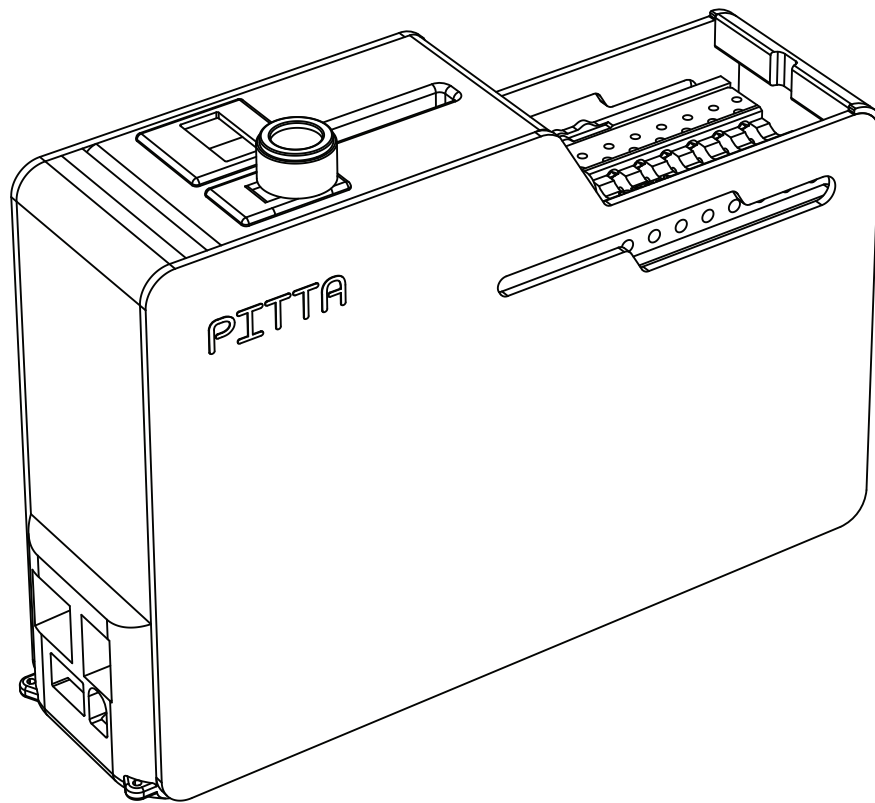


# Multi-Color 3D Printing Module

PITTA User Manual



STELLAMOVE INC.



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- In the user manual, some functions may be changed without prior notice to the user to improve product performance. Please read [NOTES] before use.

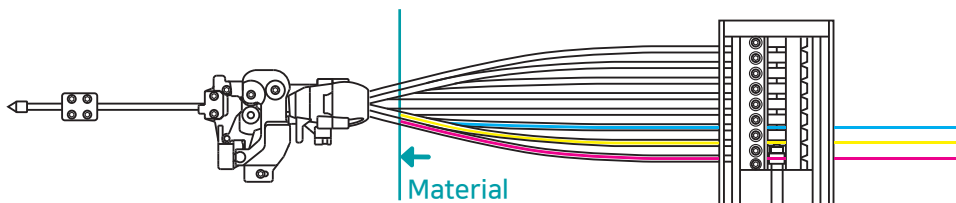


## NOTES

- The PITTA is a precision machine and must be handled with care.
- Please use it on a flat floor out of direct sunlight.
- If left unused for a long time, it may cause malfunction.
- When storing, avoid direct sunlight and heat, and be careful not to accumulate dust.
- Do not disassemble the machine arbitrarily.
- The ideal ambient operating temperature is from 15 - 30 °C (60 - 86 °F).
- Always tidy up and clean after finishing work. (Foreign substances such as strings may cause clogging of the nozzle or machine failure)

## Quick Check Points Before start printing

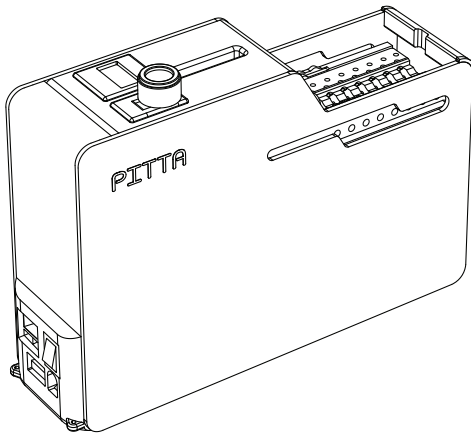
- Check that the PITTA and 3D Printer are properly connected with various cables. (6~10page)
- Turn on the power of the PITTA using the power switch. (Be sure to turn off the power when not in use)
- Make sure all materials to be used are loaded in the proper location.



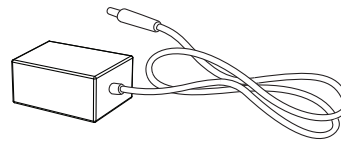
- Check that the drive gear of the PITTA and the Splitter Bobbin Usage is not loose.
- Check that PITTA's drive gear is positioned to be in slot 1.
- Before starting printing, use the PreHeat function to check whether the nozzle temperature is set to rise. 3D Printer will not start 3D Printing unless the nozzle temperature is at least 185 degrees.
- Make sure the drive gear positions of the hard grip and PITTA are tuned for maximum extrusion pressure. (11~12,18page)
- Recommendation : Material PLA, Nozzle Temp 205~215, Bed Temp 50 ~ 60°C
- During PITTA working, ender3 UI blocked, so stop, pause etc will not work. It is because the ender's UI and its interaction with PITTA during PITTA operation interfere with the system operation.

## 2 UNPACKING

### PITTA BASE



PITTA BASE



AC ADAPTER



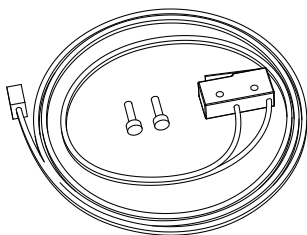
EJECTOR PIN



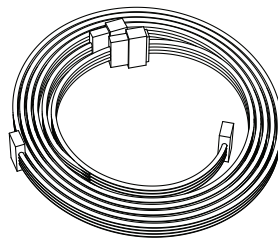
HEX WRENCH



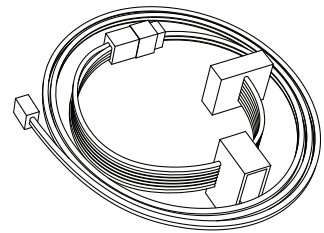
PITTA LOGO STIKER



DETECTOR CABLE

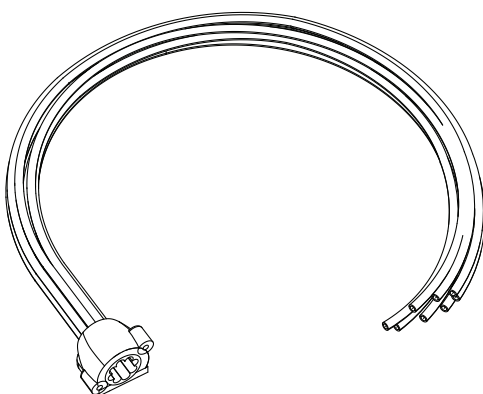


MOTOR EXTENSION CABLE

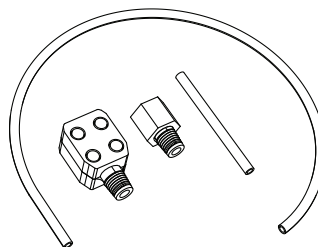


COMM EXTENSION CABLE

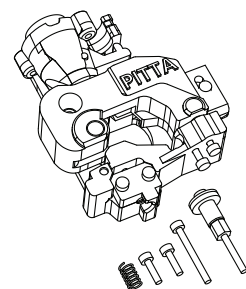
### ADAPTATION KIT (For Ender3 V2 or Pro 32bit)



