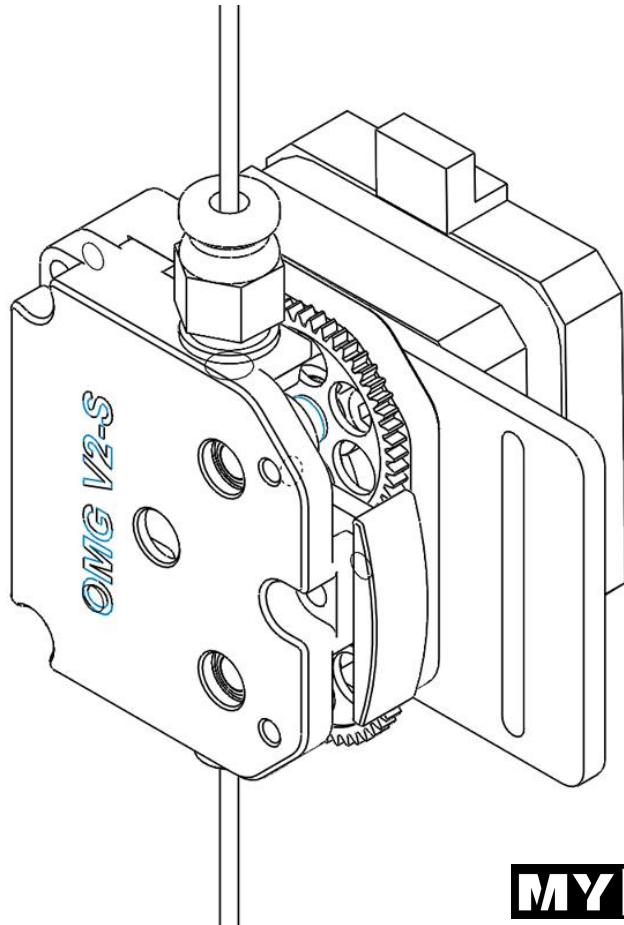


# OMG V2-S

## 3D Printer Extruder User Manual



v21911

**MY 3D**  
DIYMARIA

**A**

Basic parameters

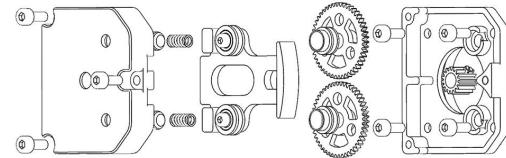
**B**

Installation steps  
Adjustment

**C**

Motor step value adjustment  
Drive current adjustment setting

# A

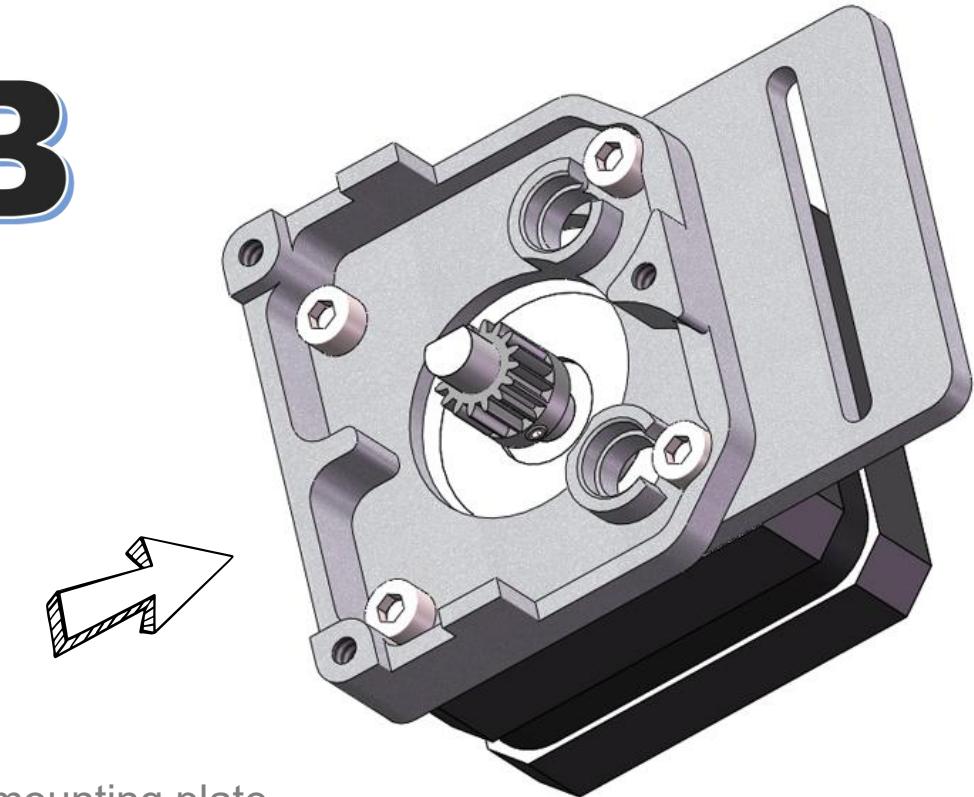
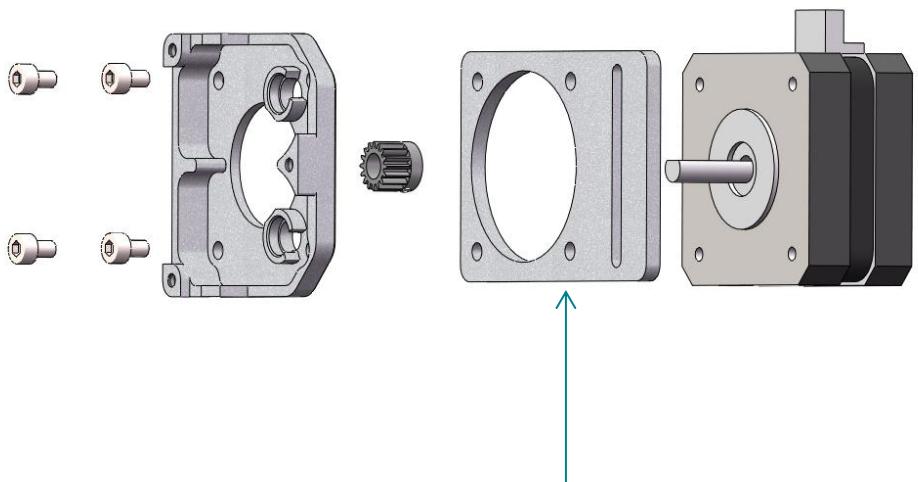


## Device parameters

Application:	FDM 3D printer
Way of working	long-distance feeding/direct extruder
Filament materials	PEEK, nylon, PLA, ABS, carbon fiber...
Gear reduction ratio	1:3
Wheel diameter	7.8mm (approximately)
Product Size	19. 5*42*48mm
Weight	64g(Net weight without packaging host weigh)
36 Stepper motor	<p>Weight: 95g support 12v-24v Note: 12v can appropriately increase the input current</p> <p>Drive Vref reference voltage does not exceed 1.2v. Recommended value 1.0v</p>

