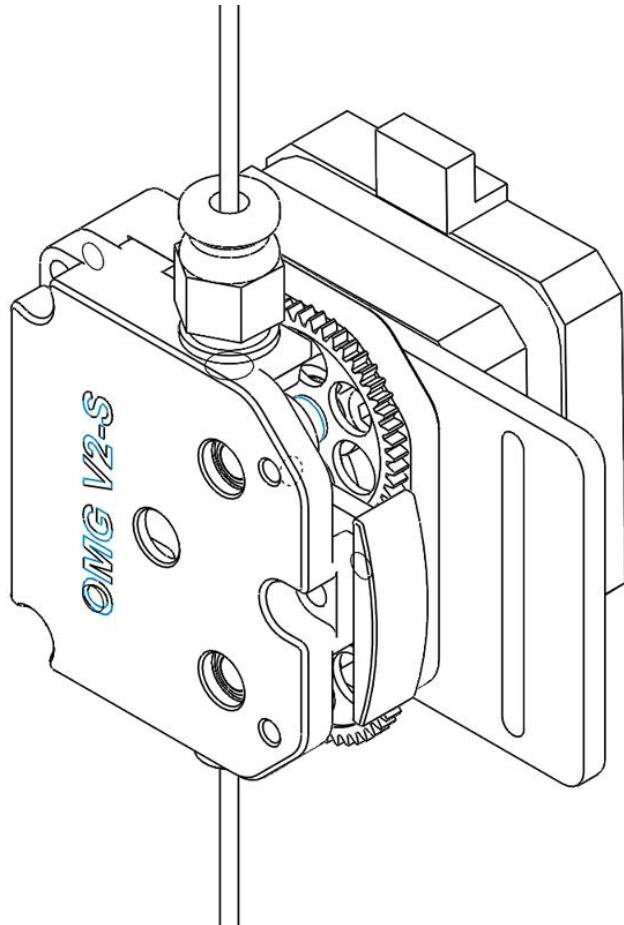


OMG V2-S

3D Printer Extruder User Manual



v21911

A

Basic parameters

B

Installation steps
Adjustment

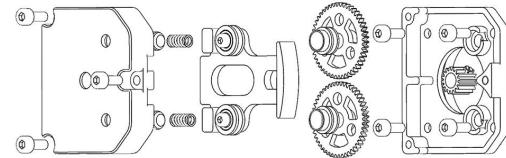
C

Motor step value adjustment
Drive current adjustment setting

OMGEXTRD™

MY3D®
DIYMARIA

A

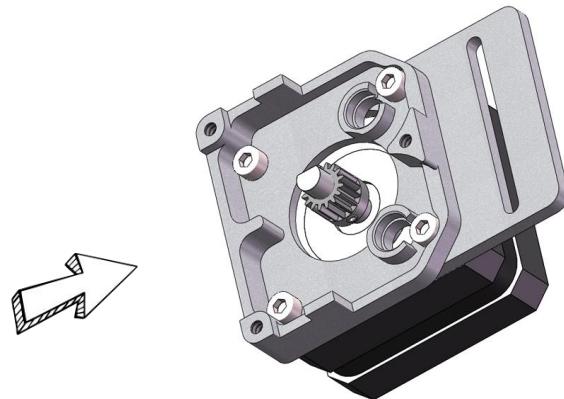
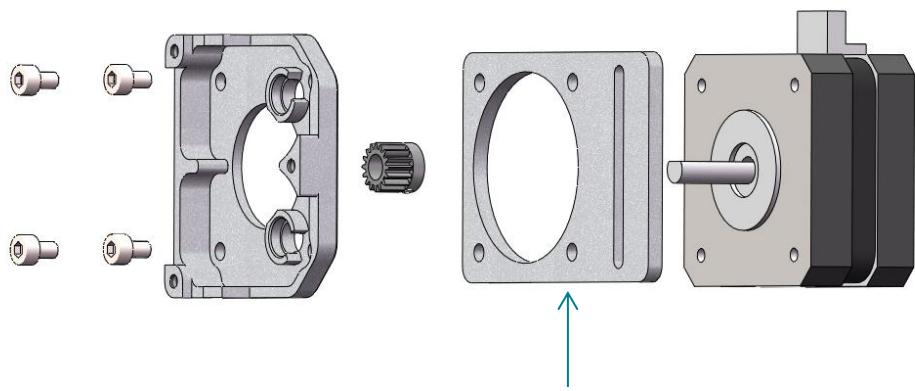


Device parameters

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>

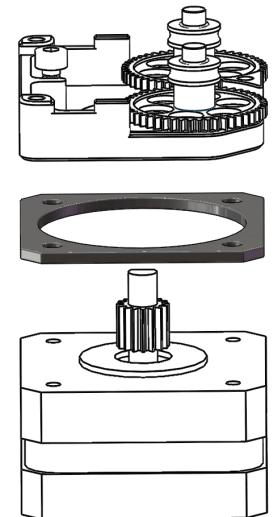
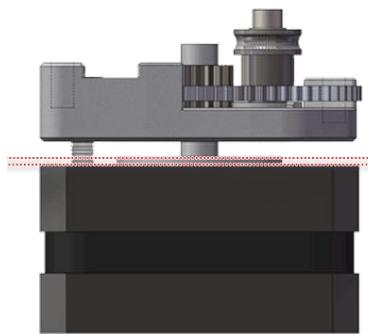
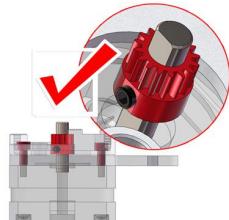
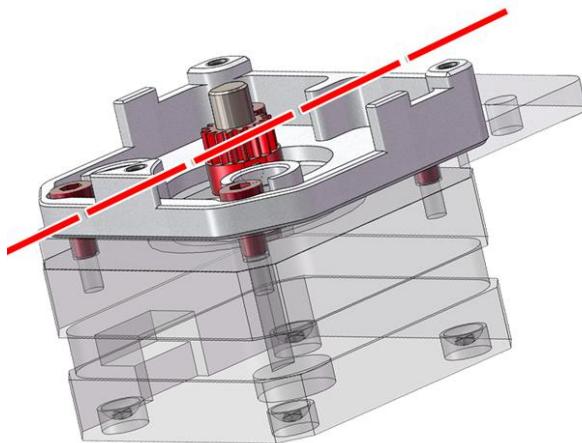
1

