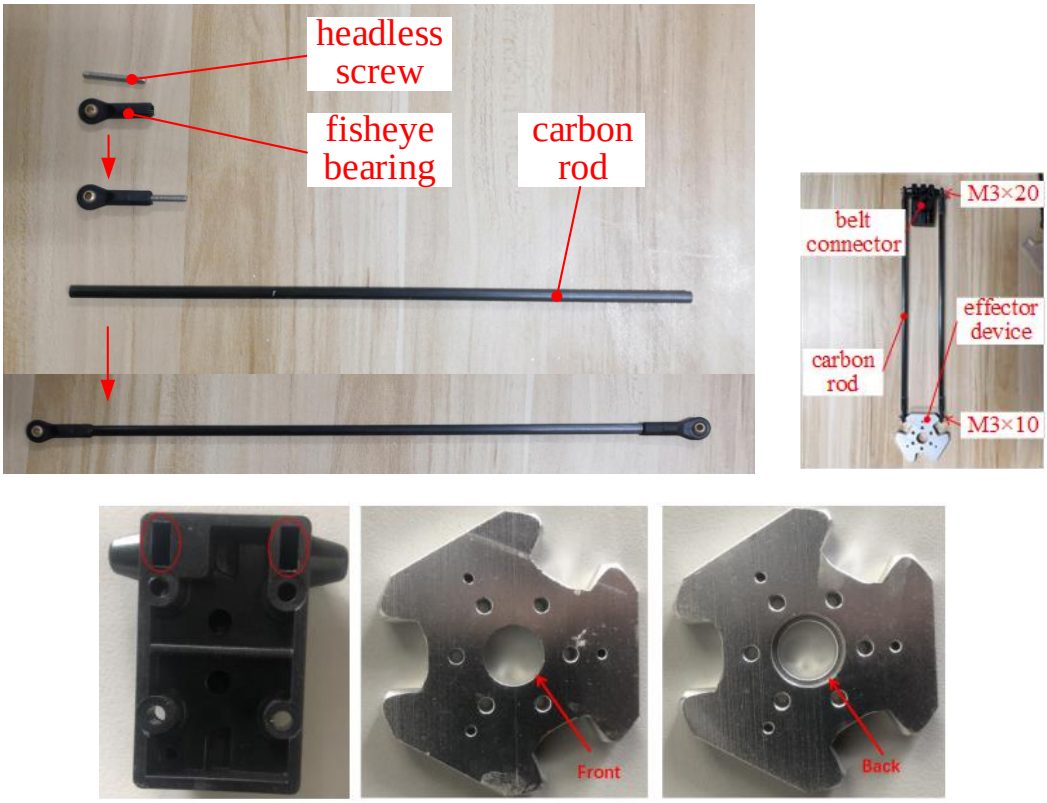
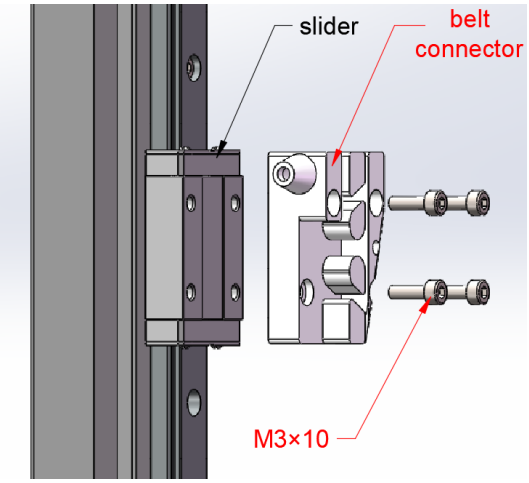


Figure8 Installation of carbon rod

6. Belt Installation



①Mount the three belt connectors to the sliders of the three rails using M3×10 hexagon socket head bolts；

②The belt is bypassed by the top chain wheel and the bottom idler, and finally fixed to the belt connector. The fixed form is as shown in Figure9. A torsion spring is mounted on the timing belt to provide tension.(Note that the belt should be tensioned to avoid the instability of the effectors caused by the loose installation of the belt)