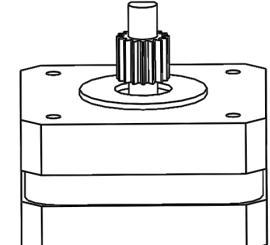
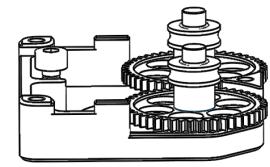
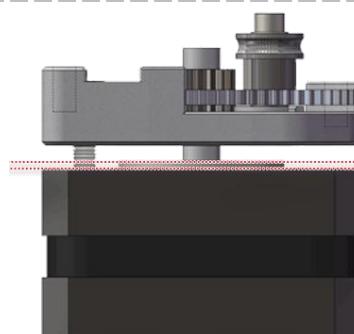
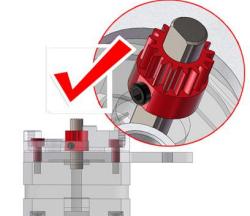
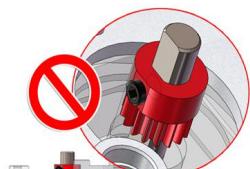
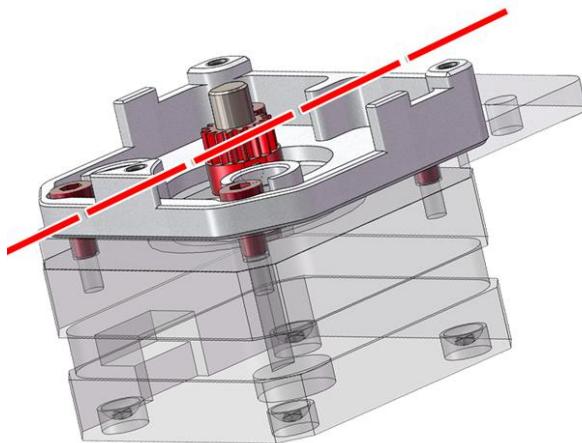
# 1 step

B



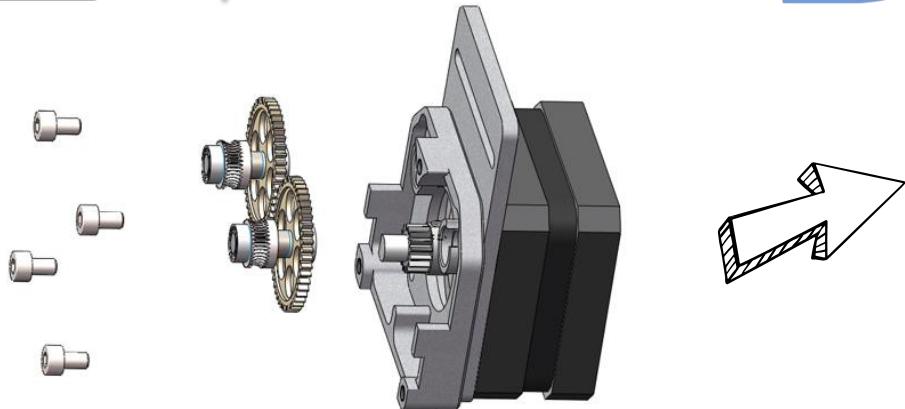
## Adjustment

Some printers don't need a mounting plate



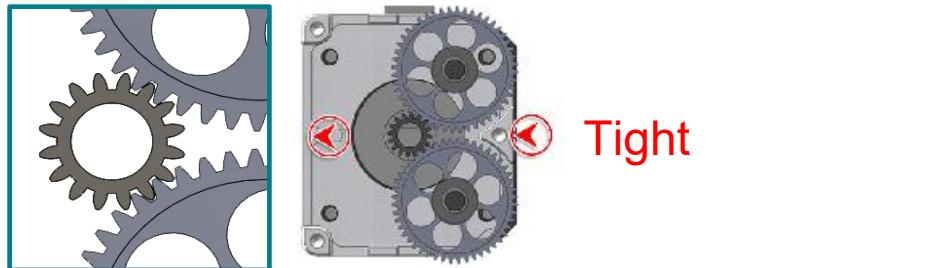
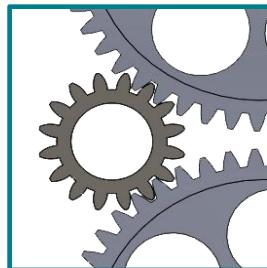
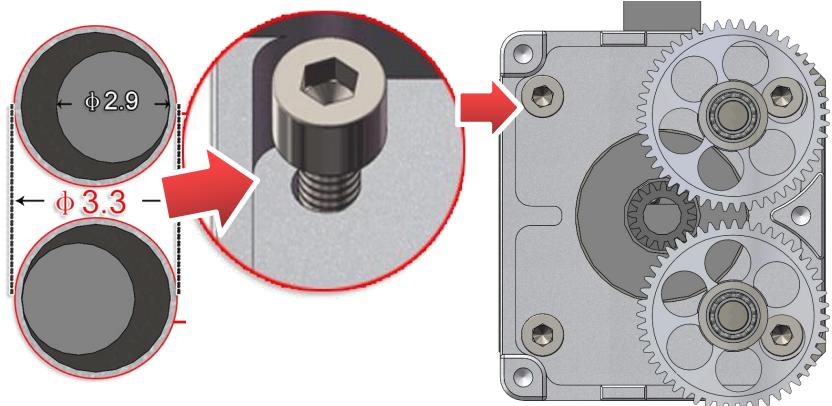
# 2 step

B

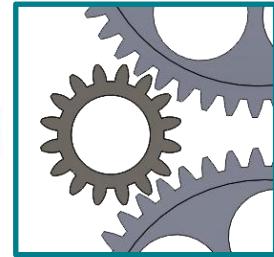
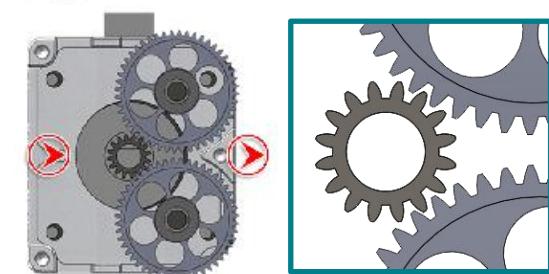


## Adjustment

- 1/ Adjust the gear clearance first. Rotate easily,  
**leaving a small amount of clearance**,
- 2/ Then tighten the M3 screws