step **Install stepper motor gear**



Some printers don't need a mounting plate

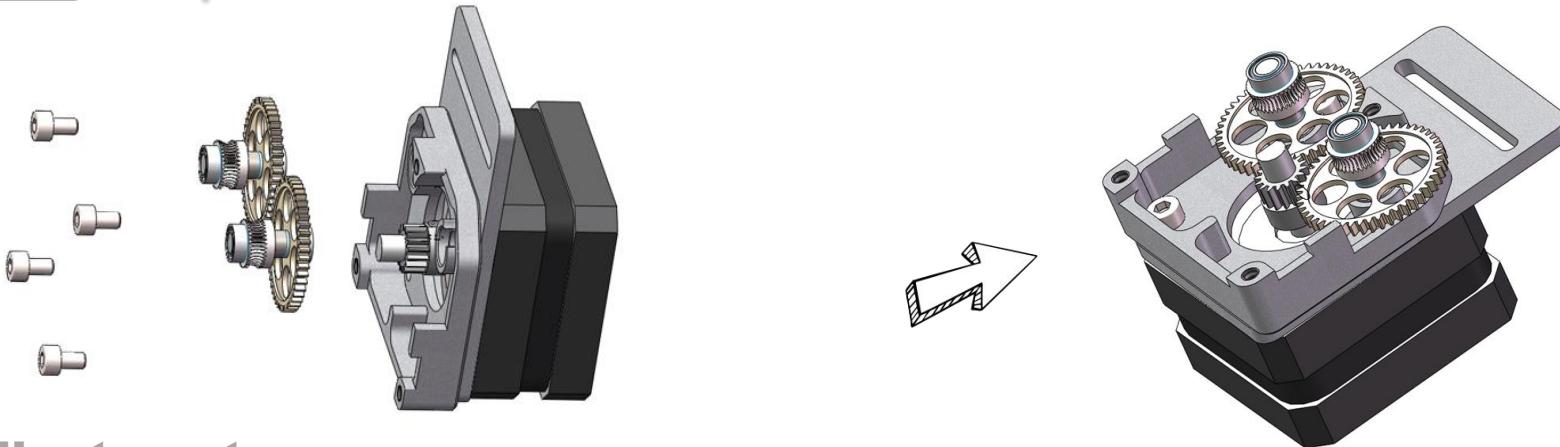
Adjustment



2

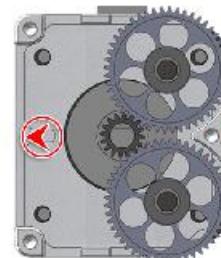
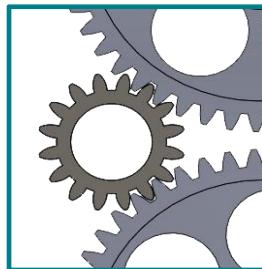
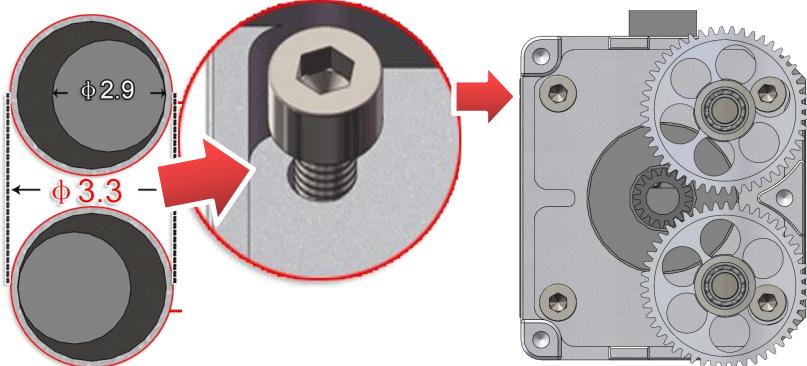
step

Connect the motor to adjust the gear gap

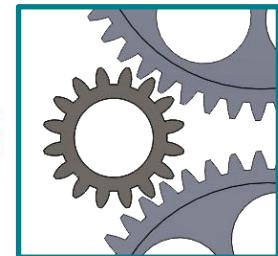
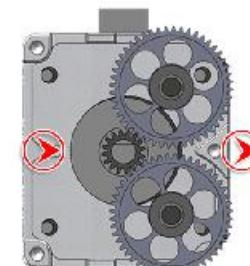


Adjustment

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

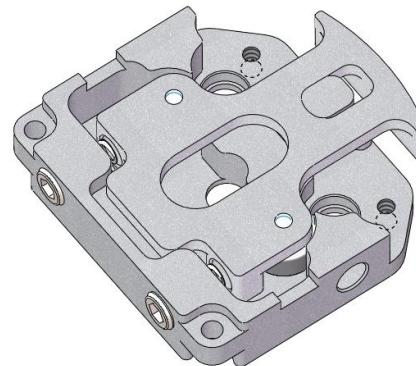
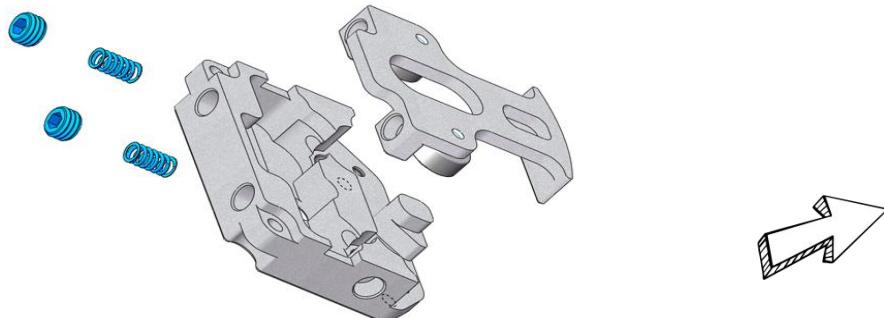