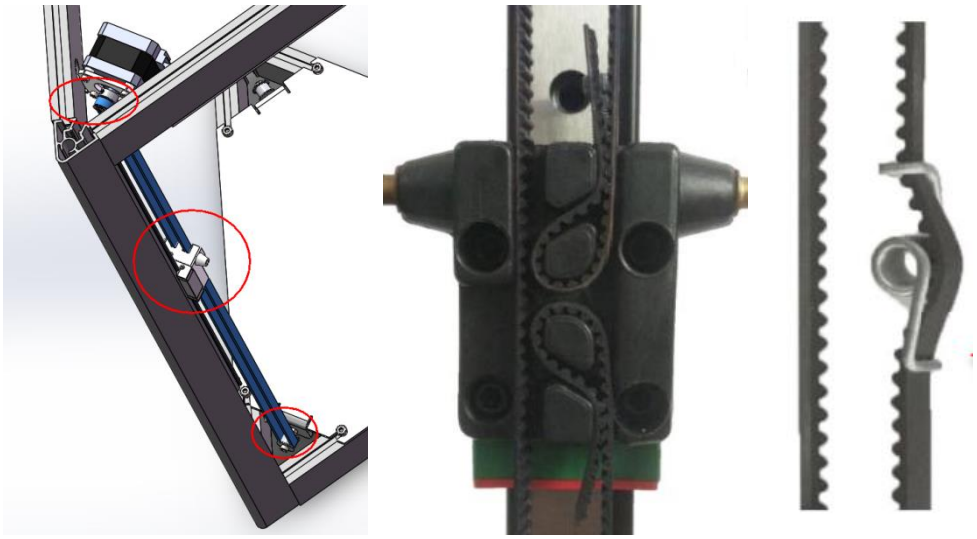
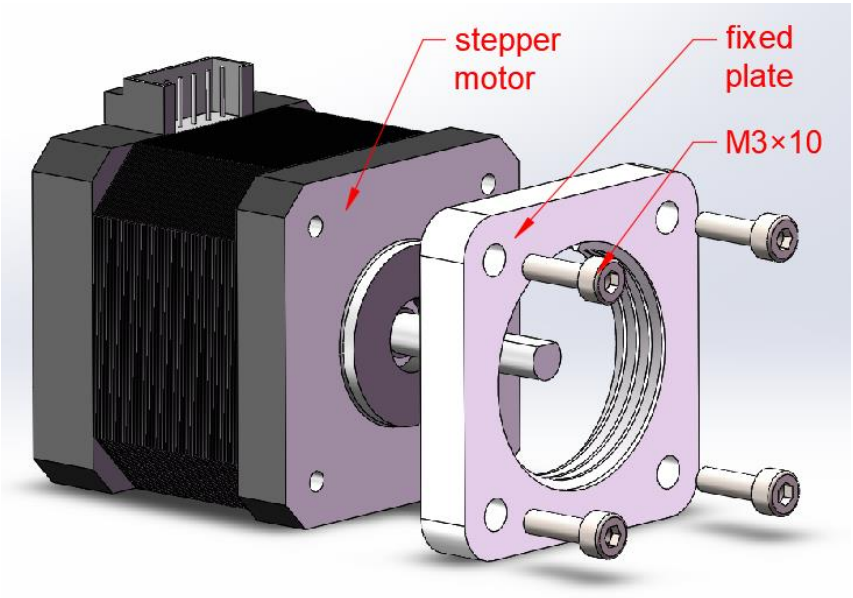