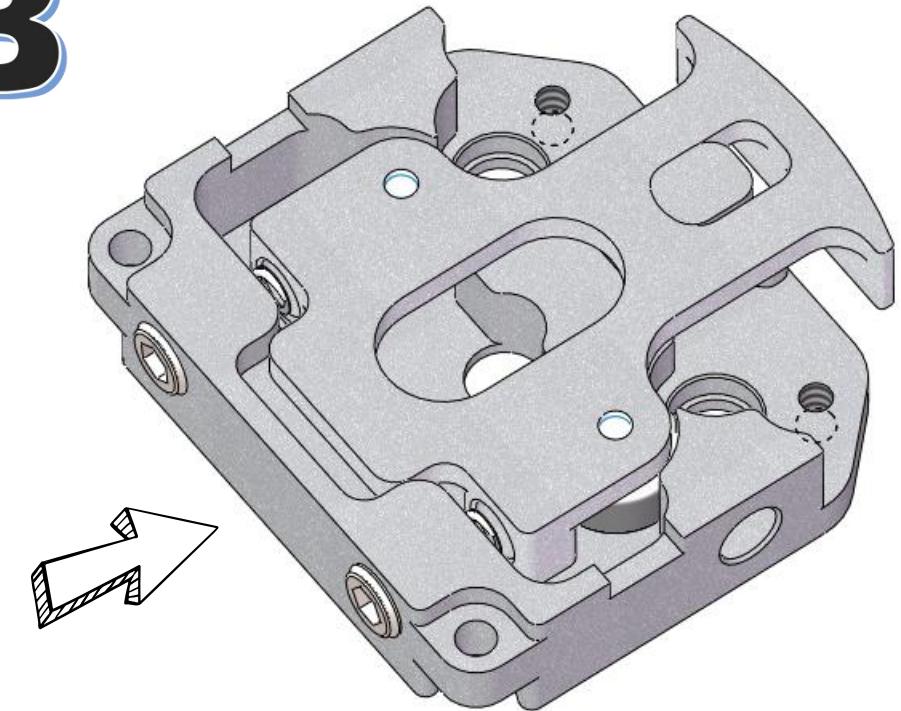
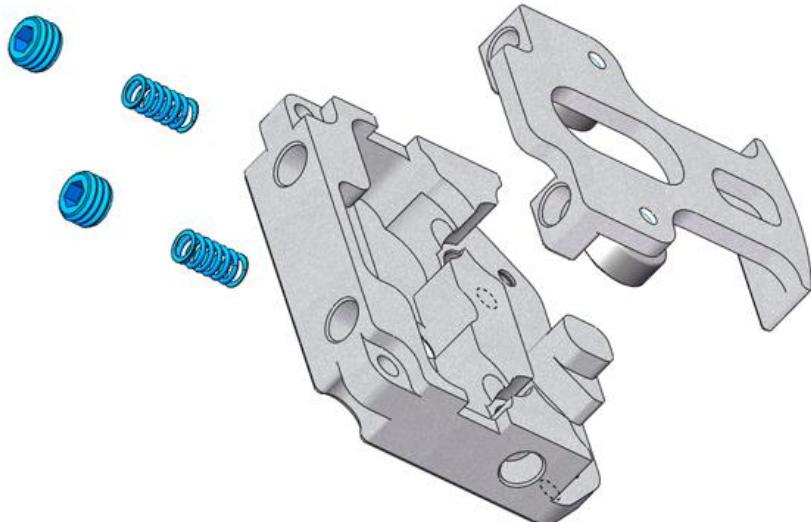


Loose



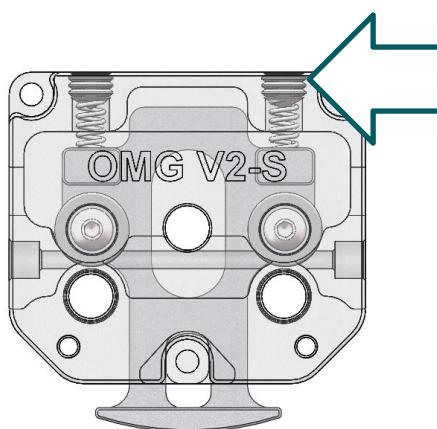
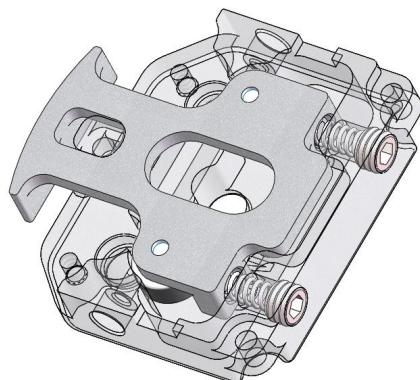
# 3 step

B



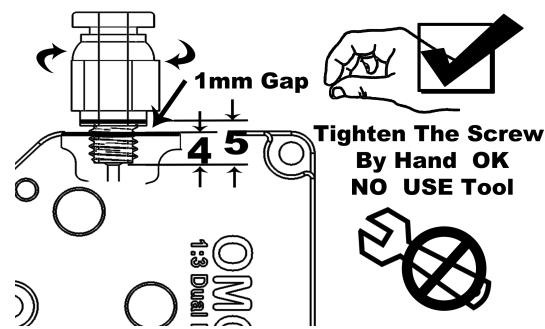
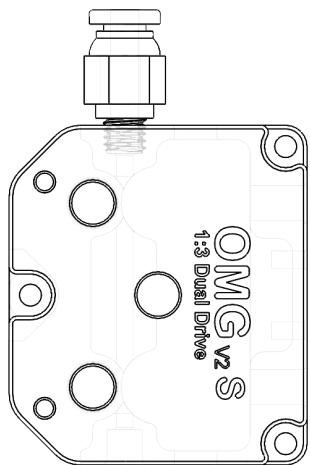
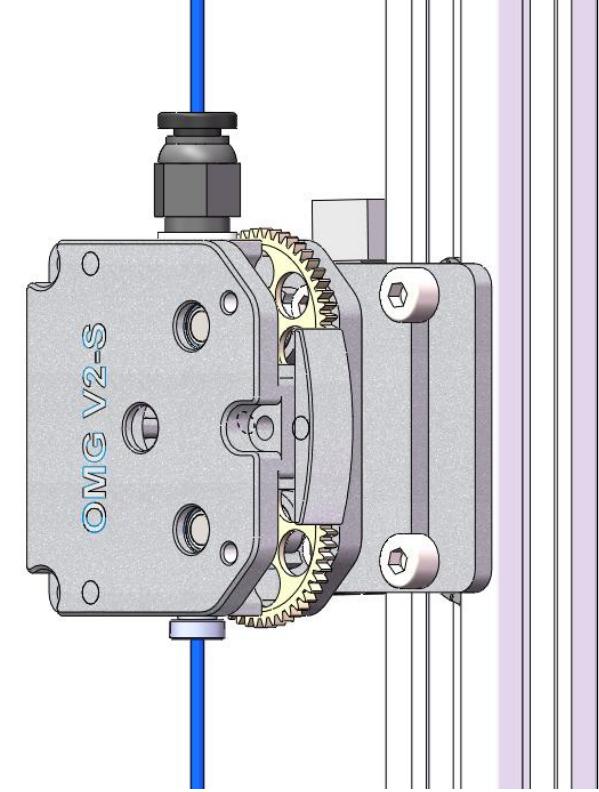
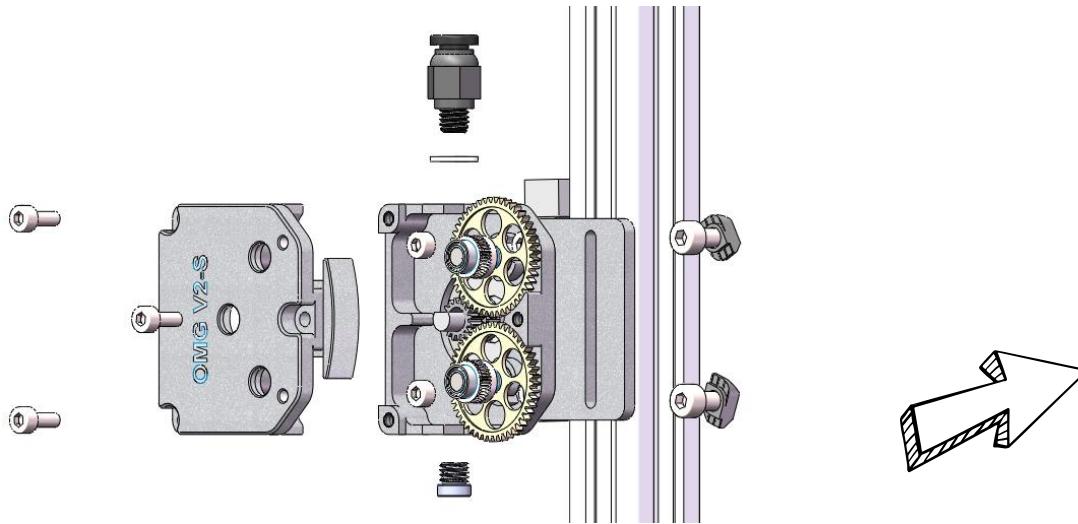
---