Loose



3

step **Install the spring**



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

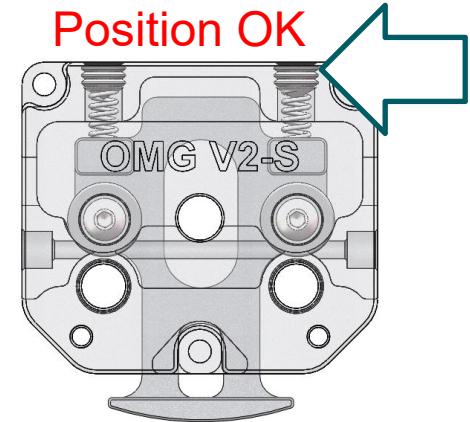
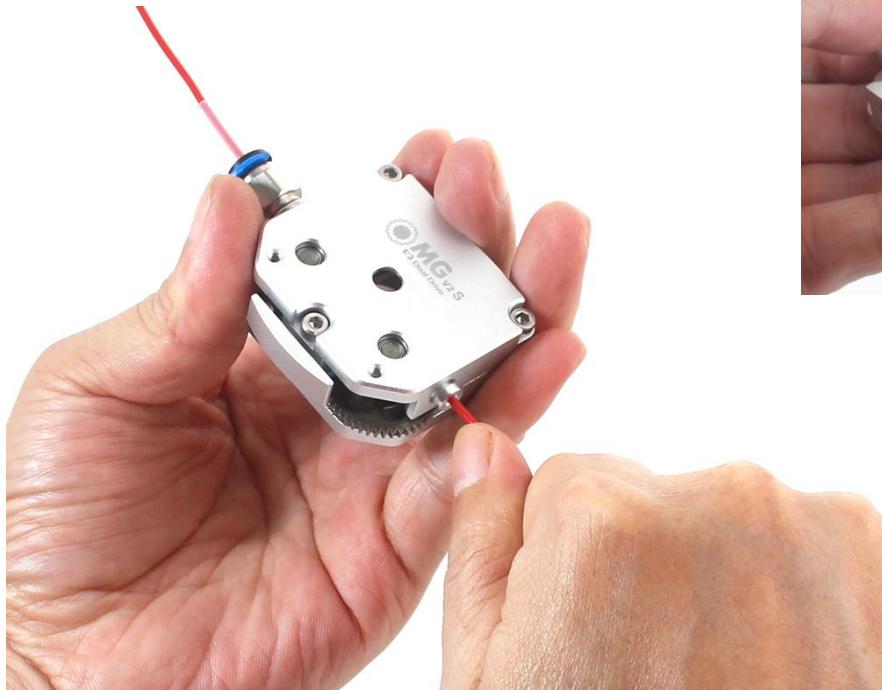


3

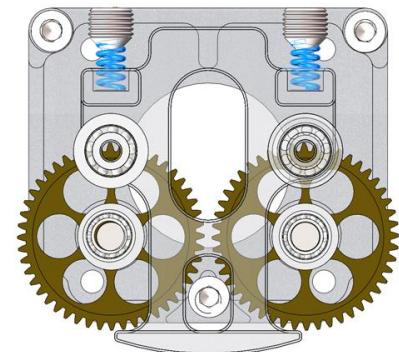
step Spring tension setting

Press and hold the big gear without turning.

Pull the filament

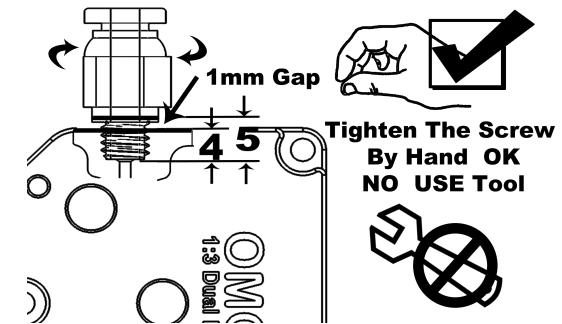
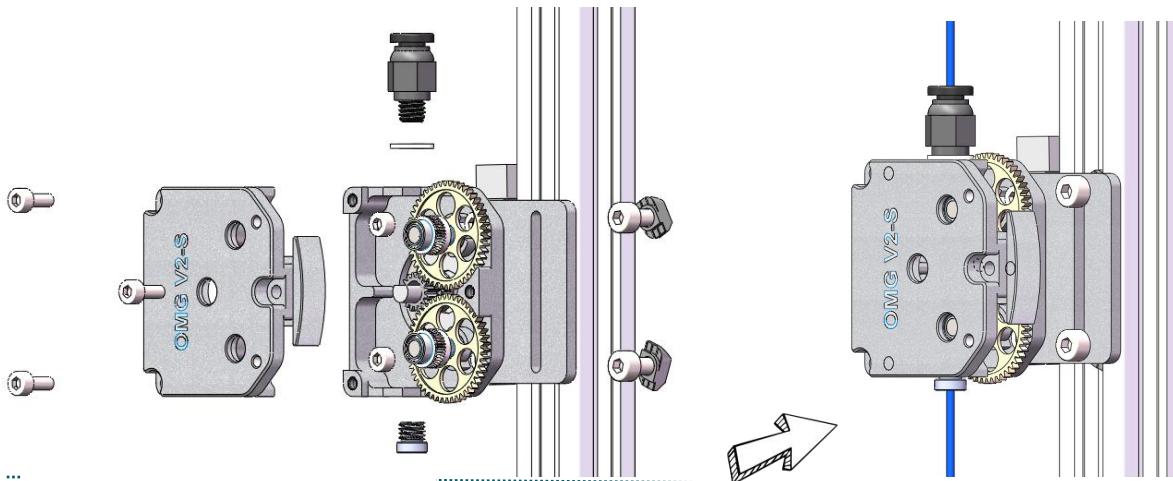


