

OmniaDrop Instructions and Assembly

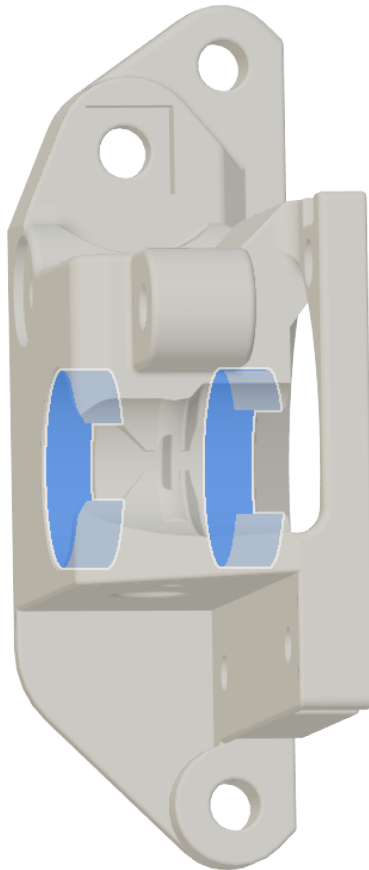
Dear customer, first of all thank you for purchasing the OmniaDrop V3 from DropEffect. When you open the accessory package, you will find the following components.

No.	Name	Quantity
1	H2.5 Hex Key	1
2	H2.0 Hex Key	1
3	H1.5 Hex Key	1
4	M5 Washer	1
5	Thermal Grease (0.5g)	1
6	M3 threaded inserts	2
7	M2 threaded inserts	4
8	H8.0 Open Spanner	1
9	Fan Extension Cable-5cm / JST-XHP	2
10	Motor Extension Cable-5cm / JST-XHP	1
11	Thermistor Extension Cable-5cm / JST-XHP	1
12	Heater Extension Cable-5cm	1
13	Fan Extension Cable-5cm / DuPont	2
14	Motor Extension Cable-5cm / DuPont	1
15	Thermistor Extension Cable-5cm / DuPont	1

Printing parameters

The nozzle size for printing the OmniaDrop parts should be a 0.4 mm nozzle or smaller. You should use 3 or more perimeters and 25% infill or more.

This part is important there should be **no Z-Seam** inside the blue sections of the OmniaDrop Extruder Main Body. The problem with a Z-Seam in these areas is that two ball bearings will be inserted into these grooves and if there is a Z-Seam in these areas then the planetary gears system will be off-centered and as such will not run smoothly. In your slicer it should be possible to edit your settings to position your Z-Seam accordingly.

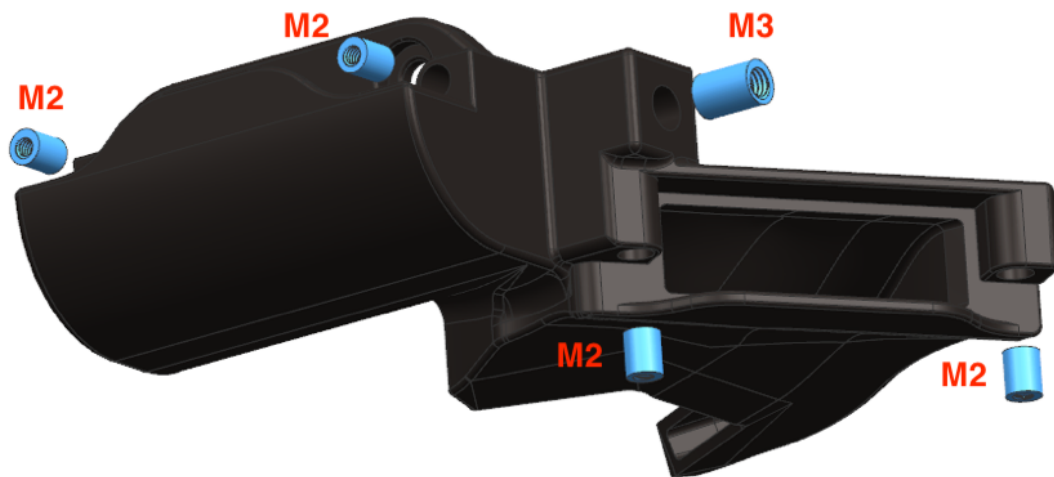


Preparing the 3D printed parts

Components	QTY
Cooling fan duct	1
Manual Wheel	1
Extruder Main Body	1
M2 threaded inserts	4
M3 threaded inserts	2
M6 threaded insert	1