Adjust the spring tension. It is recommended that the tightening screws are flush

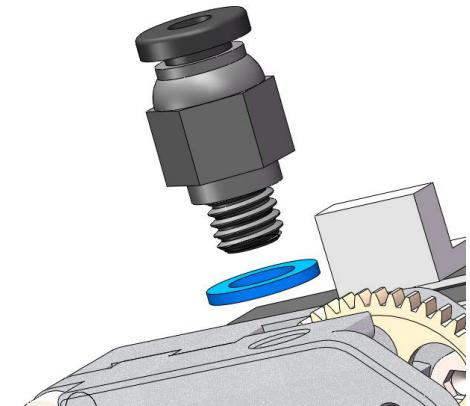


# 4 step

B



Do not use tools to twist vigorously



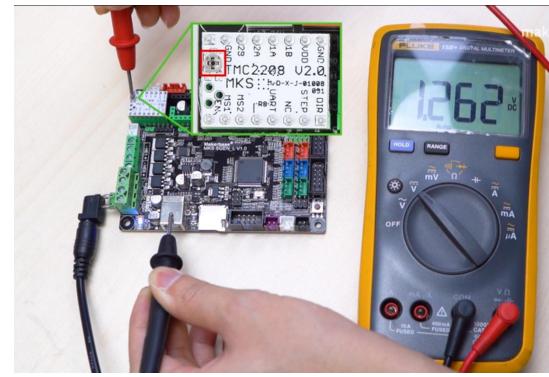


# Input Voltage:12- 24v

## 24v Input motor setting

(suggested value **Vref 1.0 ≈ Irms 0.8a**)

12V setting suggested value Vref 2≈ I\_TripMax 1.6a)



The MOTO working temperature of the motor **Max 80°C**

If the working environment exceeds 80°C (cooling fan is required)

Reference drive voltage and current  $Irms = P * Vref$

Usually change the drive voltage to adjust the motor drive current,

P is the approximate range of current loss. The influence of different drivers and motherboard firmware will be different.

The recommended adjustment value is  $Vref = 1.0$

If the motor heats up and the temperature exceeds 80, it can be adjusted down appropriately.

Two ways to modify the stepper motor drive current: A software adjustment B external potentiometer adjustment

A-Software adjustment commonly used 3 kinds

1/LCD screen enters the main menu,

2/Motherboard firmware refresh configuration file to adjust

3/Adjust through the upper computer. epetier-host or cura, after connecting, you can enter the M command code in the command line for dynamic current adjustment

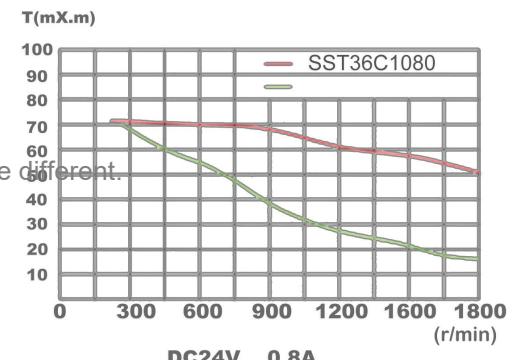
B- external potentiometer adjustment

Modify the current mode of the stepper motor: adjust the potentiometer-screwdriver rotation adjustment.

Drive current adjustment (please adjust according to different motherboard drivers)

A4988 drive maximum current calculation formula:  $I_{TripMax} = Vref / (8 * Rs)$ . For example:  $Rs$  is  $R100$ , we need a maximum drive current of 1.125A, and the  $Vref$  reference voltage needs to be adjusted to 0.9 V.

[ $Vref$ ]: The reference voltage can be changed by adjusting the potentiometer. Turn the potentiometer clockwise to increase the voltage, and turn the potentiometer counterclockwise to decrease the voltage. Measure the voltage between the metal knob of the potentiometer and GND, which is  $Vref$ .