BOWDEN TUBE



CYLINDER NOZZLE ASSEMBLY



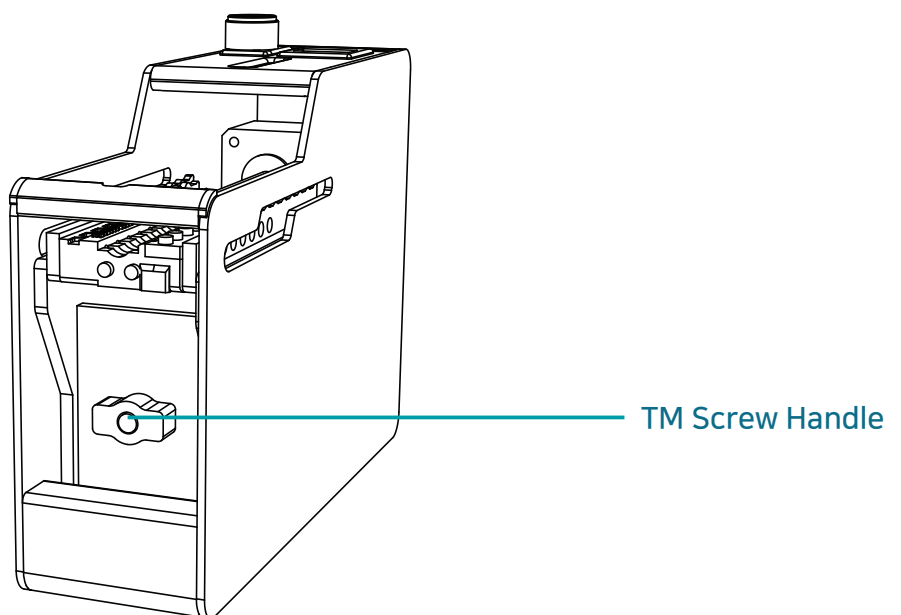
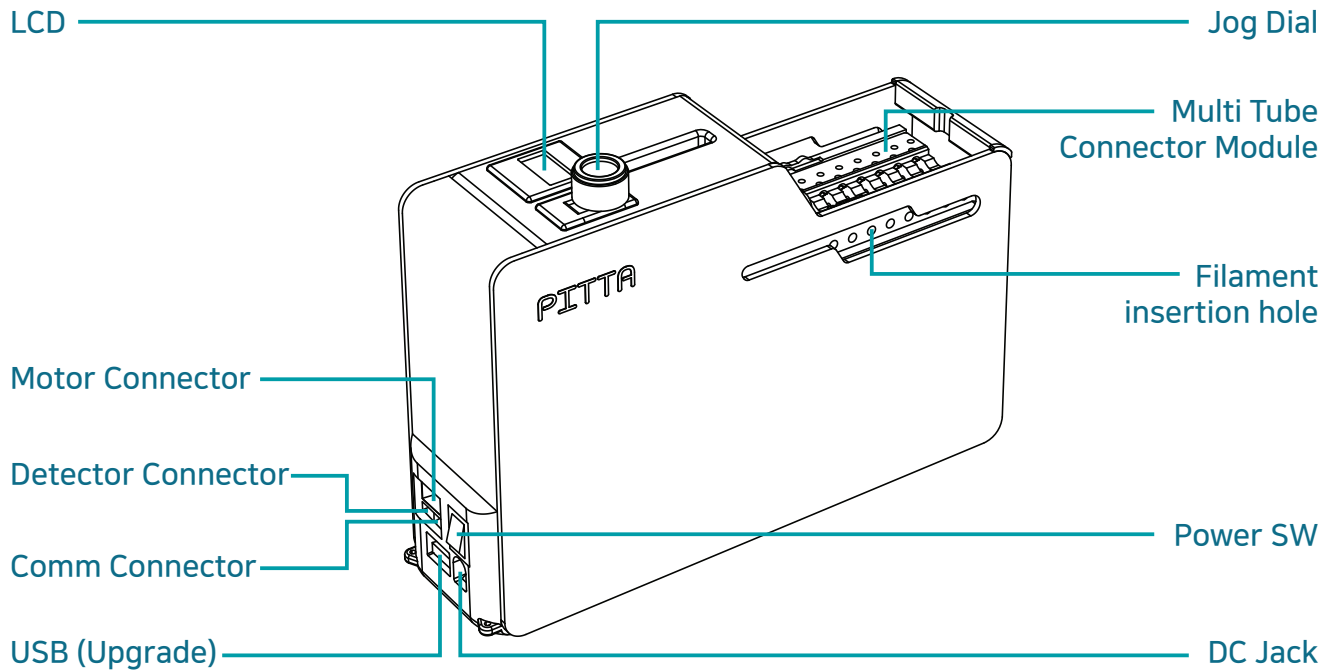
EXTRUDER COMBINER

- The illustrations may differ slightly from the items shipped with your product.
- PITTA is not responsible for any problems caused by using unauthorized accessories.
- Documentation and other materials necessary for installation and use can be obtained from the blog. (<https://pitta-color-3dprinting.blogspot.com>)