Adjusting spring compression nut (hexagon socket)
Recommended value: level with the extruder surface

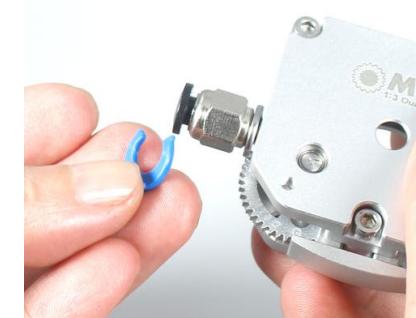


4

step **Install the Teflon connector**



Do not use tools to twist vigorously





36 stepper motor drive voltage adjustment

24v Input motor setting

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

12V setting suggested value Vref 2≈ Irms1.6a)



The MOTOR 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

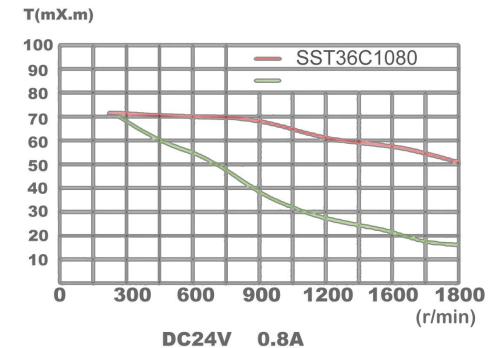
B- external potentiometer adjustment

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 $Vref$.

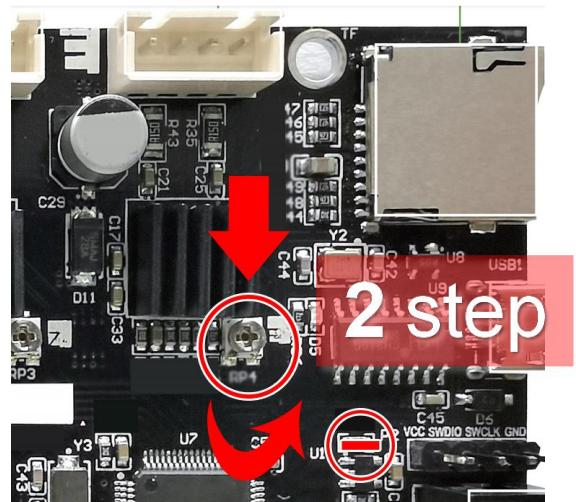
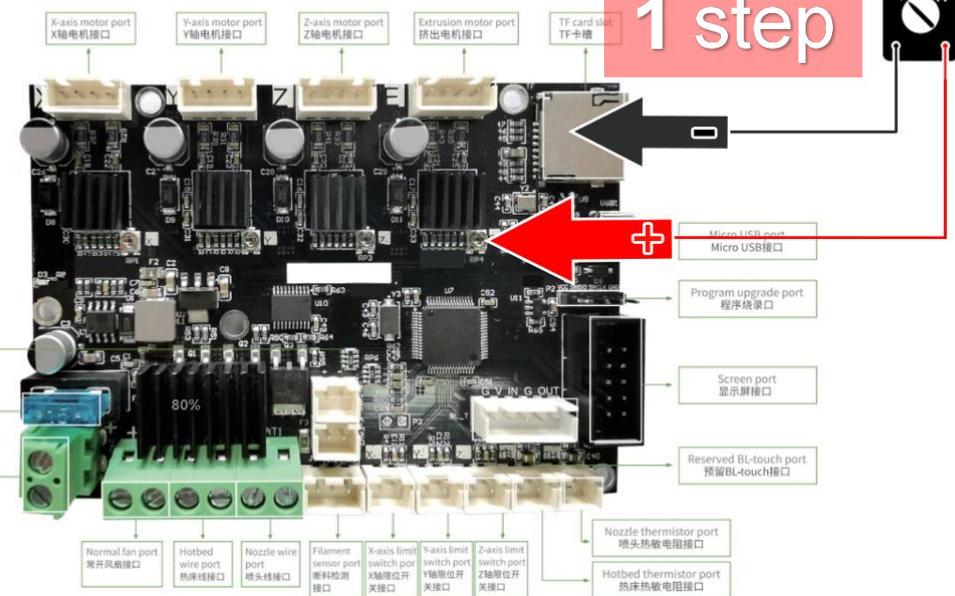


For more info about the driver TMC. Or consult the driver or motherboard supplier,