For more info about the driver TMC. Or consult the driver or motherboard supplier,

<https://github.com/watterott/SilentStepStick> <https://www.trinamic.com/products/integrated-circuits/>



# Step Value Modification



42/Stepper motor step approach angle  $1.8^\circ$   
(pulse number)  
16 subdivision: **385**

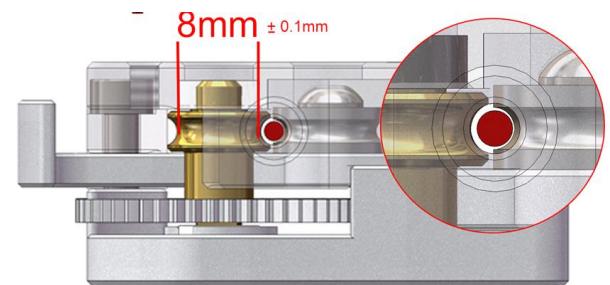
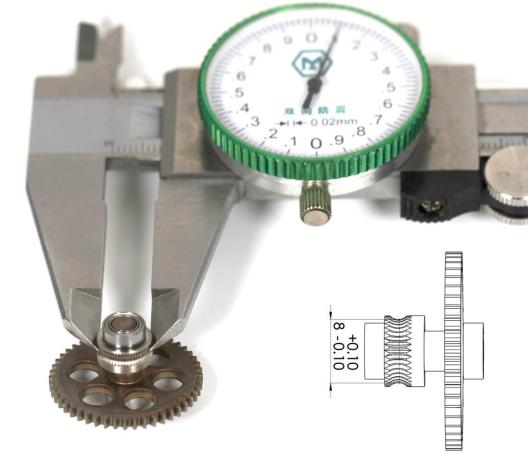


36 stepper motor,  
step approach angle  $0.9^\circ$   
16 subdivision **760**

Main board firmware modification code:  
#Movement setting

>DEFAULT\_E\_STEPS\_PER\_UNIT 385

#Default Axis-E Steps Per Unit (steps/mm)  
# 385 is the modifiable step value, usually the original value is 93



The diameter of the  
extrusion wheel:  
OMG V2 S: **8mm+0.1**  
OMG V2: 8.8mm +-0.1

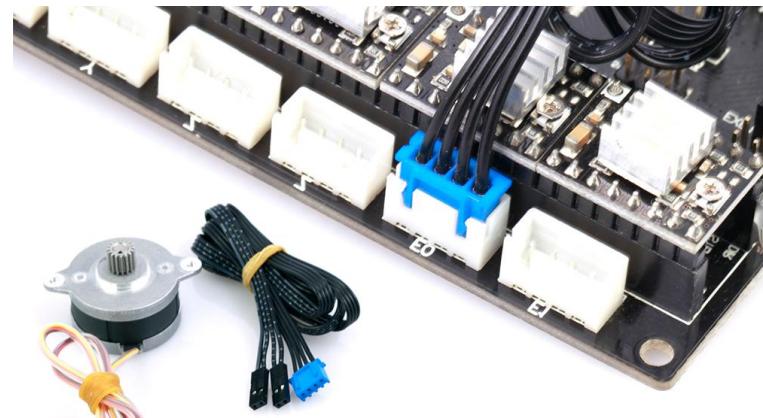


## Modification of the rotation direction of the motor:



ID:**SST36C1080-16**

The rotation direction of the motor  
can be adjusted by replacing **AB BA**



Adjust the direction of motor rotation



Or Refresh the motherboard firmware

#Invert the stepper direction.

>INVERT\_E0\_DIR 0

#If you modify the rotation direction, you can directly modify it to 0-1 or 1-0

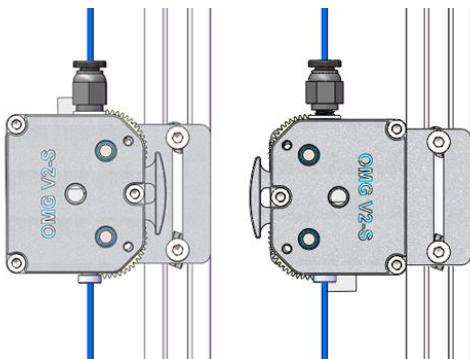


## Modification of the rotation direction of the motor: Refresh the motherboard **Firmware**

#Invert the stepper direction.

>INVERT\_E0\_DIR 0

#If you modify the rotation direction, you can directly modify it to 0-1 or 1-0



You can also adjust the **installation direction of the extruder**  
Change the direction of filament feeding and discharging

# Ender 3 v2 Step Value Modification

42/Stepper motor step approach angle 1.8°  
(pulse number)  
16 subdivision: **385**



36 stepper motor,  
step approach angle 0.9°  
16 subdivision **760**

## Ender 3 V2 extruder step value modification:

Please write the following code (red) into a notepad, save it to a TF card, as a Gcode format file,  
Then insert the TF card into the printer and execute printing to modify it (the original value is 93)

M92 E385  
M500

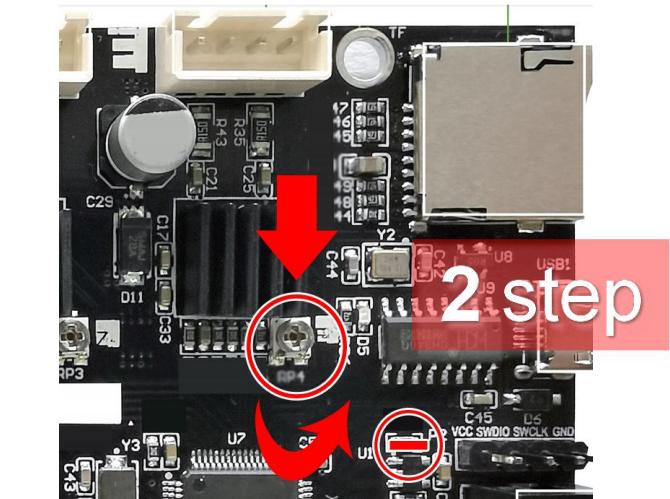
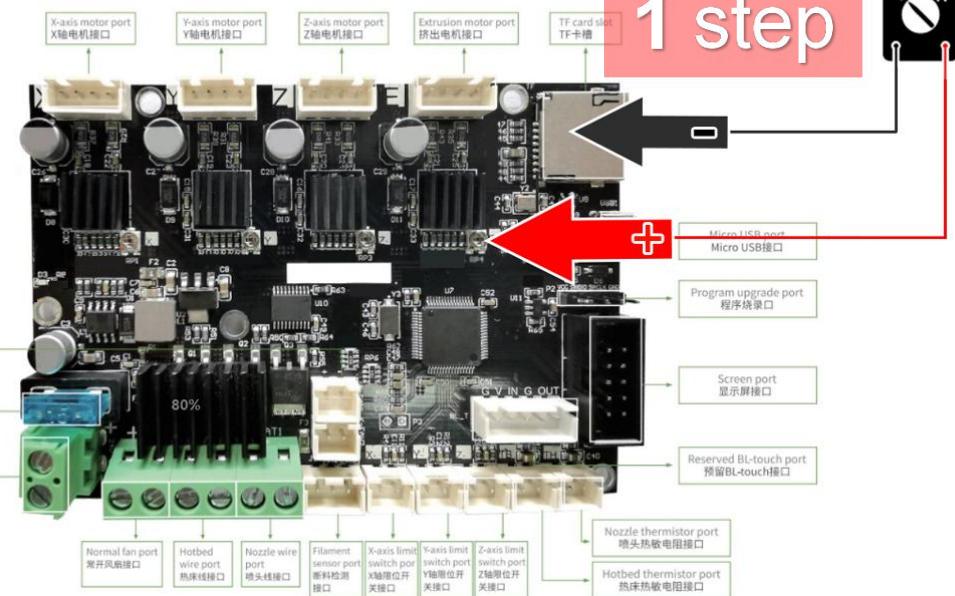
Note 385 can be modified to the step value you need. If 36 stepping motor is used, the value is 760