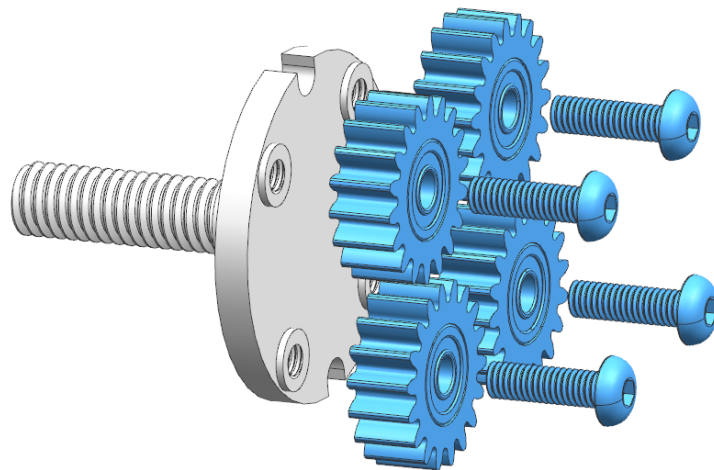
Use a soldering iron to insert the threaded inserts into the 3D printed parts. Ensure that the threaded inserts are flush and perpendicular. **Be careful when using a soldering iron, they are very hot and you can burn yourself severely.**

To get the M6 threaded insert of the manual wheel perpendicular you can use the Idler Dual Drive Gear (the shorter of the two Dual Drive Gear) as a base. Put the Idler Dual Drive Gear onto a non-flammable surface and put the manual wheel on top of it. This will ensure that the M6 threaded insert is inserted perpendicular and not too deep.



Step 1

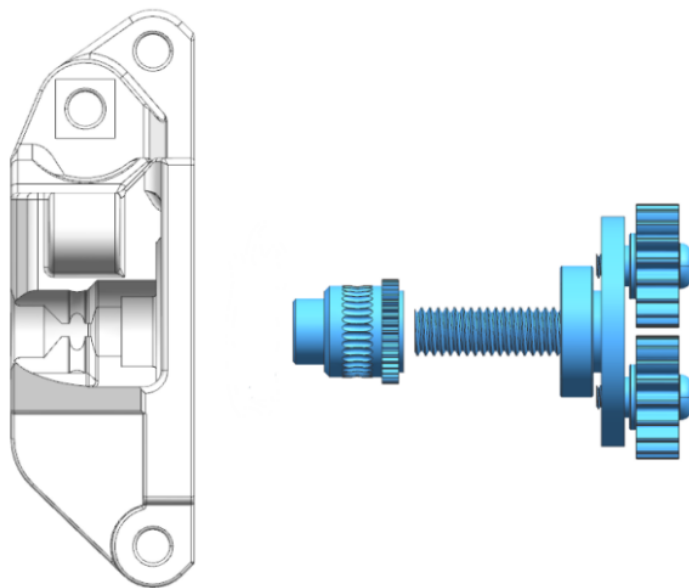
Components	QTY
M3x10 Hexagon button head screw	4
Planetary gears	4
Flanged ball bearings (F683 ZZ)	8
Drive shaft (Planet Disk)	1



Insert two F683 ZZ ball bearings into a planet gear. Now use a M3×10 screw to attach the planet gear onto the Planet Disk. Please ensure that the planet gear is orientated in such a way that the protruding ball bearing of the planet gear interfaces with the Planet Disk. Repeat this for the remaining three planet gears.