Figure9 Installation of belt

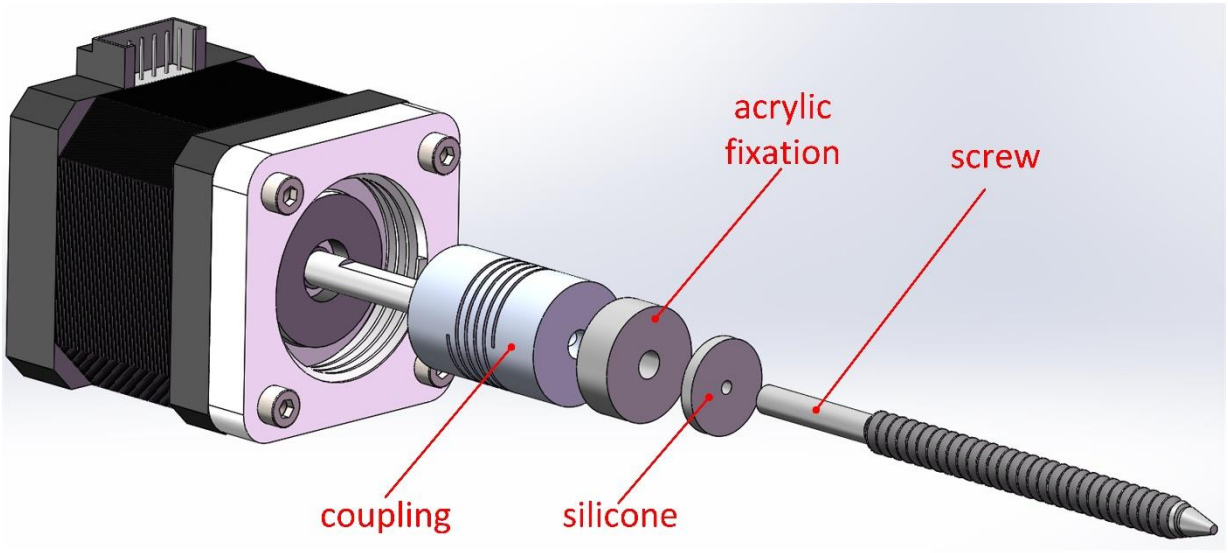
③Repeat steps ①~②。

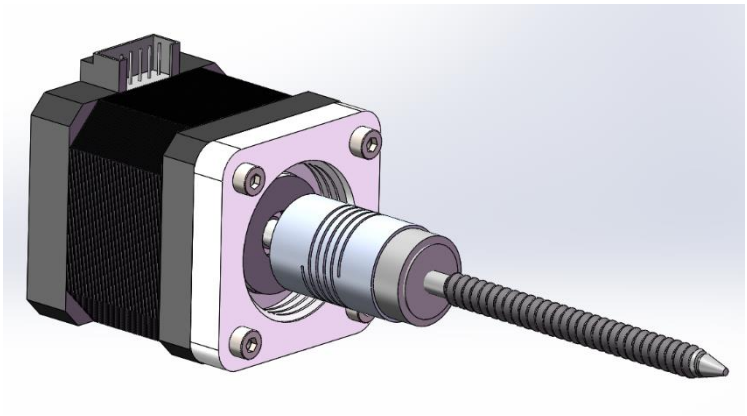
7. **Extrusion Nozzle Installation**

①Mount the fixed plate to a 42 stepper motor using M3×10 hex head bolts.

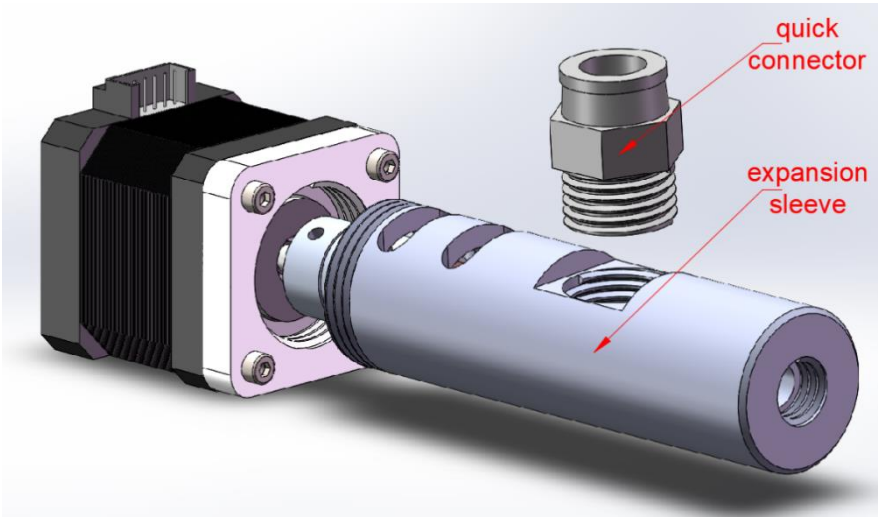


②As shown in the figure below, the coupling, acrylic fixation, silicone pad and screw are mounted on the motor shaft.