Select **Storage configuration** to save



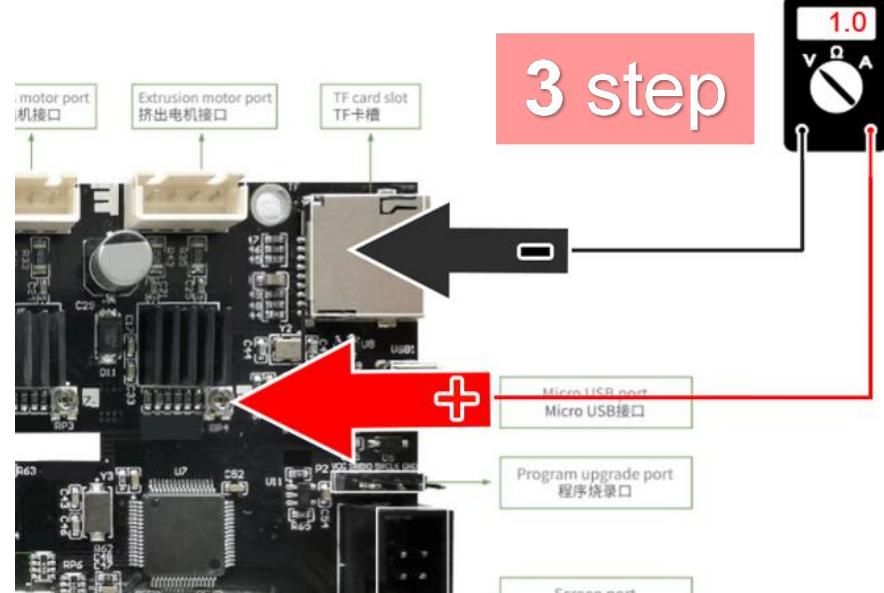
## Ender 3

- 1 Connect to the power supply Non-USB connection
- 2 Turn on the nozzle heating
- 3 Disconnect the stepper motor link



1 step

Step 1: Check the drive voltage  
Step 2: Rotation adjustment  
Step 3: Re-check Vref to 1.0

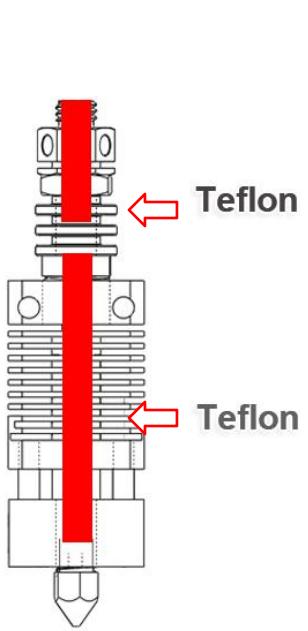
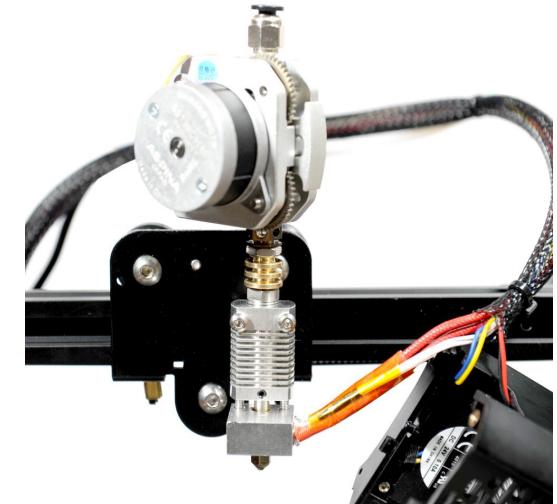
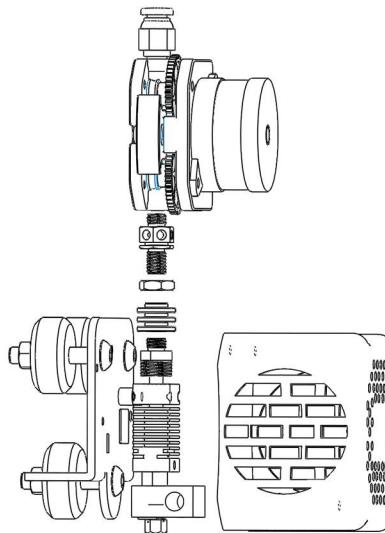
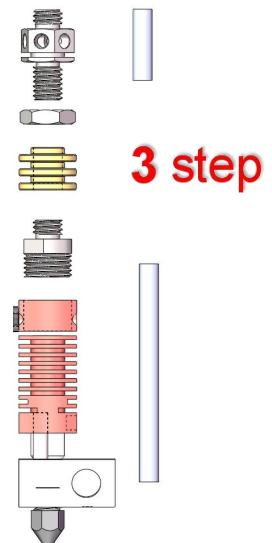
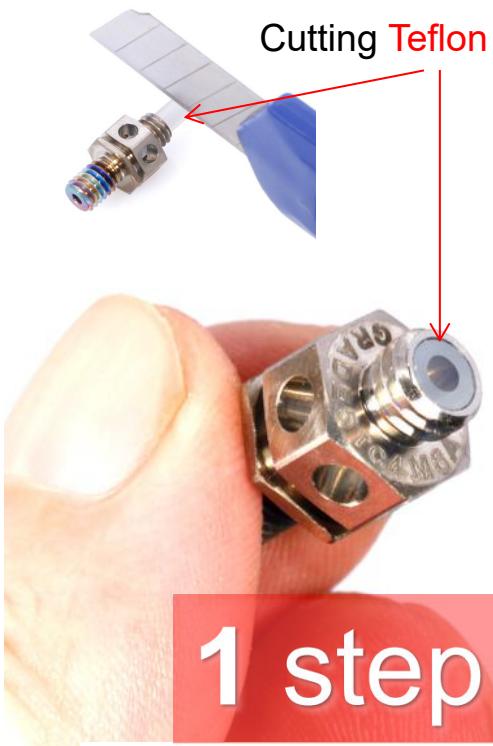