# 3

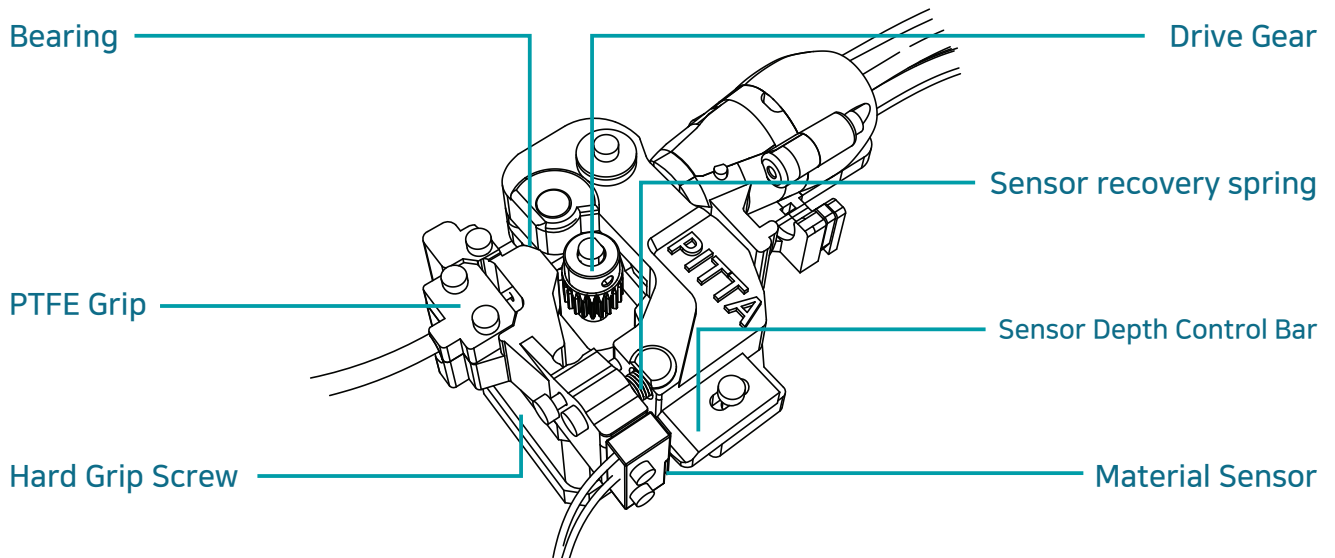
## PARTS & FUNCTIONS

### PITTA BASE

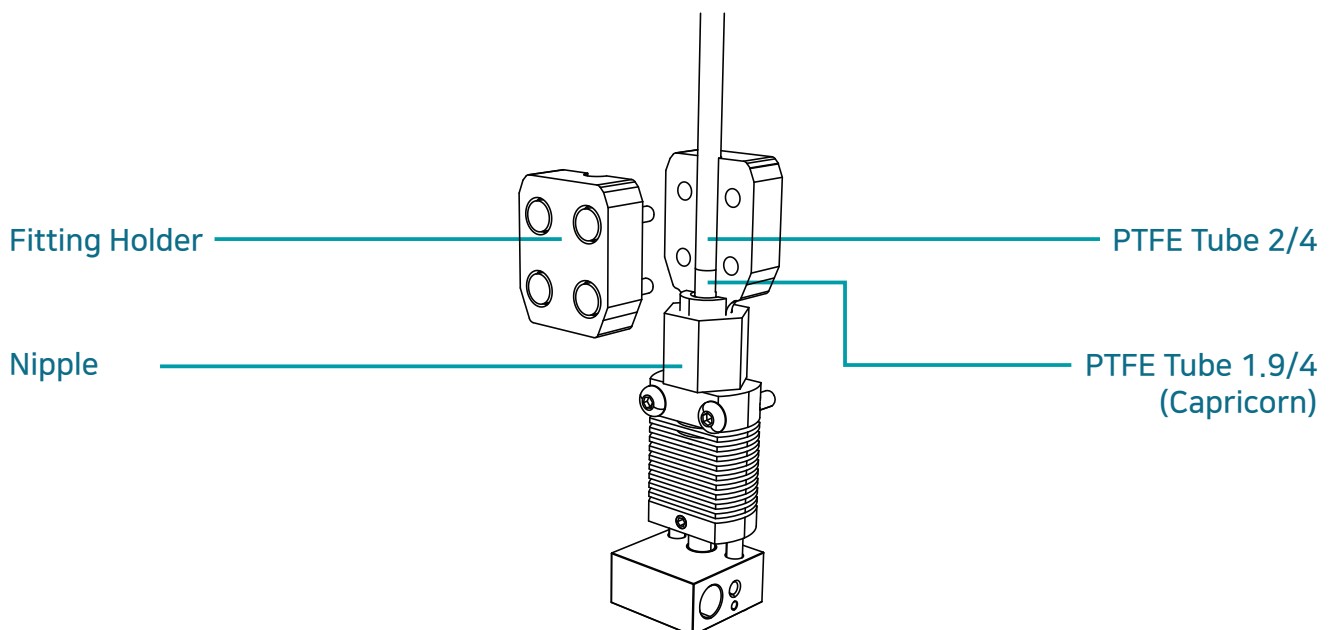


► PARTS & FUNCTIONS (continue)

## EXTRUDER COMBINER

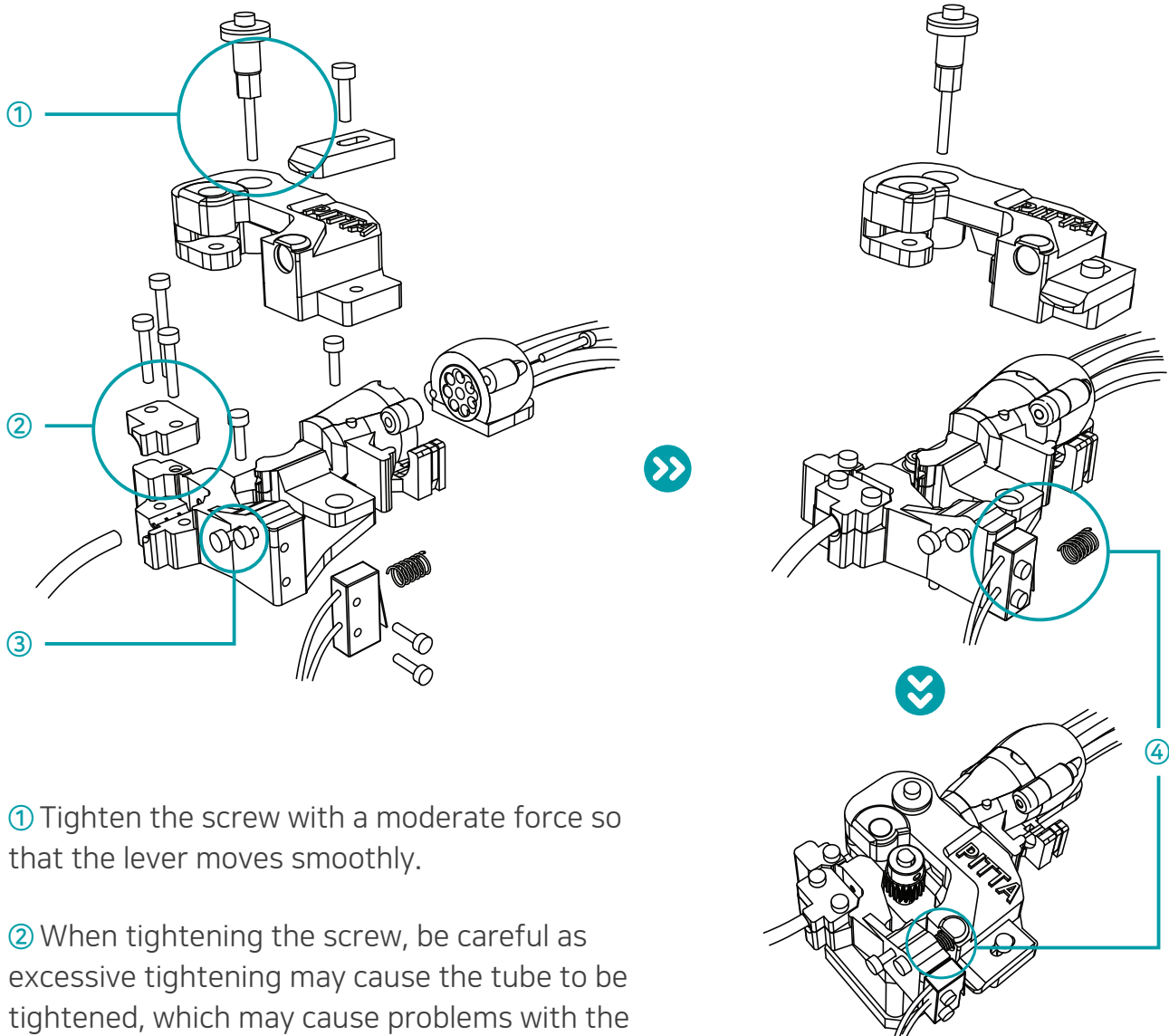


## CYLINDER NOZZLE ASSEMBLY



# 4 INSTALLATION & PREPARATION

## Install EXTRUDER COMBINER



① Tighten the screw with a moderate force so that the lever moves smoothly.