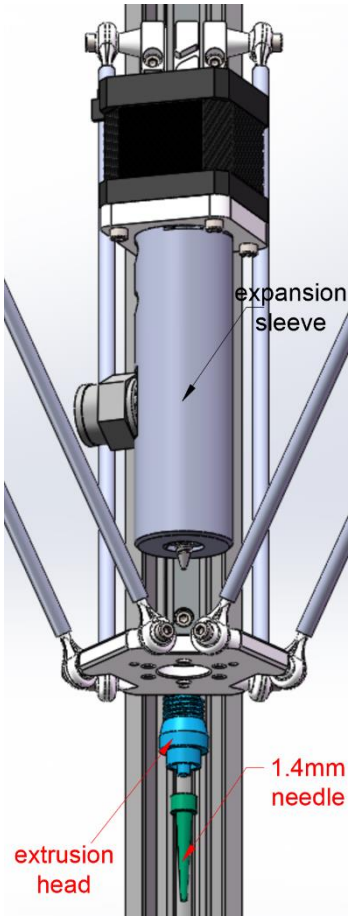


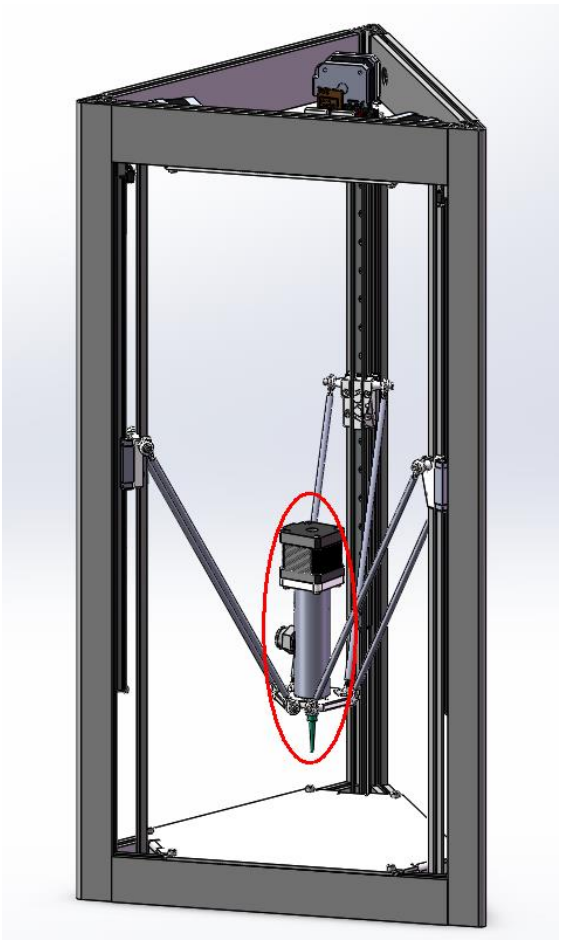


③Connect the expansion sleeve to the fixed plate installed in step 7-① and connect the quick connector to the expansion sleeve.



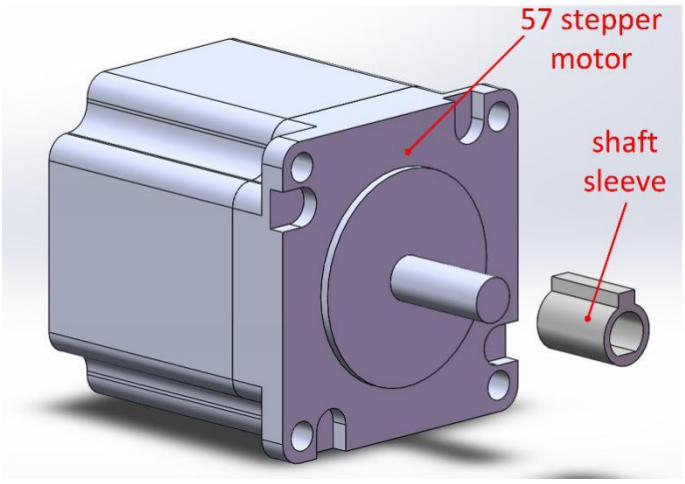
④Both were mounted to the effector device by squeezing the outer sleeve and the threads on the extrusion head, and a 1.4 mm needle was mounted to the extrusion head.