Step 2

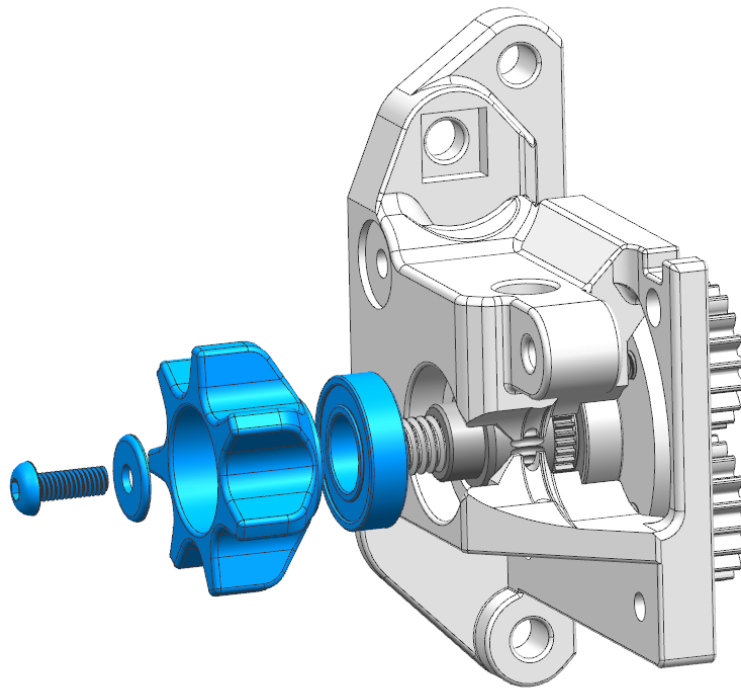
Components	QTY
M6 threaded Drive Gear	1
16 mm Ball Bearing (688ZZ W4)	1
Extruder Main Body	1



Put a 688ZZ W4 ball bearing (16 mm Diameter) onto the drive shaft of the Planet Disk. Tighten the M6 threaded drive gear onto the drive shaft. Finally insert the assembled drive shaft into the center hole of the extruder main body.

Step 3

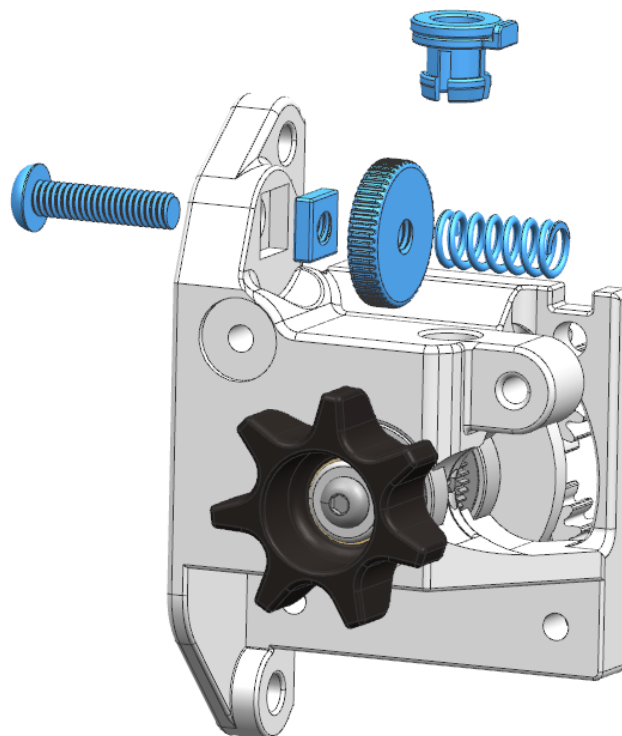
Components	QTY
M3 washer	1
M3x8 Hexagon button head screw	1
16 mm Ball Bearing (688ZZ W4)	1
Manual Wheel	1



Press the 688ZZ W4 drive gear bearing into the front groove of the extruder main body. Then thread the manual wheel on the drive shaft to tighten everything down. Secure the position of the manual wheel by using a M3 washer and a M3x8 screw.