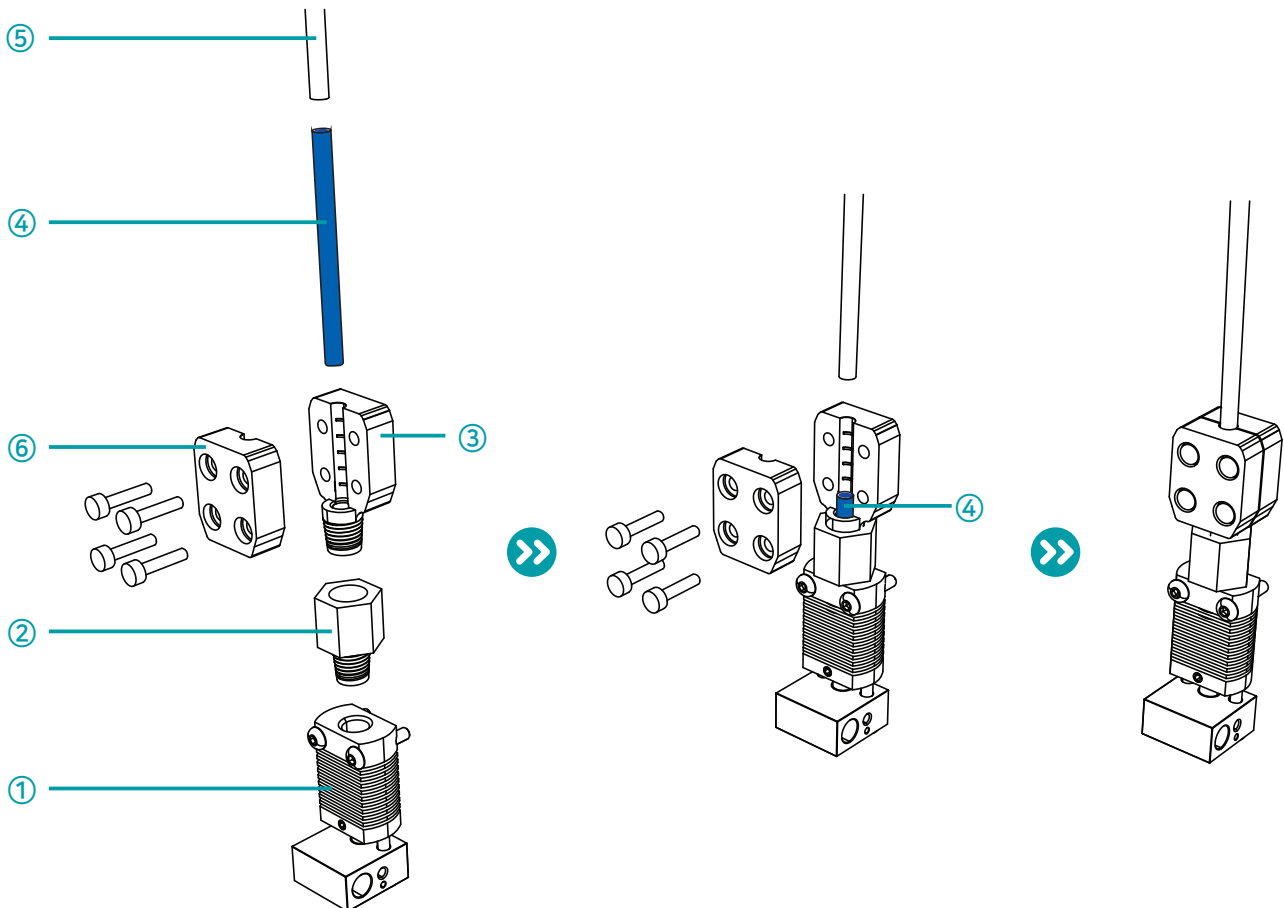
② When tightening the screw, be careful as excessive tightening may cause the tube to be tightened, which may cause problems with the movement of the material.

③ Leave them as they are when assembling with the screws used for tuning.

④ After the basic assembly is completed, the spring is well compressed and put in between.

- Parts may be damaged if overtightened, so be aware of this and assemble as shown in the picture.
- It is helpful to refer to the assembly video on the PITTA blog.

## Install CYLINDER NOZZLE ASSEMBLY



**STEP1** After raising the temperature of the heater to 200 degrees or more, clean the inside of the ① cylinder so that there are no obstructions that may interfere with assembly work.

**STEP2** Screw the ② nipple into the cylinder to fix it firmly.

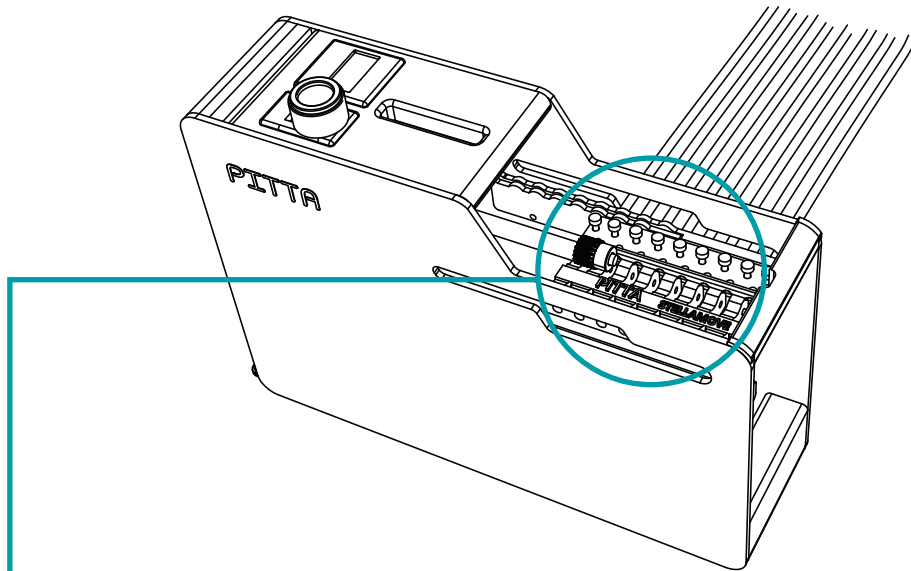
**STEP3** Turn the ③ grip to the nipple to fix it firmly.

**STEP4** Push the ④ blue tube firmly into the cylinder until the bottom of the tube is in contact with the top of the nozzle. (Heater temperature is maintained over 200 degrees)

**STEP5** After properly locking the screw and putting the ⑥ grip cover on, insert the ⑤ Bowden tube in contact with the ④ blue tube, then tighten the screw firmly so that there is no gap between the tubes.