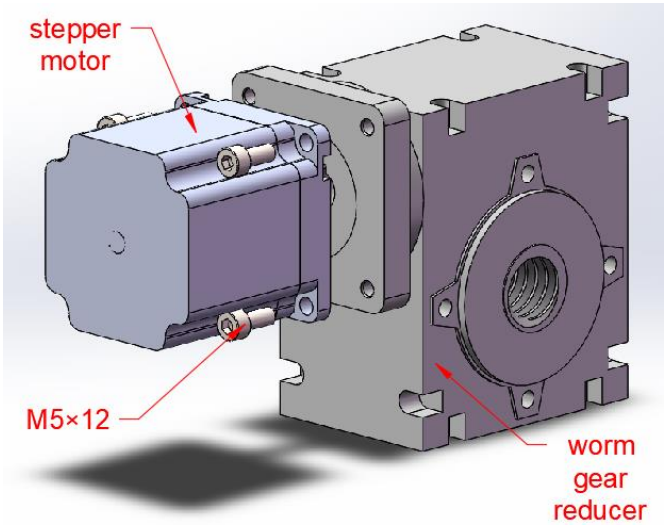




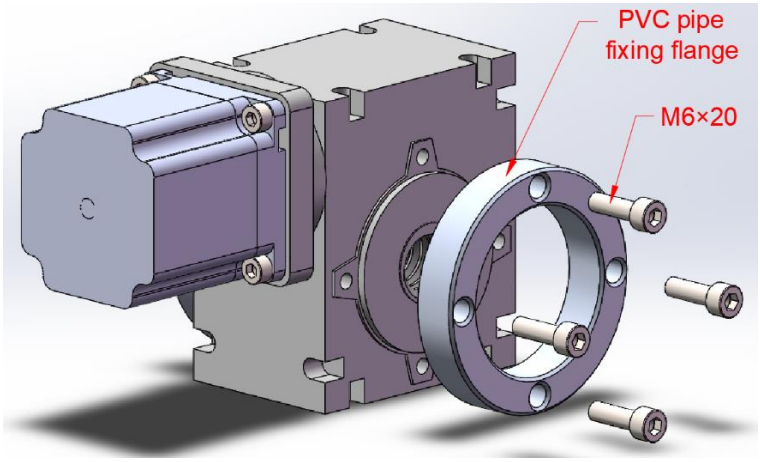
8. Extrusion Pusher Installation(The AIR version skips this step)

①Mount the shaft sleeve on the 57 stepper motor firstly. Mount the stepper motor to the worm gear reducer with M5×12 hex bolts.

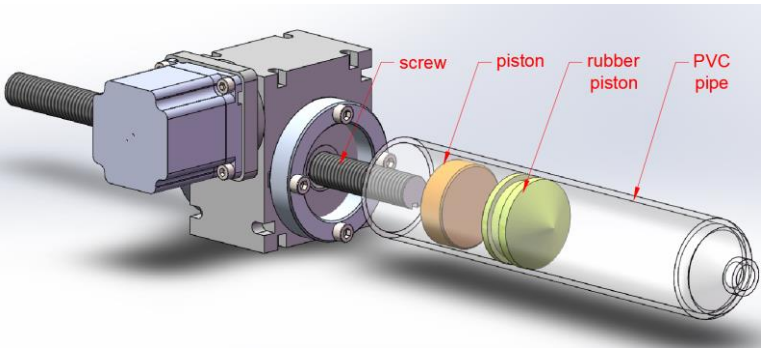




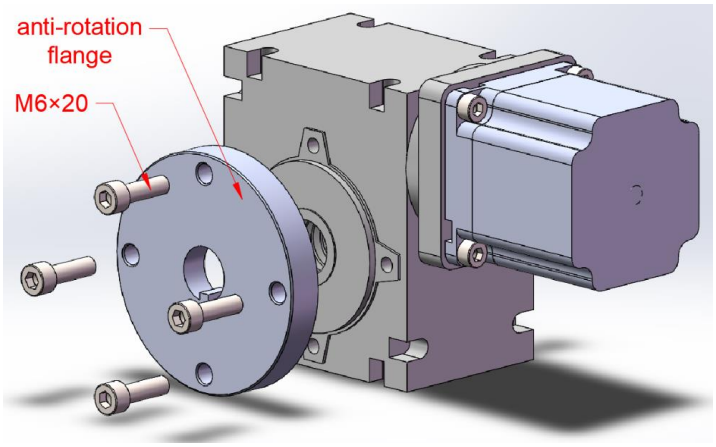
②Use M6×20 hexagon bolts to install the fixing flange of PVC pipe to the worm gear reducer;