Step 4

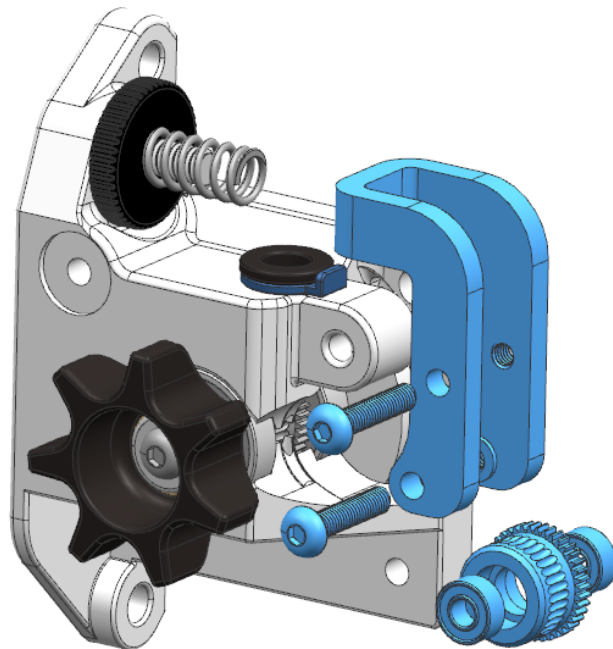
Components	QTY
M4x16 Hexagon button head screw	1
Knurled nut	1
M4 Square nut	1
Spring	1
Collect	1
Collect clip	1



Insert the collect into the extruder main body and fix it with the collect clip. Insert the M4 square nut into the rectangular groove of the extruder main body and use the M4x16 screw to tighten everything down. Screw the knurled nut onto the M4 screw and place the compression spring onto the screw.

Step 5

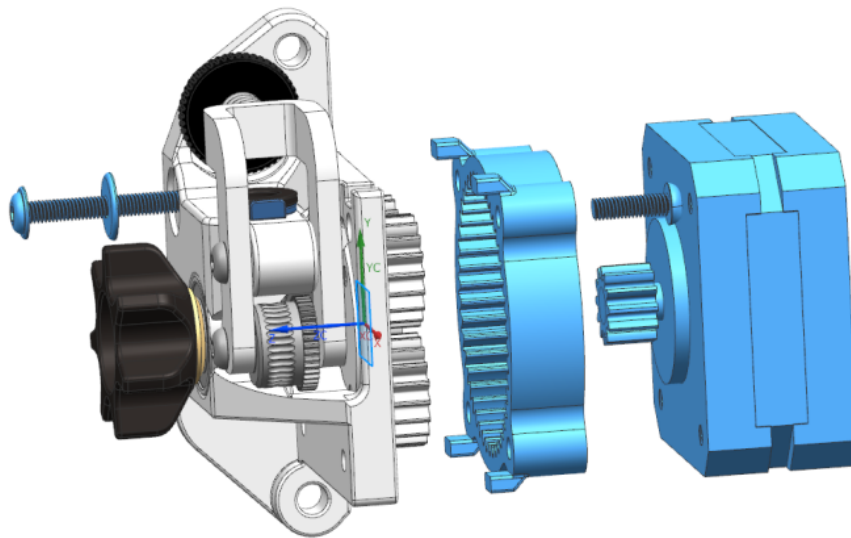
Components	QTY
M3x16 Hexagon button head screw	2
Idler gear	1
7mm ball bearing (683ZZ)	2
Idler gear arm	1



Insert two 683ZZ ball bearings into the internal holes of the idler gear. Place the Idler gear with the two ball bearings at bottom hole of the idler gear arm. Use a M3x16 screw to fix the position of the Idler gear; do not tighten it down too much, ensure that the Idler gear can spin freely. Use the second M3x16 screw to attach the Idler arm to the extruder main body. Again, do not tighten down the screw too much. The intention of these two M3x16 screws is not to tighten anything down, they should just hold the Idler gear and arm in position.