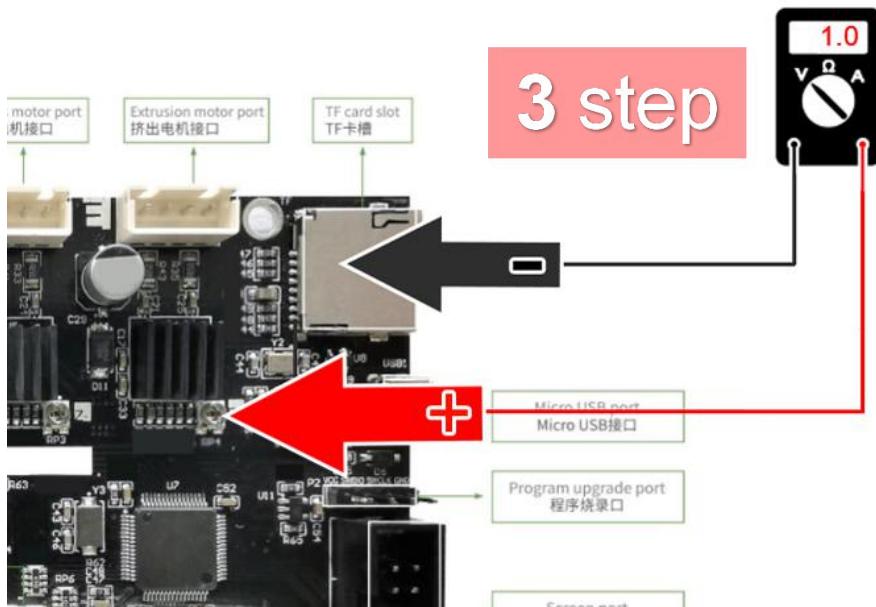
<https://github.com/watterott/SilentStepStick> <https://www.trinamic.com/products/integrated-circuits/>

Ender 3

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



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



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

C

Step Value Modification



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

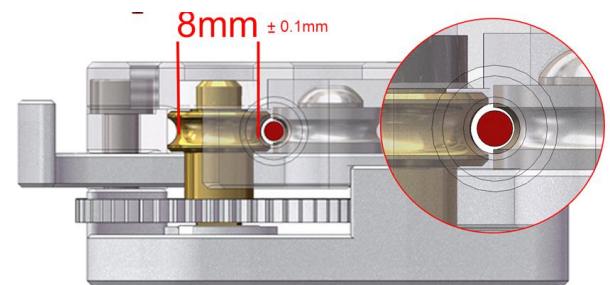
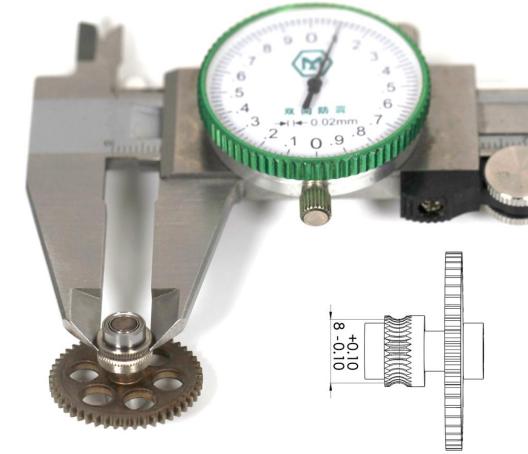