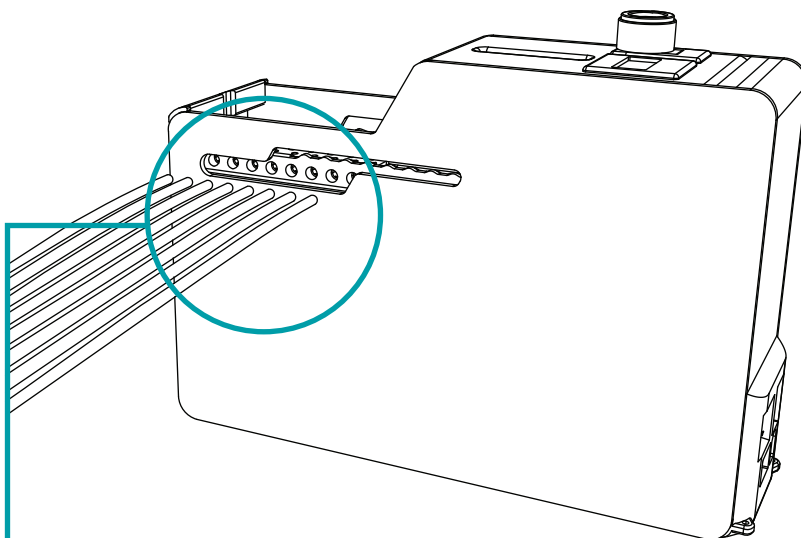


## Install PITTA BASE and BOWDEN TUBE



**STEP1**

The Multi Tube Connector Module of the PITTA base is shipped with the screws loosely locked as shown in the picture. Each screw has a different length, and if it is completely loosened, you may not be able to lock it again, so please never loosen it all the way.

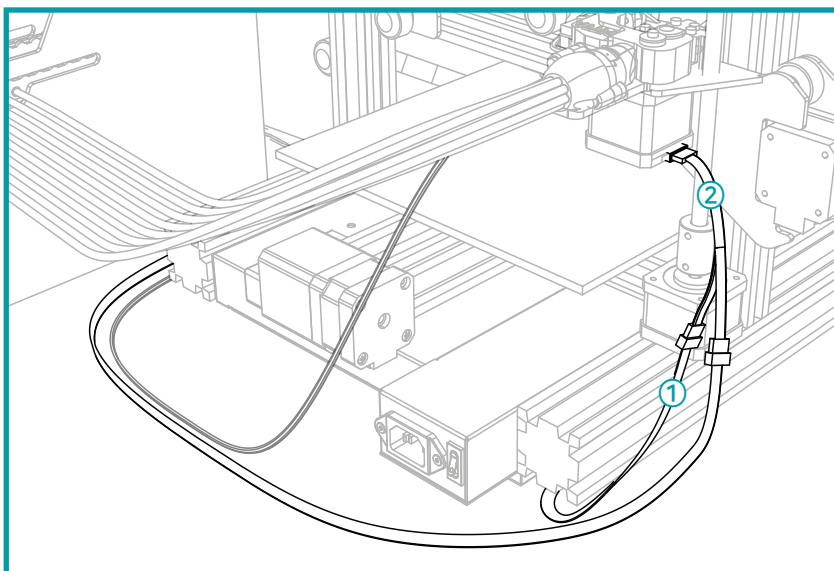


**STEP2**

Push the Bowden tube all the way through between the loose cover, and then lock the screw tightly.

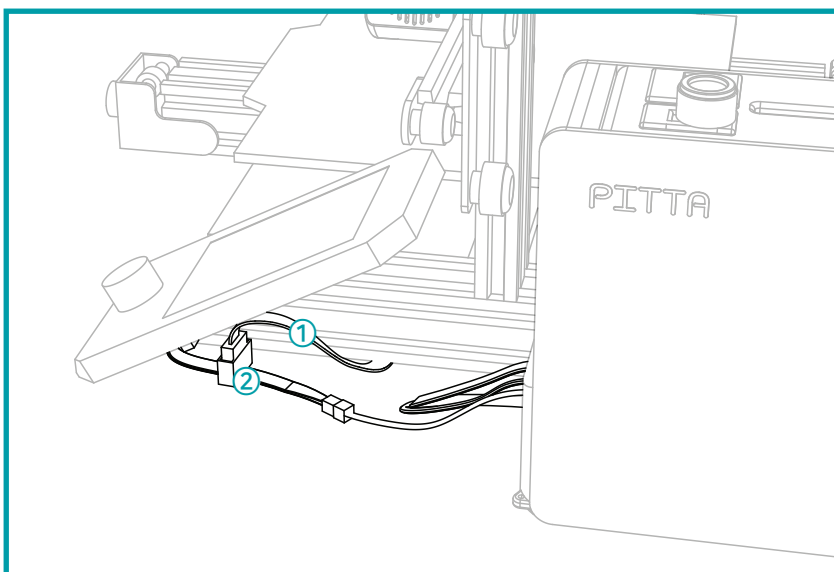
## ► INSTALLATION & PREPARATION (continue)

### Install MOTOR EXTENSION CABLE



After Unplugging the ① Motor cable of the 3D Printer, plug the ② PITTA MOTOR EXTENSION CABLE as in the figure.

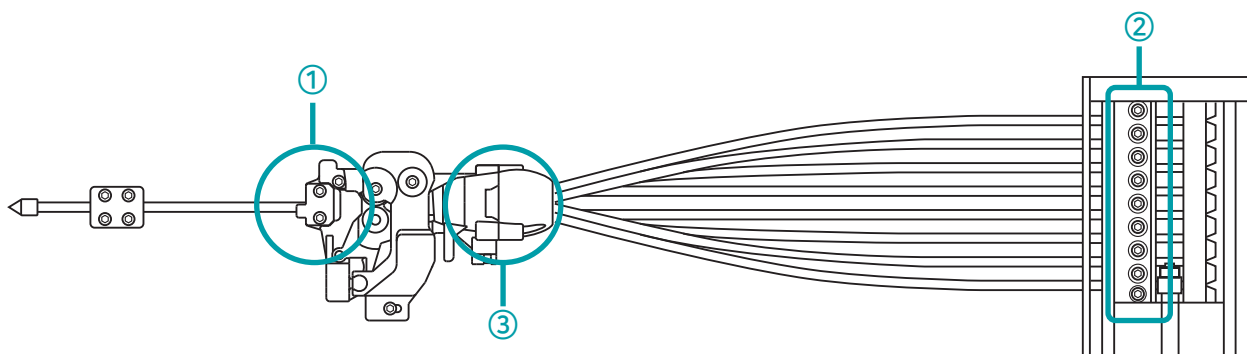
### Install COMM EXTENSION CABLE



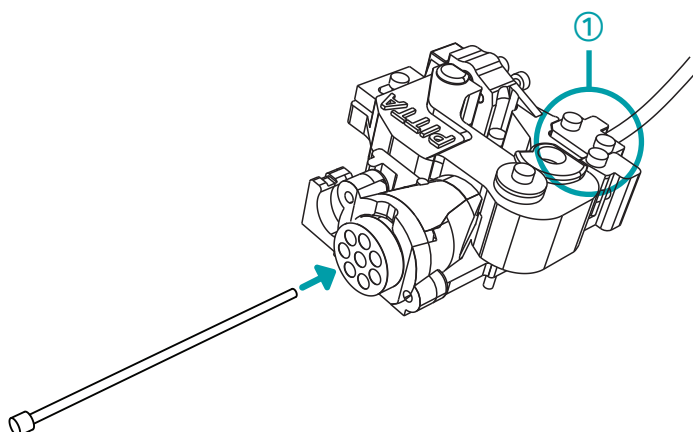
After Unplugging the ① LCD cable, plug the ② PITTA COMM EXTENSION CABLE as in the figure.