3 step

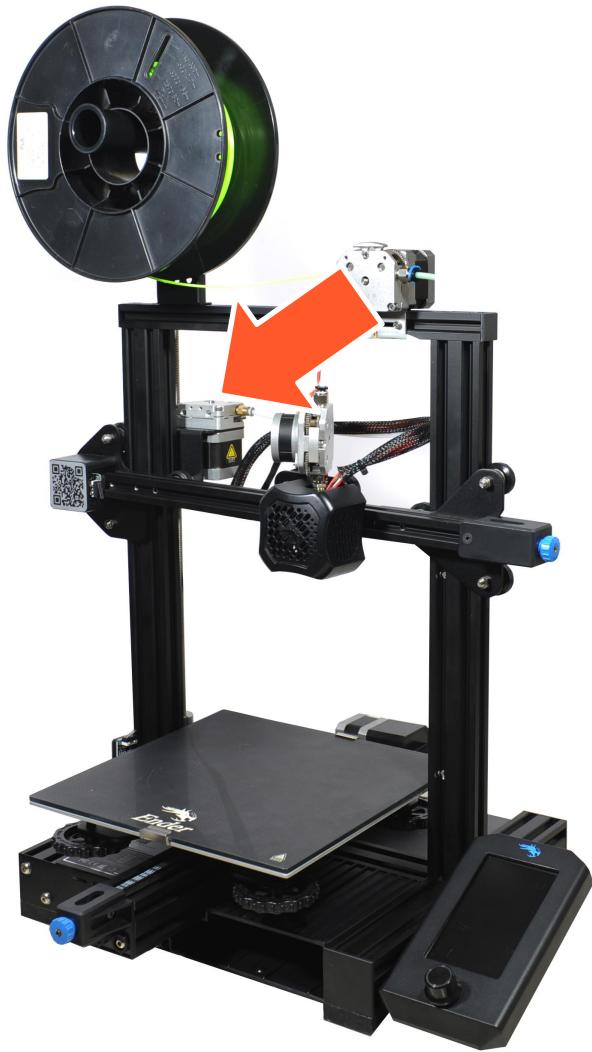
For more info about the driver TMC, please check  
<https://github.com/watterott/SilentStepStick>  
Or consult the driver or motherboard supplier,

# Ender 3 V2

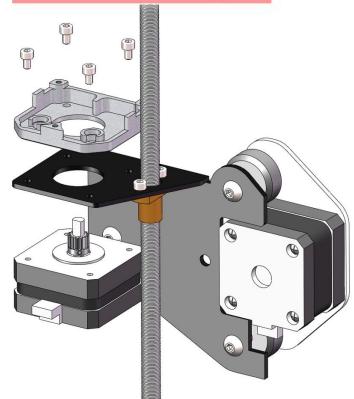
Direct extrusion installation



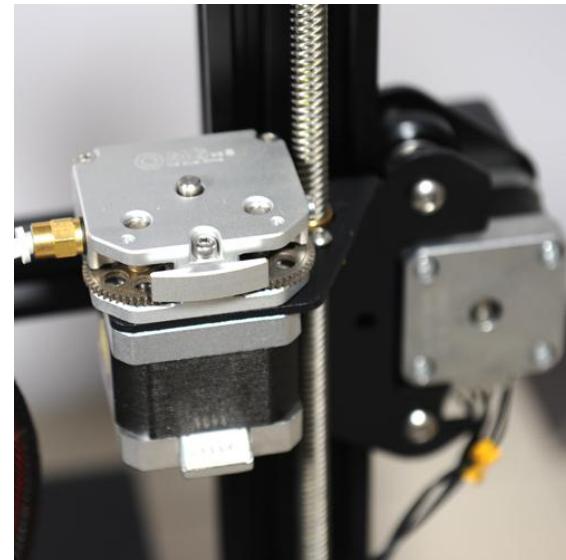
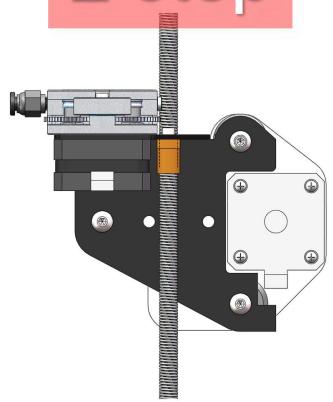
# Ender 3 V2 Long distance installation



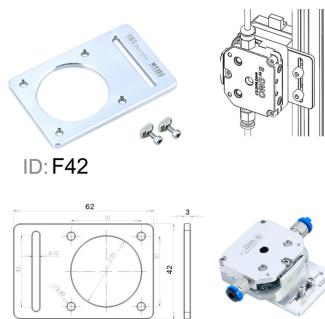
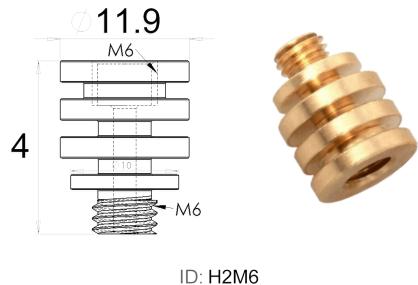
1 step



2 step

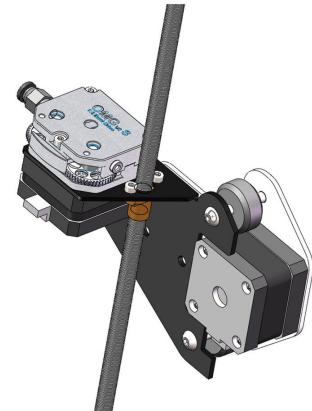
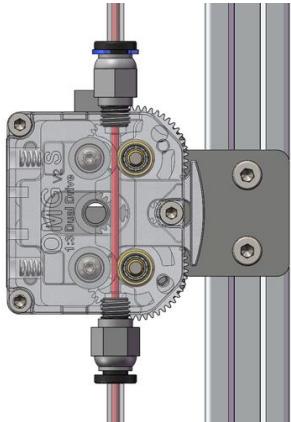