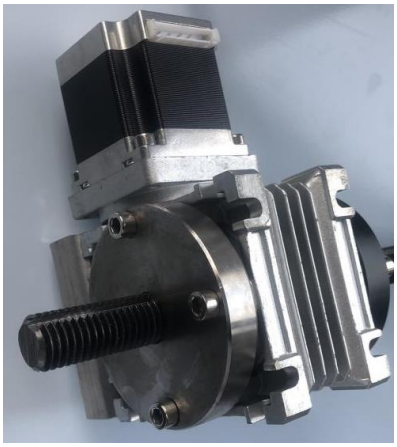


③Screw into the worm gear reducer from the middle of the threaded hole, and install the upper piston, screw the PVC pipe into the PVC pipe fixing flange (PVC pipe contains piston, rubber piston).

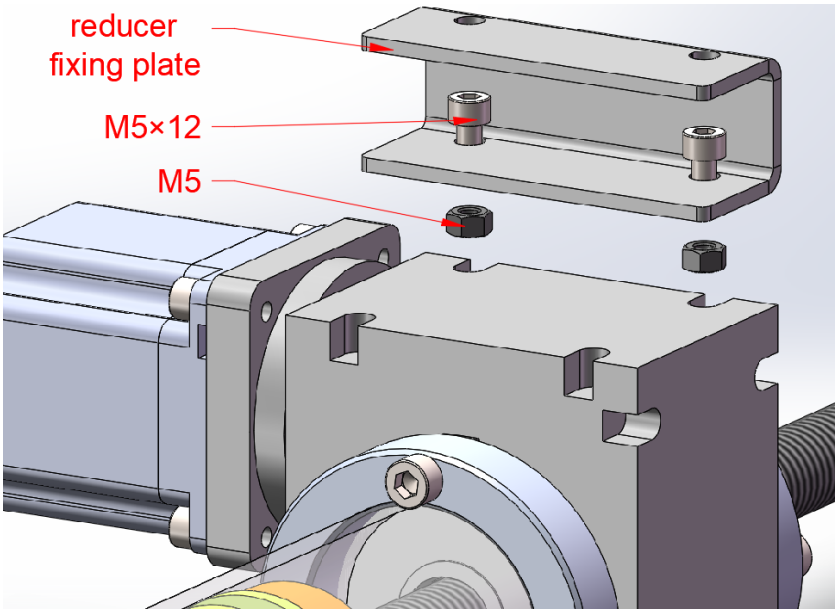


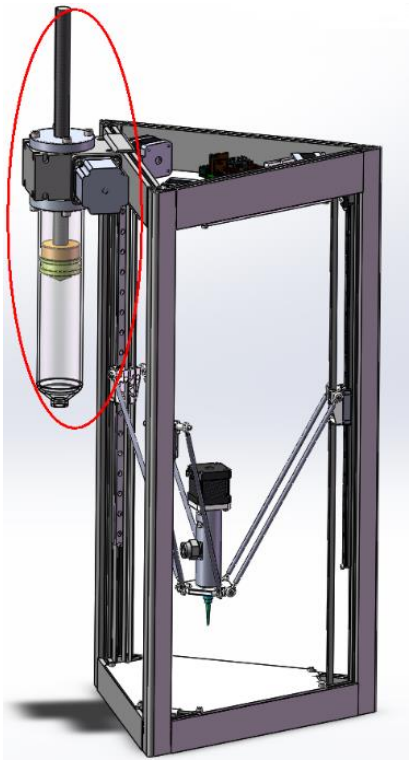
④Mount the anti-rotation flange to the worm gear reducer with M6×20 hexagon socket head bolts.Pay attention to the groove on the worm gear reducer with the convex groove on the anti-rotating flange.



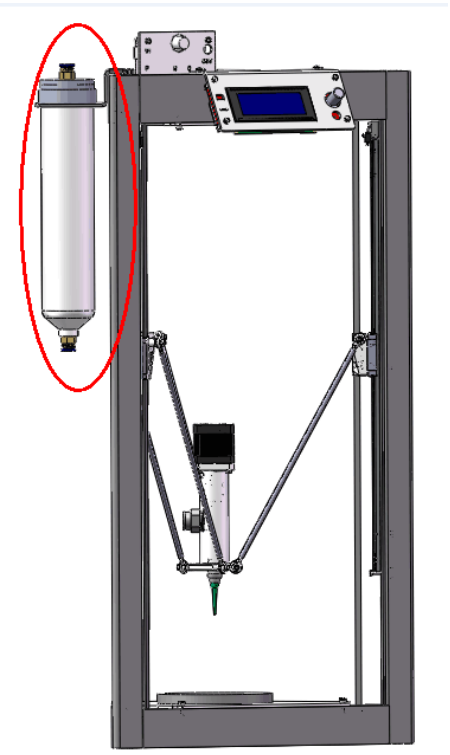


⑤Through the hole of the reducer fixing plate, install the M5×12 bolt and the M5 nut, and insert it into the groove of the reducer.