## Friction Handling

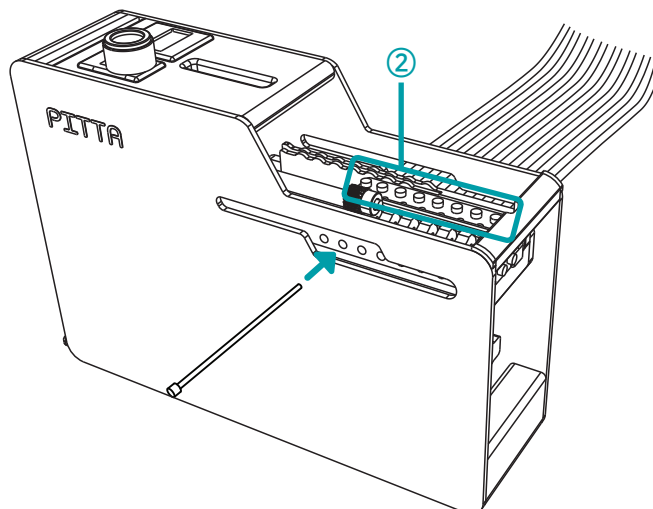
When assembling the ① and ② tubes, if they are tightened too tightly, the tubes may become narrow and excessive friction may occur. Improvements are needed for reducing friction.



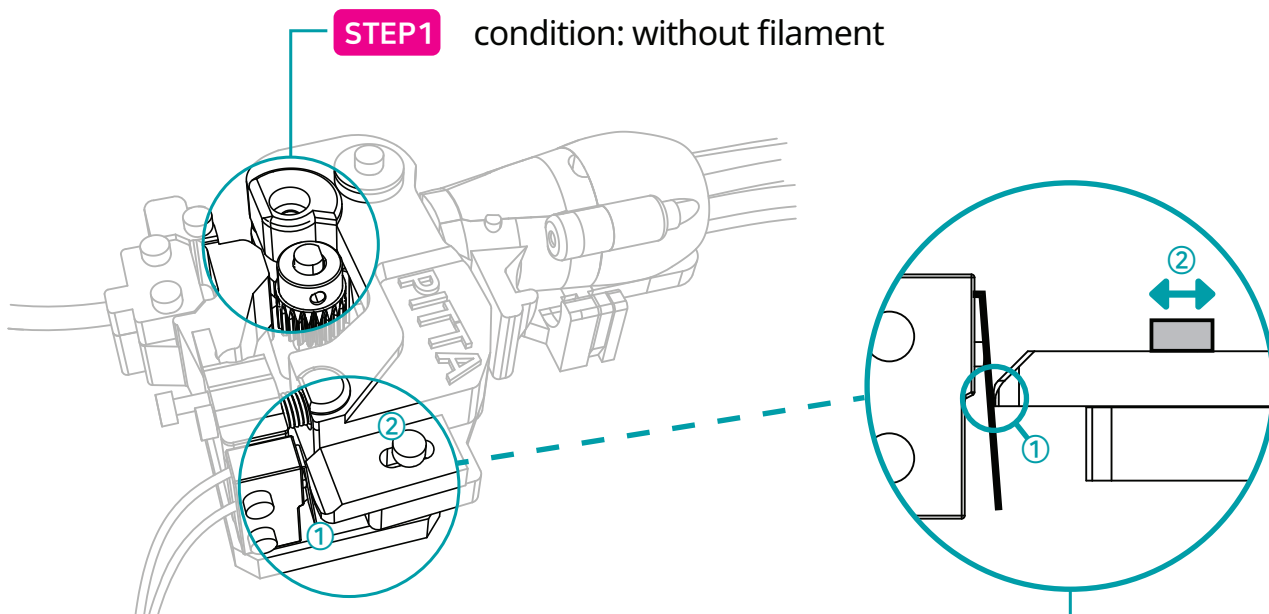
③ Loosen 2 screws and disassemble the Bowden tube. Insert the EJECTOR PIN(2mm diameter) as shown in the right figure to widen the ① tube.



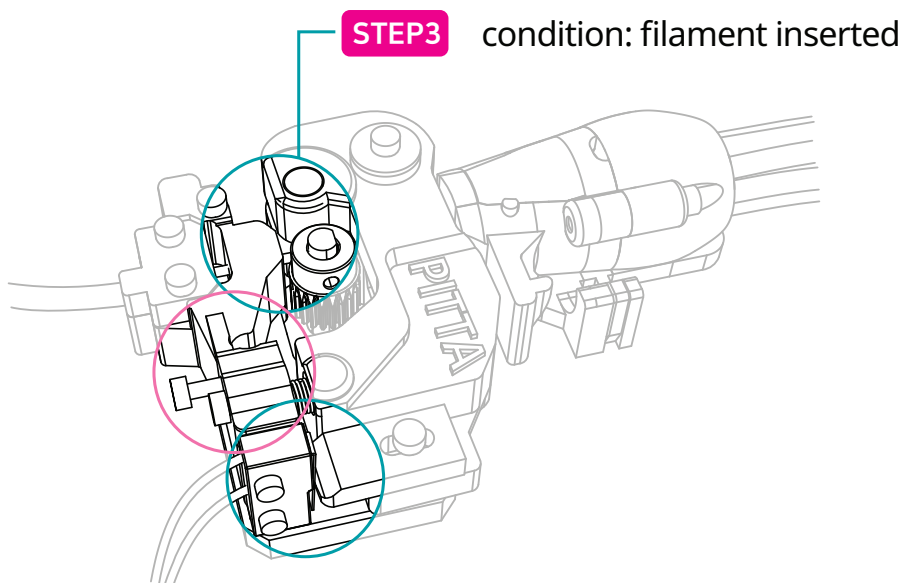
Insert the EJECTOR PIN as shown in the picture on the right to widen the ② tube(1~8).



## 5 HARD GRIP TUNING



**STEP2** Place ① the end tip of the bar close to the detector as shown in the picture ② with loosening screw, and then screw tightly.