Step 6

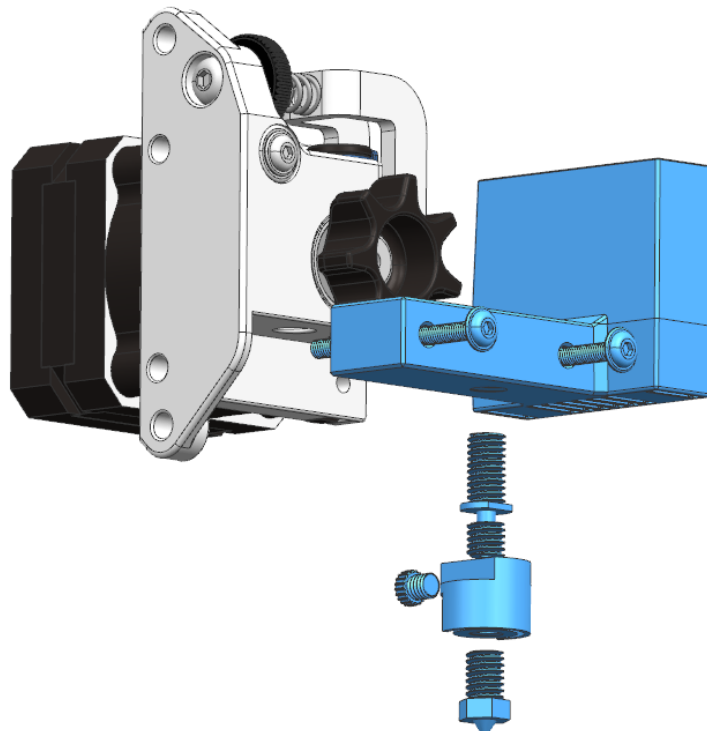
Components	QTY
M3x10 Hexagon button head screw	1
M3x35 Hexagon button head screw	1
M3 washer	1
Ring Gear	1
Nema 17	1



Attach the ring gear on the extruder main body. The four pegs on the ring gear should glide into the extruder main body. There are two indentations on the four 3 mm through holes of the ring gear, these should be orientated so that they are at the top section of the extruder main body. Use a M3×10 screw to secure the ring gear on the extruder main body. Now install the Nema 17 stepper motor on the planetary gear system and secure it using a M3x35 screw with a M3 washer.

Step 7

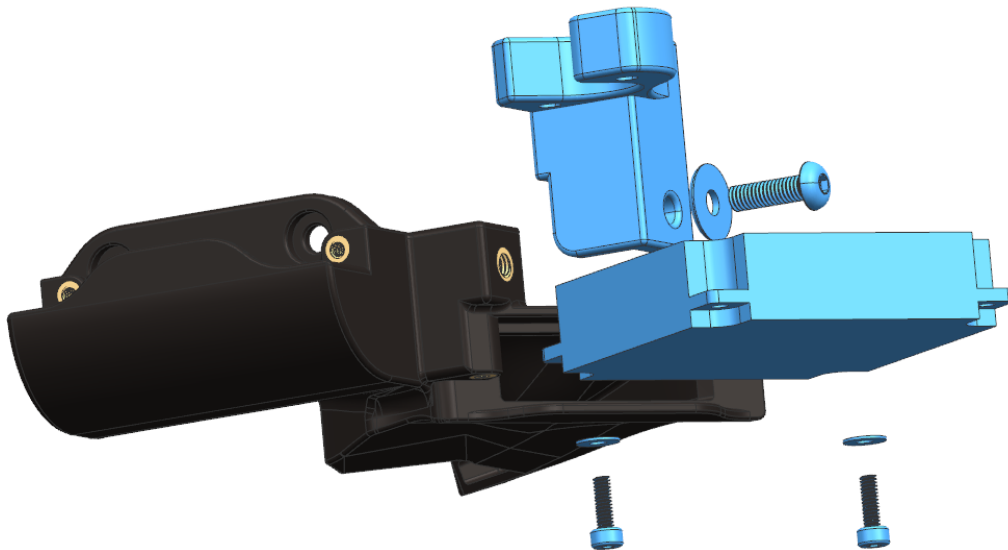
Components	QTY
Heatbreak	1
Thermal grease	1
M3x35 Hexagon button head screw	2
Heatsink	1
Ring Heater	1
Nozzle	1



Apply some thermal grease onto the long threads of the heat break and screw it into the heat sink. Do NOT apply thermal grease onto the short threads of the heatbreak. Screw the Ring Heater with the indentations facing towards the heatsink onto the short thread of the heatbreak until no more threads are visible. However, do NOT screw the Ring Heater until it touches the heatsink, the “bottle neck” section of the heatbreak should always be visible. Orientate the cables of the Ring Heater so that they are facing the stepper motor. Finally, screw the nozzle into the Ring Heater and tighten it down. Please ensure that you do NOT put too much strain on the cables. Use some pliers or the 8mm open spanner to hold onto the Ring Heater while tightening the nozzle. If you followed the previous instructions correctly there should now be a gap (1-2 mm) between the nozzles and the Ring Heater (this is intentional). The gap between the nozzle and Ring Heater is a visual confirmation that you tightened the nozzle against heatbreak and not the Ring Heater. Now attach the heatsink to the extruder main body using the two M3x35 screws.