# OMG V2-S adapter extension parts

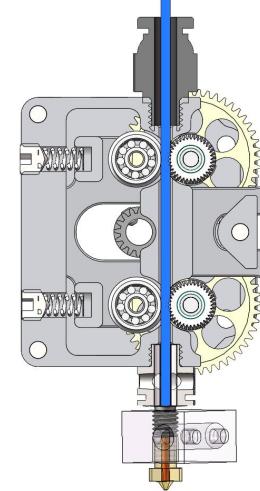


# 2 Ways work of feeding

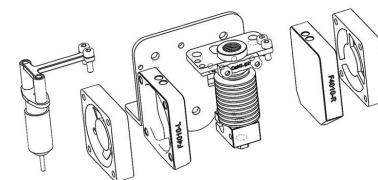
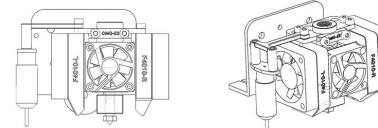
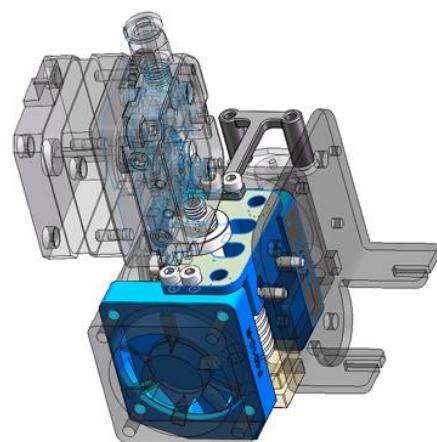
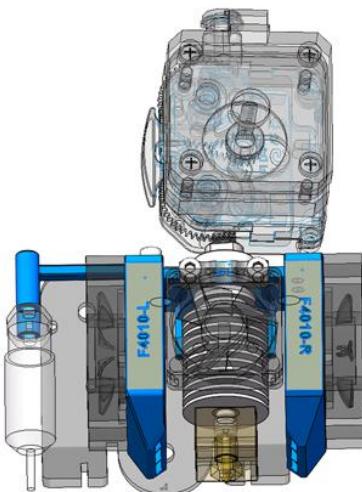
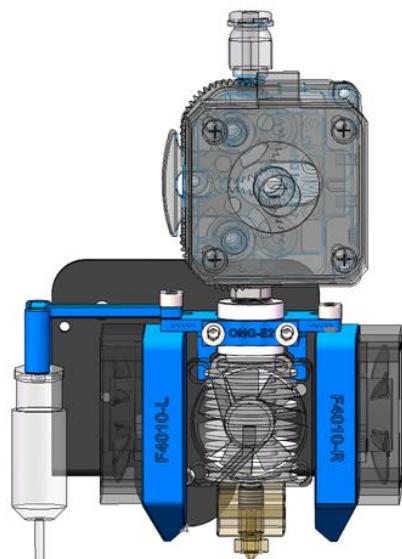
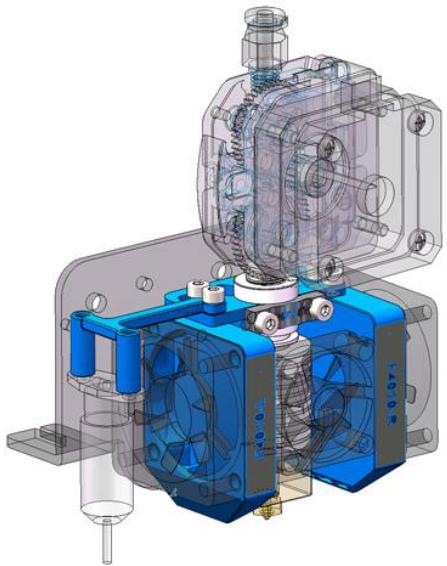
## Long-distance feeding extruder



## Direct extruder

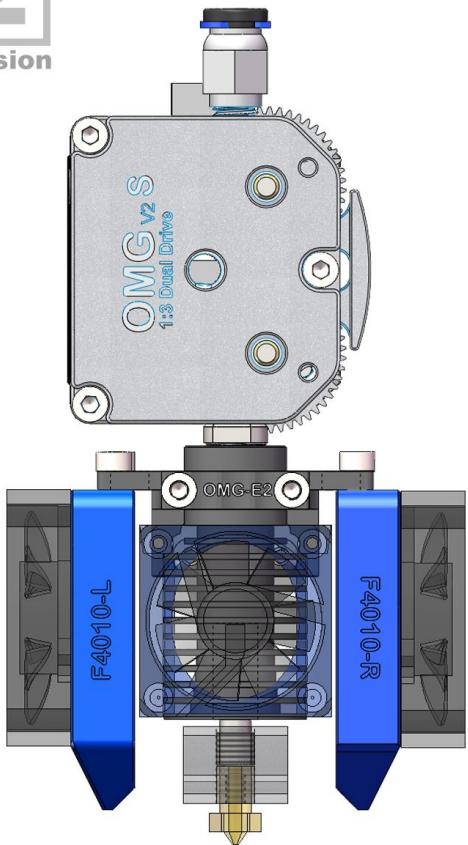


# Direct extruder for E3D V6 D2 Installation diagram

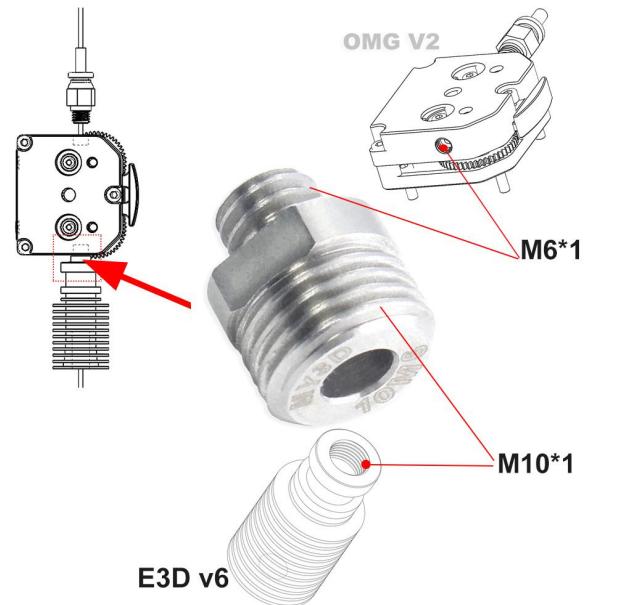


# Direct Extruder D2 Installation diagram

**D2**  
Direct extrusion



**E3D V6**



**E3D v6**



**ID: E-12**

**Direct extruder** Retraction setting (filament retraction)

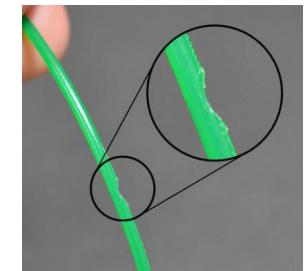
Speed: **30mm/S**

Distance: **0.5-1mm** (0 means not returning the filament)

Extruder remote feeding retraction setting

Speed :**50mm/S**

Distance: **2-4mm** (depending on the hardness of the filament and the distance PLA recommends 2mm)



When the high-speed retreat exceeds 3 mm, the diameter of the filament end (hot and cold) will become larger, and the filament will be fed again-the larger end is stuck in the throat. The extruder will plan the material, the nozzle will not come out, and the motor will be different. Ring and wait.

(Preheat the nozzle, pull out the filament manually, and check if there is any change at the end of the filament)

At the same time, when the filament is retracted at a high speed and a long distance, it is possible that air may enter the nozzle, and air bubbles may be generated.

Affect the accuracy of prints.

The setting purpose of the rollback: no wire drawing,

High-speed and long-distance retraction of the filament cannot completely solve the problem.

Also depends on nozzle cooling

Plastic melting printing-heating process requires nozzles (heating cavity temperature is constant)

plastic melting requires process, softening-melting. Because of filament flow and external reasons

Ordinary filament materials, due to insufficient mixing of plastic crystals or foreign objects, or rapid cooling (filament is not completely melted), are very easy to block the nozzle.

The diameter of the nozzle is recommended to be 0.6 or more.

Or use high-quality filament materials.

Increase the heat preservation and softening (melting) length of the heating module.