36 stepper motor,
step approach angle 0.9°
16 subdivision **760**

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
```

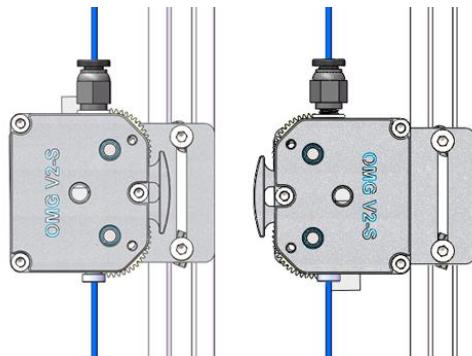


Modification of the rotation direction of the motor: Refresh the motherboard **Firmware**

#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:

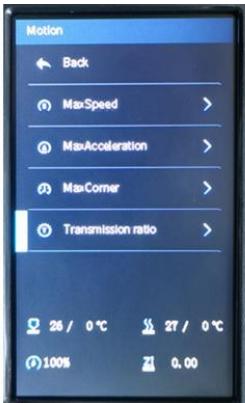
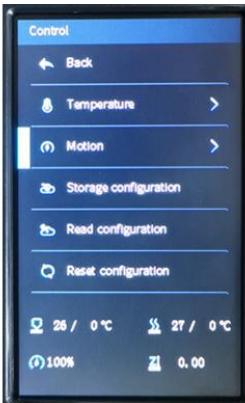
Please write the following code (red) into a notepad, save it to a TF card, as a Gcode format file,
Then insert the TF card into the printer and execute printing to modify it (the original value is 93)

M92 E385

M500

M501

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



EEPRO 2000/1/1 ... DAT 文件

4 KB

Note: After modifying the step value
DAT format files will be generated in the
TF card

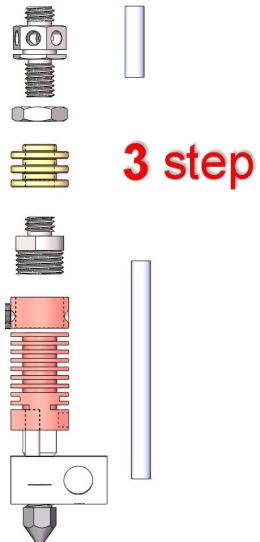
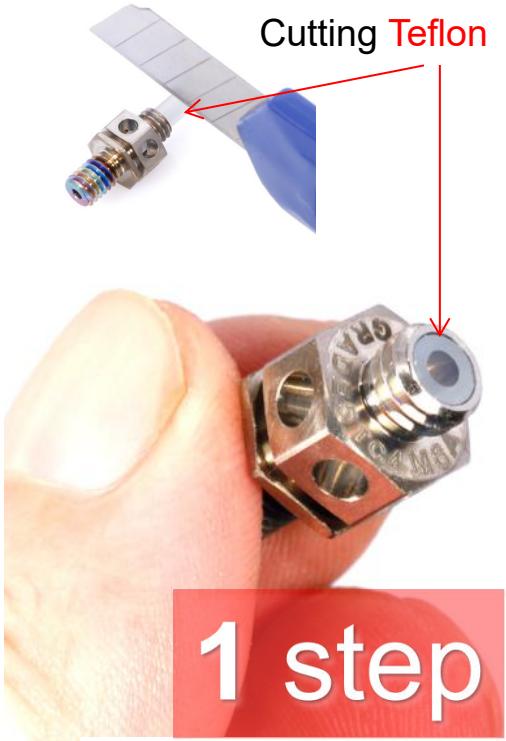
The name is: EEPRO

If deleted, restart the 3D printer,
The original value of 93 will be restored,

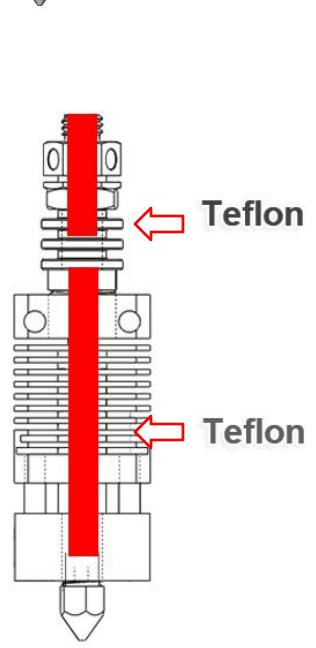
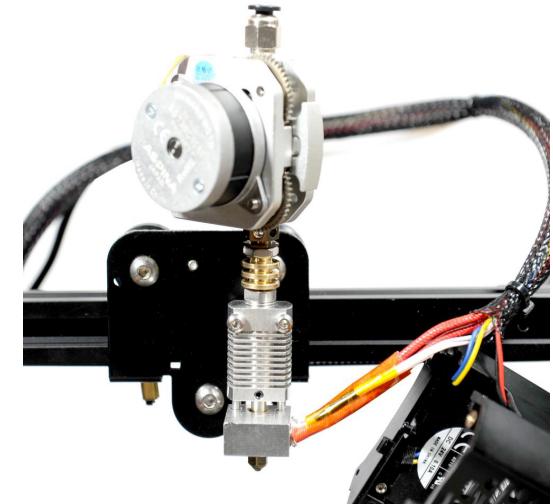
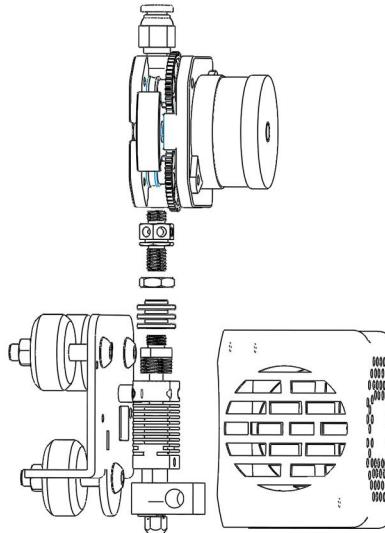
If you change to a new TF card, you need to print the firmware again, or copy the EEPRO file to the new card