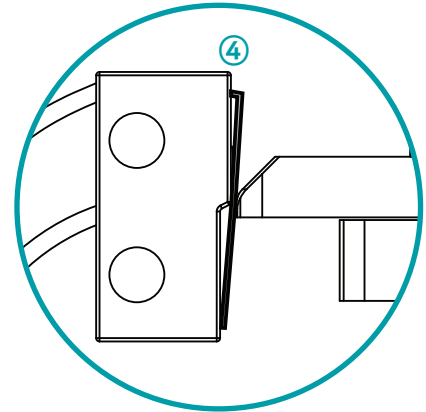
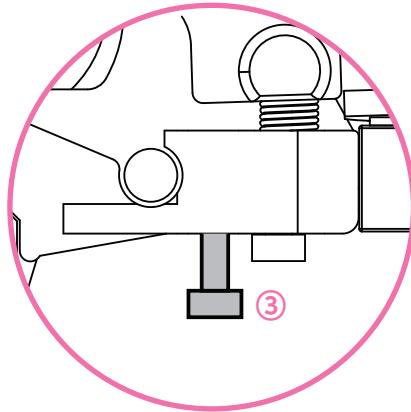
► HARD GRIP TUNINGN (continue)

Tune

Result

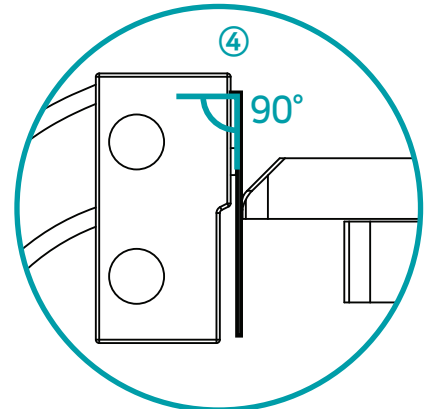
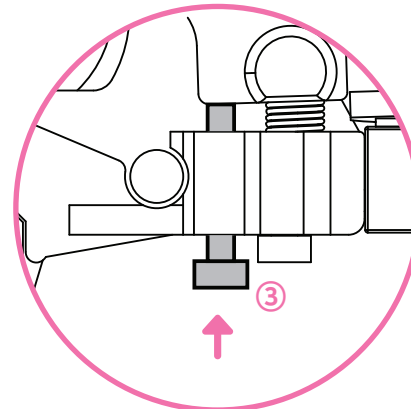
**STEP4**

Check ③ screw and ④ detector shapes are similar in the right figures when filament is inserted.



**STEP5**

③ Screw till the ④ detector becomes a similar shape as in the right figures.



**caution**

- When tuning the detector angle, be careful not to exceed 90 degrees. If it exceeds 90 degrees, the detector may malfunction and the material can not be exchanged.



# Firmware Download for 3D Printer

## Firmware Update

Ender3 V2 requires the mainboard update and LCD update.

Ender3 Pro requires the mainboard update only.

## Download Link

The firmware file differs depending on the 3D printer model and motherboard. Download the appropriate file that matches your 3D printer.

**<https://github.com/Stellamove/Marlin4Pitta/releases>**

→Check the 3D Printer model and motherboard version before.

## Firmware

- DWIN\_SET.zip (LCD for Ender3 V2)
- firmware-XXXXXXXX-ender3pro-4.2.2.bin
- firmware-XXXXXXXX-ender3pro-4.2.7.bin
- firmware-XXXXXXXX-ender3v2-4.2.2.bin
- firmware-XXXXXXXX-ender3v2-4.2.7.bin

## ► Firmware Download for 3D Printer (continue)

### Ender3 V2

#### | Main Board Firmware Update |

1. Download the mainboard firmware file from download link and copy it to the empty SD card.
  2. Insert the SD card into the 3D Printer and reboot(power off and on)
  3. Firmware update starts automatically when the power is turned on, and the update ends when booting is complete.
- If the boot screen does not appear after updating, format the SD card and update again. (FAT32, 4096 format)

#### | LCD module Firmware Update |

1. Download the LCD firmware file(DWIN\_SET.zip) from download link, unzip it, and copy it to the empty SD card.
2. Turn off the 3D Printer, disconnect the LCD cable, and disassemble the LCD with a hexagon wrench.
3. After inserting the SD card into the slot on the back of the LCD, reconnect the LCD cable and turn on the 3D Printer.



4. When the LCD screen turns from blue to orange, turn off the 3D Printer again.
5. Remove the inserted SD card and reassemble the LCD.

## ► Firmware Download for 3D Printer (continue)

6. When the 3D Printer is turned on and the screen is displayed as the following picture, the update is complete.



- If the boot screen does not appear after updating, format the SD card and update again. (FAT32, 4096 format)

## Ender3 Pro

### 1. Main Board Firmware Update |

2. Download the mainboard firmware file from download link and copy it to the empty SD card.
- 3.

Insert the SD card into the 3D Printer and reboot(power off and on)

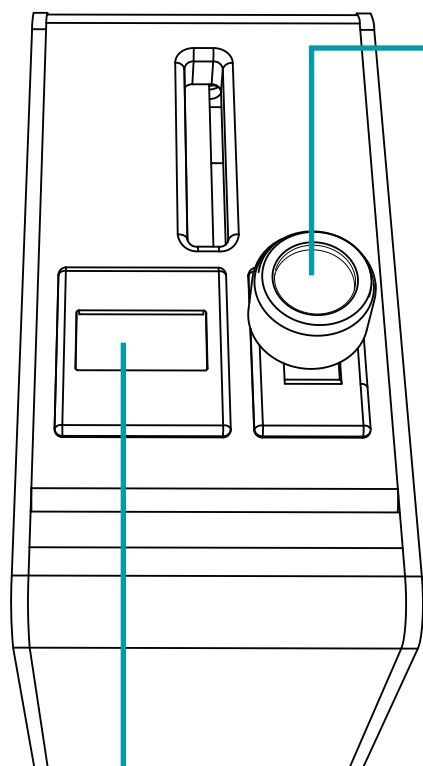
Firmware update starts automatically when the power is turned on, and the update ends when booting is complete.

- If the boot screen does not appear after updating, format the SD card and update again. (FAT32, 4096 format)



# 7 PITTA MENU

## MENU & FUNCTIONS



### Jog Dial

#### - Turn Left and Right

1. Menu move
2. Number Increase or Decrease

#### - Push

1. Menu Selection
2. Number Selection

### Status Window

```
Slot      1
Turn      1
Pitta Ready
```

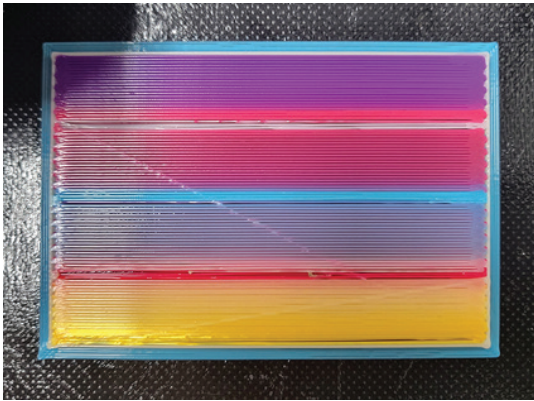
- Slot : Current Slot Position
- Turn : Number of Exchanges

```
Status ^
TB_LEN: 440
RESRV1: 0
RESRV2: 0
RESRV3: 0
RESRV4: 0
PTRN_N: 0
BR_POS: 0
```

- TB\_LEN : Tube Length
- RESRV1~4 : Not Use
- PTRN\_N : 0 (should be 0)
- BR\_POS : PITTA Wave Bearing Position