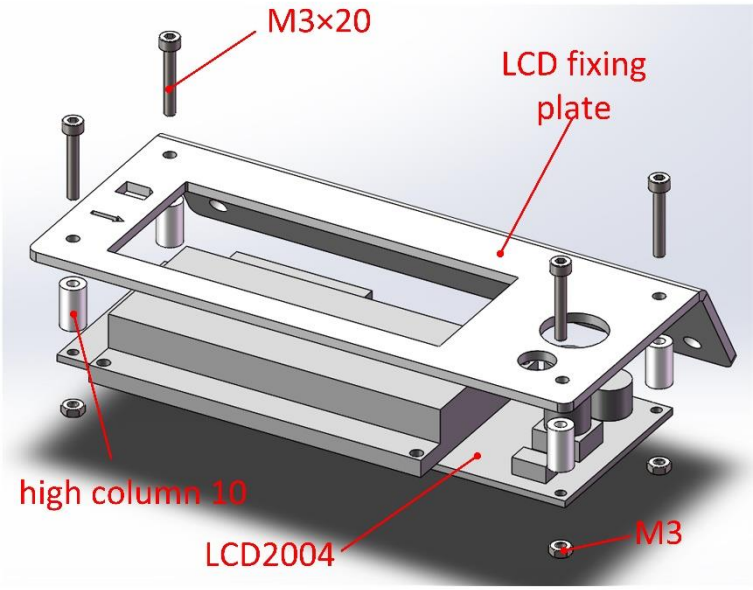
Pro



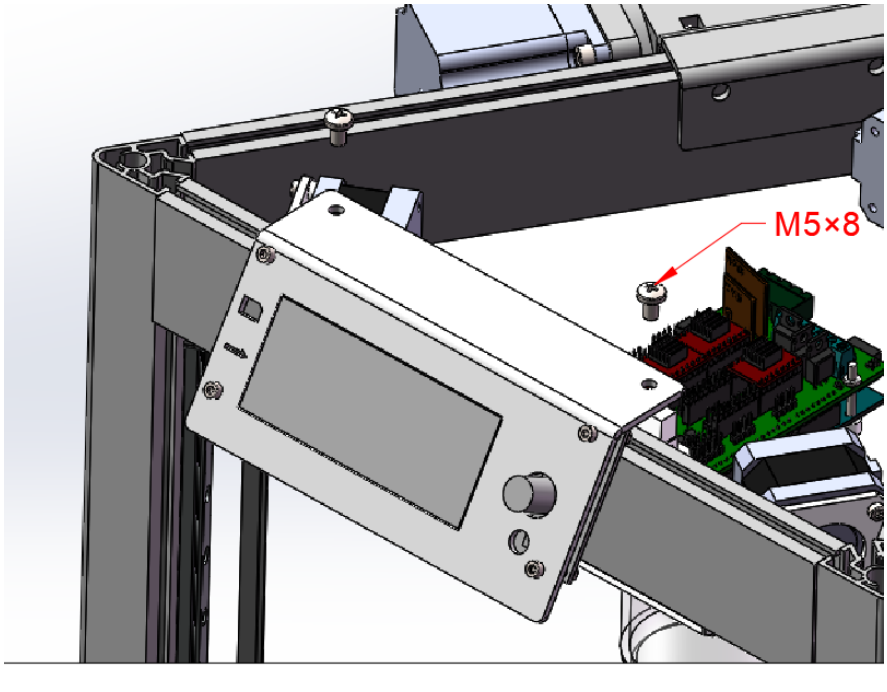
Air

9. Accessories Including LCD Screen

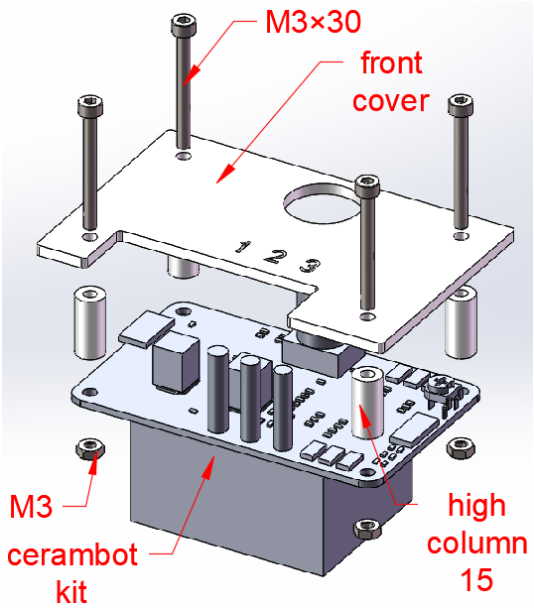
①Mount the LCD2004 to the LCD fixing plate using M3×20 hex head bolts and M3 nuts.



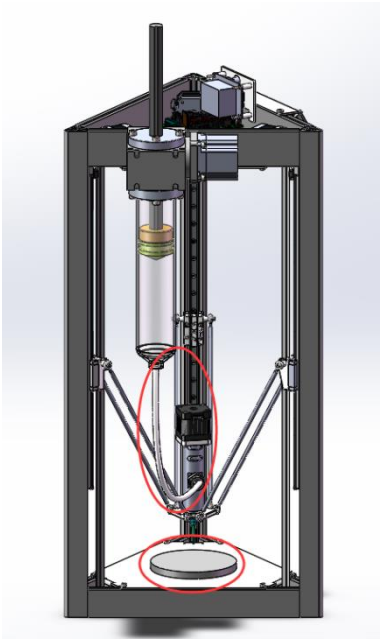
② Mount the LCD assembly to 50 double flat aluminum using M5×8 bolts.



③ The cerambot kit and the front cover are assembled using M3×30 hex socket bolts, padding posts 15, and M3 nuts.