Ender 3 V2

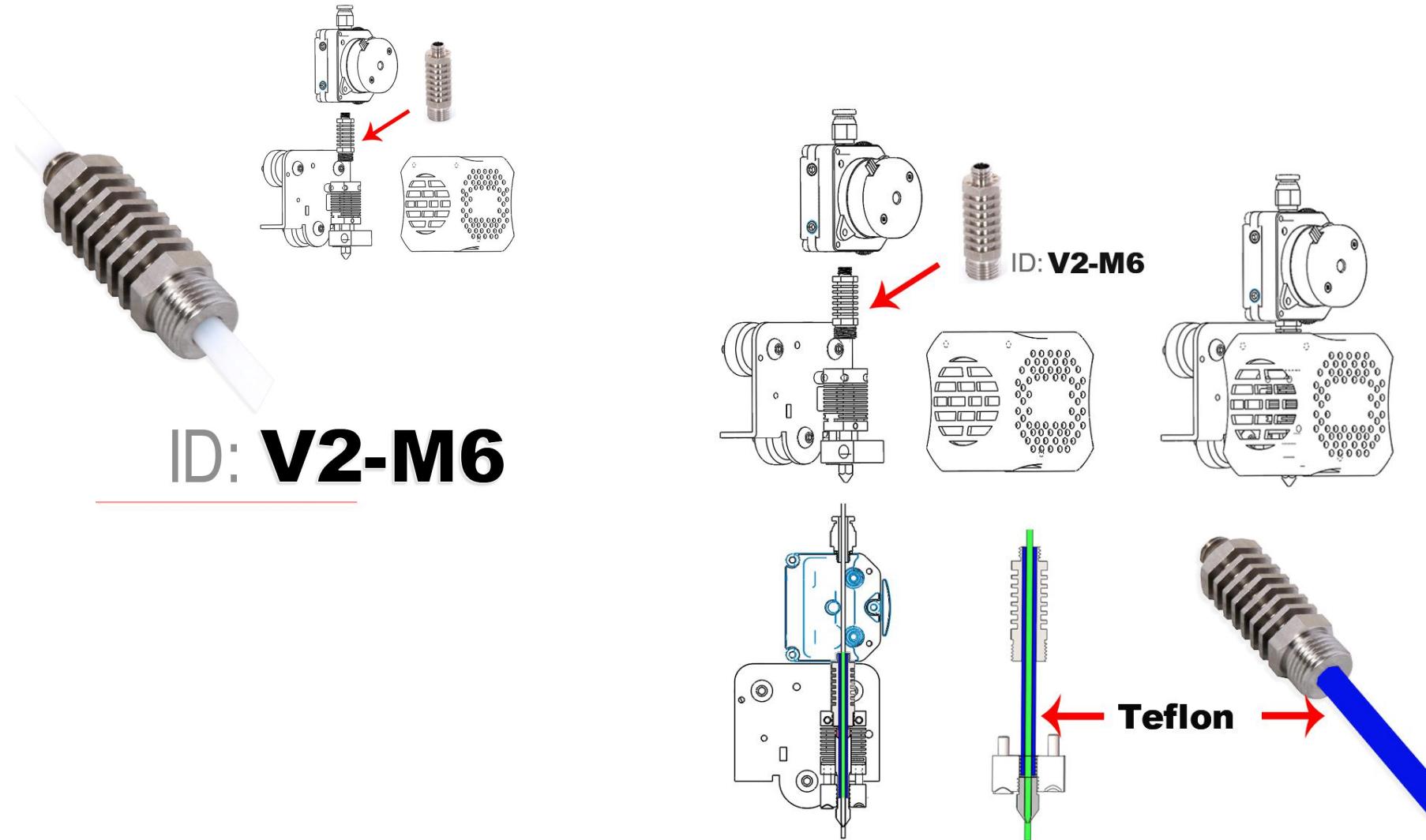
D1 Direct extrusion installation



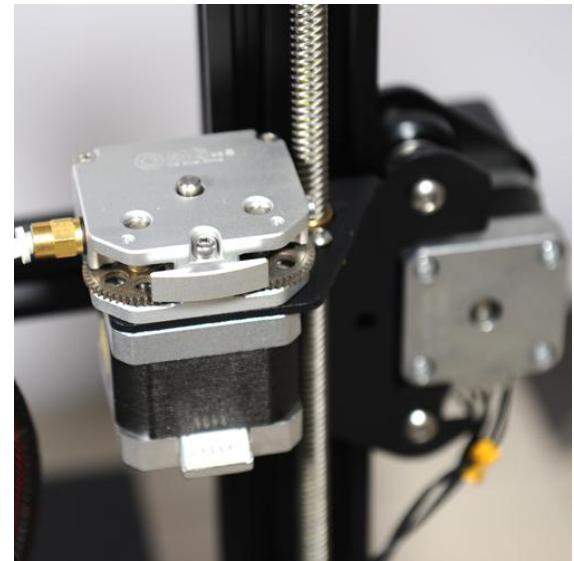
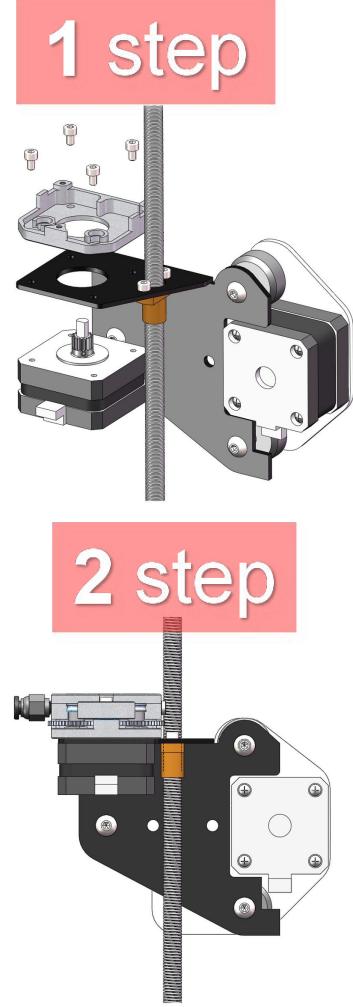
3 step



Ender 3 V2 D1a set Upgrade accessories Direct extrusion installation

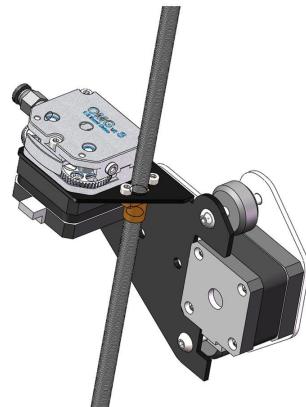
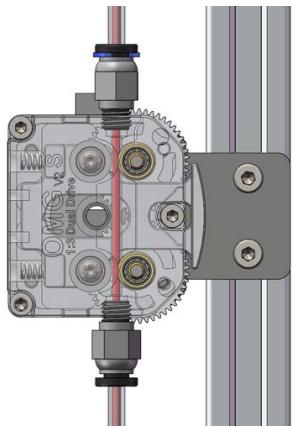


Ender 3 V2 F2 set Long distance installation

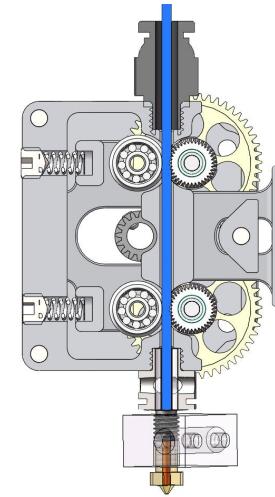


Ways work of feeding

Long-distance feeding extruder



Direct extruder



F2 SET
OMG V2-S

PACKING IN BOX:

Compatible
2020
aluminum
profile
....and more

✗ Direct Extrusion
✓ Far Distance Feeding

PACKING IN BOX:

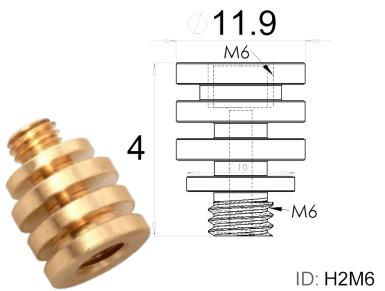
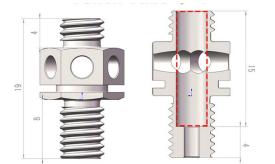
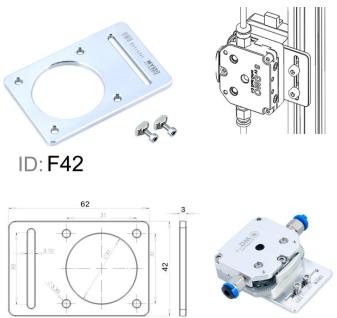
D1 a SET
OMG V2-S

PACKING IN BOX:

Compatible
Ender 3 V2
Ender 5
Ender 3 Pro
CR 10
....and more

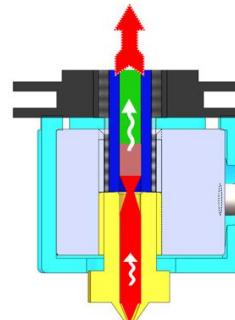
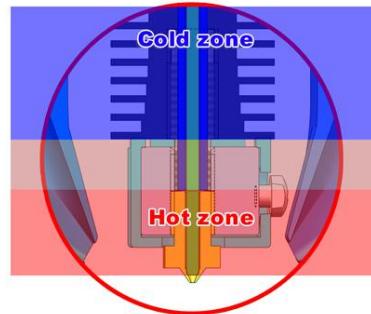
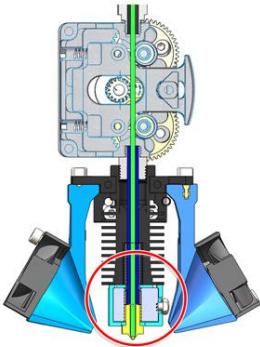
✓ Direct Extrusion
✓ Far Distance Feeding

OMG V2-S adapter extension parts

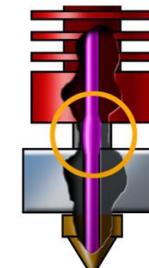
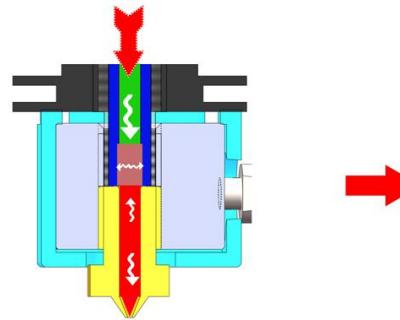
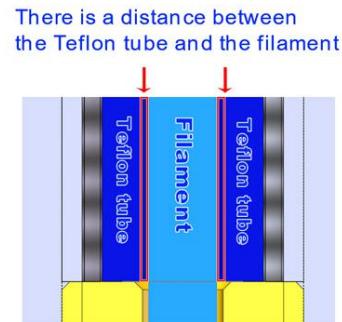
