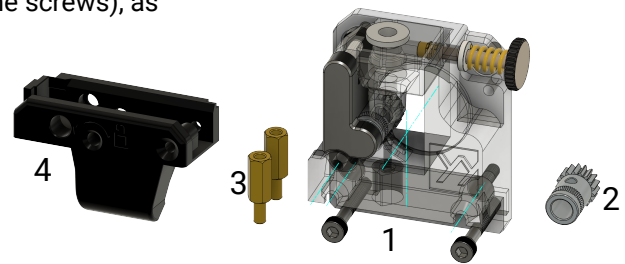


ZYYX+ BT1+ Extruder Upgrade Instruction

Parts: This upgrade package consists of four parts (plus some screws), as show right:

1. BT1+ Main assembly
2. Primary driver gear
3. 2 extender standoffs for the spiral wrap holder
4. New fan holder and cooling duct (two types)
5. All necessary screws



Tools needed:

1. Allen hex drivers, 1.5, 2 and 2.5 mm (in printer tool box).
2. 6 mm countersink or drill.
3. Adjustable wrench (or 5 mm socket) for standoffs.

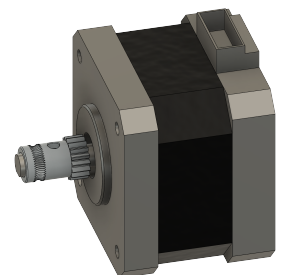
Installation: Make sure to first unload any filament, then power down the printer and remove the power cable and then we get going by disassembling the old parts.

1. Flip the fan to the side, remove the fan screw and hang the fan on the right side of the print wagon.
 2. Remove also the left screw inside the fan holder and remove the old fan holder.
 3. Remove the two screws holding the black metal bracket (spiral wrap holder, shown right) that are mounted to the left side of the Aluminium bracket (keep those screws, as you will need them later).
 4. Now you can disconnect the motor cable and separate the motor with old extruder parts.
 5. Finally remove all arms, gears, and the spring, so the stepper motor is "clean".
- You normally do not need to remove the hotend from the bracket, but if the cables are very tight it may be necessary.

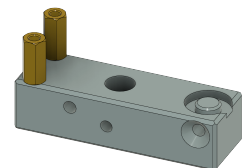
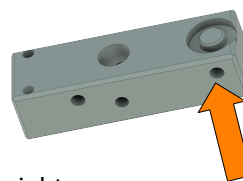


Next we start to mount the new parts.

6. First install the new primary extruder gear on the motor axle. The cogs should be towards the motor block, see left. And the lock screw located on the flat part of the motor shaft. Do not tighten the lock screw yet.
7. Next assemble the main assembly with the motor. The motor cable connector should be located "up". Tighten the four screws that lock these parts together.
8. From the top, position the primary gear so it matches the secondary gear and the filament feeding hole. Then tighten the lock screw to fixate the primary gear to the motor axle.

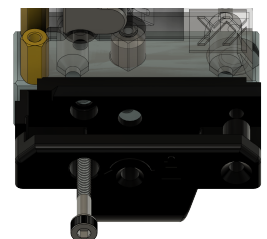


9. Next step is to prepare the Aluminium bracket (shown to the right).
10. Countersink the rightmost hole, so the screw can be mounted without affecting the fan holder in front. You can do this with a dedicated countersink or with a drill. Alternatively, you may cut away part of the fan holder so the screw head will fit.



11. Mount the two standoffs on the left side of the bracket, see picture right.

12. Now slide the main assembly with the stepper motor in place from the top, there should be no gap to the bracket. Fixate it with the countersunk screw on the right side.
13. Next check what fan type you have, there are two types of fan holders included, depending on your print fan model. If unsure, check here: Web store E0.0715.
14. Put the fan holder in place in front of the bracket on the print wagon and lock it with the left screw through the fan holder and bracket.
15. Place the fan in the new fan holder, and fasten the screw to the right to hold it.
16. Remount the spiral wrap holder (using the screws you saved) on top of the standoffs to the left.
17. Reconnect the stepper motor connector.



Done!

Now test the system by loading filament. Make sure the motor fan starts when the nozzle goes above 60 C. If needed adjust the thumb screw as described on the next page.

Assembly Instruction

ZYYXs dok.kod/ZYYX's doc. code
D2.1016

Art.version

-

Dok.utgåva/issue – Datum/date

B - 2022-06-25

Artikelnamn/Article name

ZYYX BT1+

Art.kod/Art. code

ZX610

Godkänd/Appr.

ZYYX Labs

Printing and slicing

Everything will work as before, but you need new profiles, see <https://www.zyyxlabs.com/simplify3d-profiles/>. You can also use the same Simplify3D profiles as now, but due to the smaller diameter of the extruder gear, you need to modify the Extrusion factor from 1 to 1.46. See right for how to set it.

Adjusting the thumbscrew

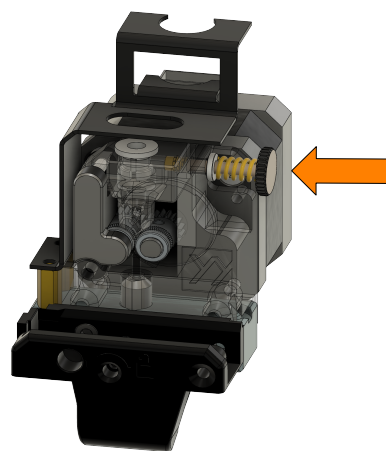
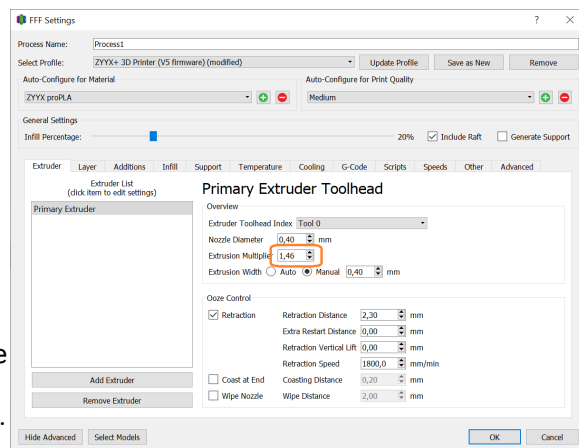
When tightening the thumbscrew onto the metal threaded insert use at most 0.4 Nm torque (don't force it too much). Using excessive torque may damage the top part that holds the metal insert in place.

Considering the above, tighten it all the way in and then loosen it:

- 1 to 2 full turns to use hard filament;
- 3 to 4 full turns to use soft filament (flexible).

If you hear a clicking sound from the extruder after adjusting the thumbscrew while printing or loading, it is probably too tightly adjusted. Try to loosen the screw half a turn at a time. If it does not help, it is probably a nozzle or filament block.

Good luck using your improved extruder!
/ZYYX



Dokumenthistorik/Doc history

Utgåva Issue	Giltig från Date	Utförd av Done by	Gjord ändring Change
A	2020-01-20	TB	First issue of BT1+ instruction.
B	2022-06-25	TB	New CAD pictures.