④Connect the PVC pipe to the extruder with a conduit and place the print platform disc.

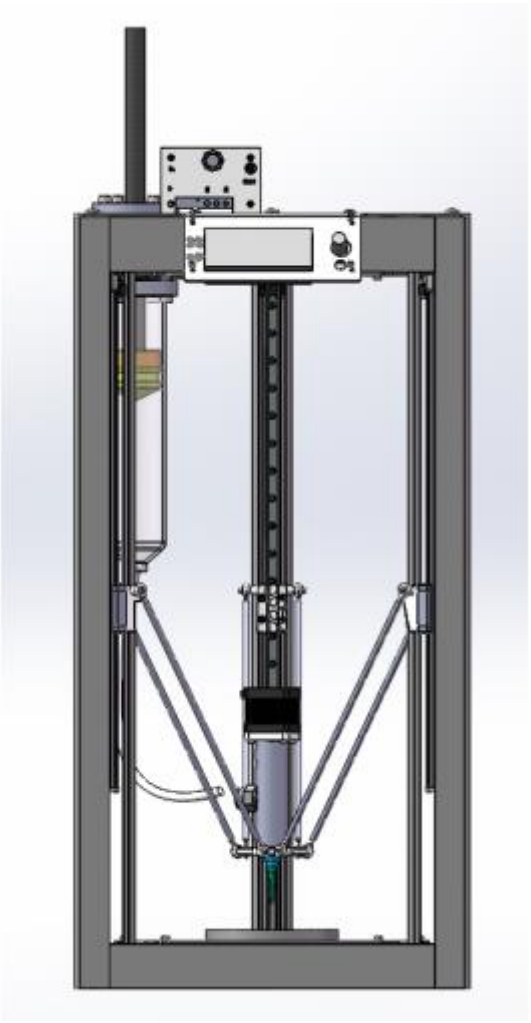


10. Air rod installation(Pro version skips this step)

①Connect PVC pipe, PVC pipe cover and pneumatic quick joint to each other successively through the thread, and cover the PVC pipe fixed plate to fix on the top 50 pairs of flat aluminum

②connect PVC pipe and extruder with catheter, and put on the printing platform disk

11. The machine view



Complete assembly and commissioning with power on.