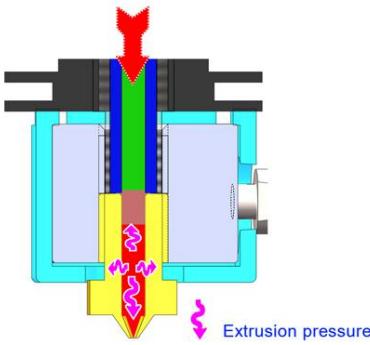


Filament blockage:

After the filament is drawn back, when the extruder feeds again, The heated and softened filament will come from up and down resistance, and the diameter of the cooling part of the throat (Teflon) will become larger and clogged. There is a foreign body in the filament (or not completely melted, etc.)



Filament	Normal temperature (hard)
Normal temperature (hard)	100-200°C soft state
100-200°C soft state	200-220°C melting state



Retraction filament set suggestion:
Speed **40mm/s** Distance: **1-2mm**



Solution:

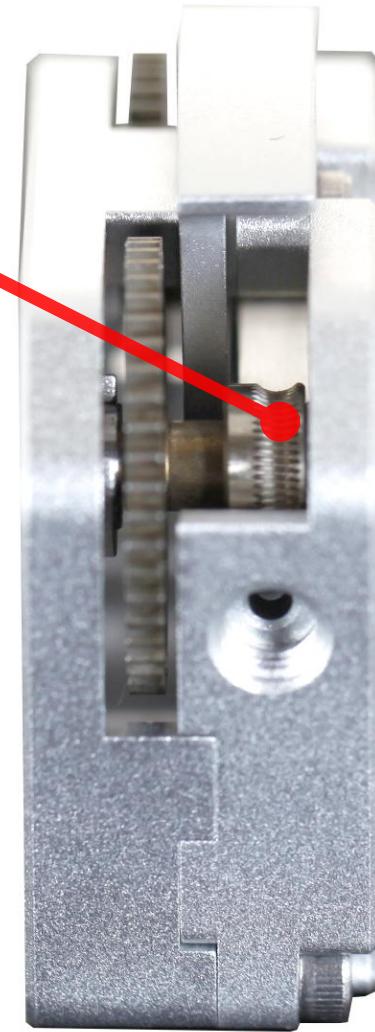
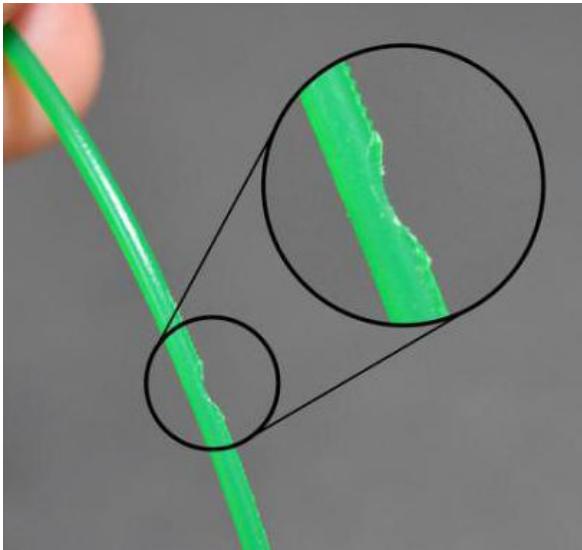
The nozzle diameter is recommended to be 0.6 or more. Use high-quality filament materials.

Increase the insulation softening (melting) length of the heating module.

Throat: 2 modes 1 Teflon direct connection nozzle 2 Titanium alloy pipe non-direct connection nozzle

Adjust the slicing software withdrawal setting: recommended distance 1-2mm, speed 40mm/s

Maintenance



The nozzle is clogged and other reasons,
There will be a planing phenomenon,
The filament remains in the middle of the bite gear,
Need to use a soft brush to clean up.