Step 8

Components	QTY
M3x10 Hexagon button head screw	1
M3 Washer	1
M2x6 Hexagon cap head screw	2
M2 Washer	2
4010 Blower fan	1
(Optional) BLTouch probe holder	1

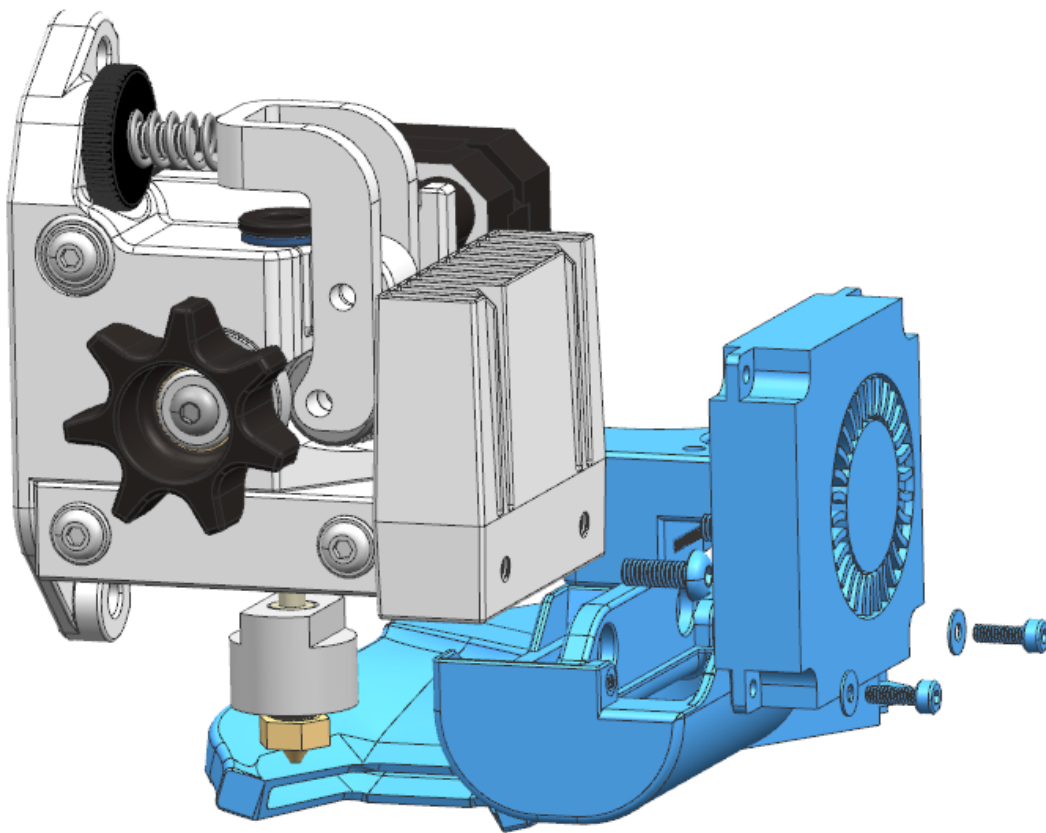


Use two M2x6 screws and two M2 washer to attach the 4010 blower fan to the part cooling fan duct.

Optionally you can attach the BLTouch probe holder to the probe holder peg on the cooling fan duct, however you can do this also later on.

Step 9

Components	QTY
M3x10 Hexagon button head screw	2
M2x6 Hexagon cap head screw	2
M2 Washer	2
4010 Blower fan	1



Clip the cooling fan duct to the bottom of the heat sink and secure it using two M3x10 screws. Then insert the 4010 blower fan into the cooling duct and tighten it with two M2x6 screws and M2 washers.

You are now all done, the OmniaDrop has now been assembled. After you have installed your OmniaDrop on your 3D printer please ensure you do the following steps:

- Adjust the current to extruder stepper motor to 600 mA (peak) (RMS = 425 mA)
- Adjust E-Steps to 480 steps/mm (x16 Microstepping)
- PID autotune the hotend
- Hot tighten the nozzle at 285°C