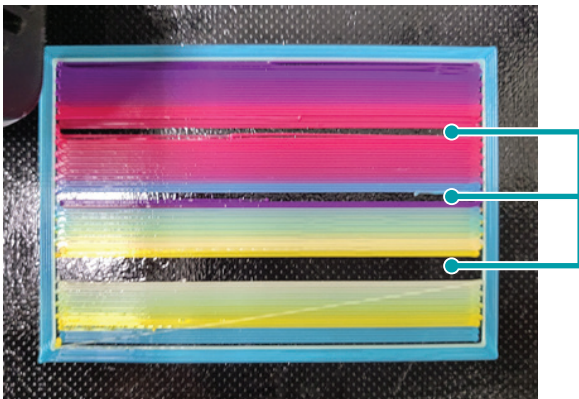
## ► PITTA MENU (continue)

### TB\_LEN : Length of detector to nozzle tube

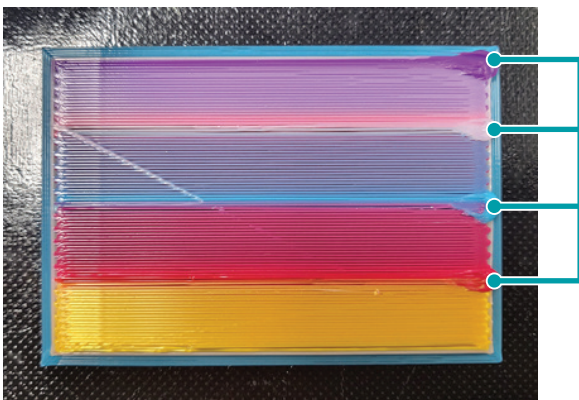


```
Status ^
TB_LEN: 440
RESRV1: 0
RESRV2: 0
```

440 TB\_LEN is the Factory default value. Adjust the tube length to set it appropriately as shown in the image. The unit of tube length 1 is approximately 1 mm of 1.75 filaments.



If you see empty space as in the picture, it means that the TB\_LEN value is small. Increase this value. ex) 440 → 445

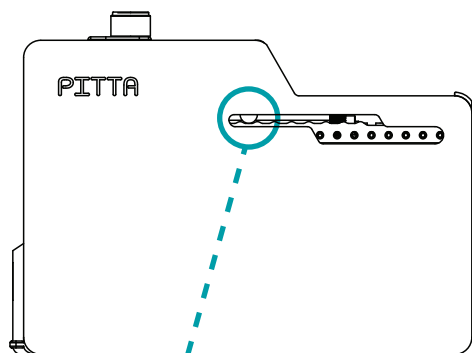


If the tube length is set to be over, the filaments will be stacked in dots. Please lower the number for tube length. ex) 440 → 435

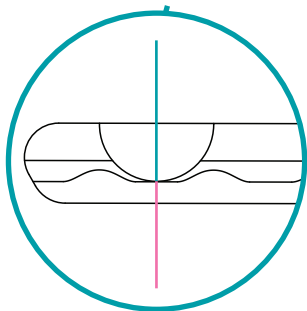
- When you tune the TB\_LEN at first, it is better to set its value 20 lower (420), then increase its value by +5 every time because stacked dots might induce nozzle hitting and layer shifting.

Also, there are many factors that might affect TB\_LEN, it is better to maintain its value lower than its fittest value for having margin.

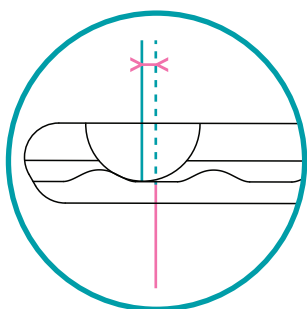
## BR\_POS : Offset value of the Bearing Position



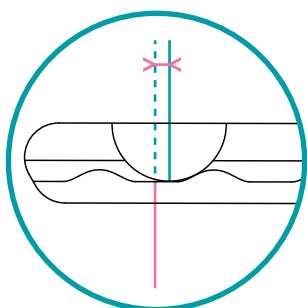
|         |     |
|---------|-----|
| Status  | ^   |
| TB_LEN: | 440 |
| RESRV1: | 0   |
| RESRV2: | 0   |
| RESRV3: | 0   |
| RESRV4: | 0   |
| PTRN_N: | 0   |
| BR_POS: | 0   |



The offset value of the BR\_POS should be corrected so that the center of the bearing in the figure aligns with the center of the wave-shaped guide. When the center of the bearing and the center of the wave-shaped guide are aligned, the material can be fed with the maximum pressure of the drive gear.



When the drive gear moves for material selection if it does not match the center as shown in the left figure, increase the value of BR\_POS appropriately. (ex: 10 means shift right the bearing approximately 1mm **BR\_POS: 10** )



When the drive gear moves for material selection if it does not match the center as shown in the left figure, lower the value of BR\_POS appropriately. (ex: 10 means shift left the bearing approximately 1mm **BR\_POS: -10** )

- After changing the value, when the drive gear returns to slot 1, the changed value is applied and must be saved. (The unsaved value will return to the previous setting value when the power is turned off)

# 8 TROUBLESHOOTING

## *When printing is abnormal paused*

### Check1

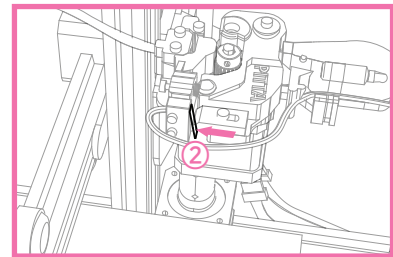
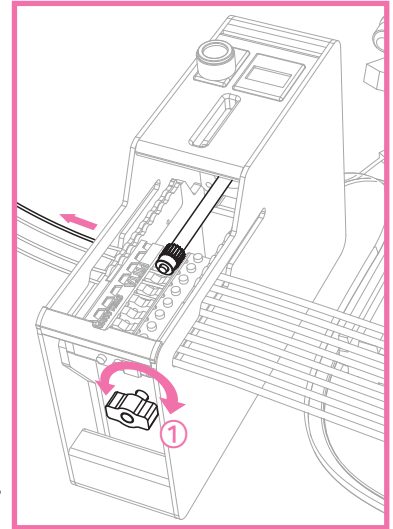
In case the extruder temperature is 140°C and Bed temperature 40°C.

### Reason

The filament may have thickened or a string may be caught in the extruder.

### ► Solution

1. Turn the ① TM Screw Handle slightly and take out the filament.
2. Cut the abnormal parts of the filament.
3. Insert the filament and turn the ① TM Screw Handle back into place.
4. Push the ② Material Sensor for a while(~1sec), printing starts when after the Nozzle temperature reaches around 185°C.



### Check2

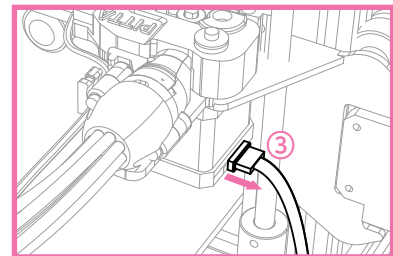
In case the extruder temperature is printing temperature.  
And the filament is in the main bowden tube?

### Reason

It is the case that the material could not be removed due to friction or strings or other matter during the material exchange.

### ► Solution

1. Turn the ① TM Screw Handle slightly and disconnect the ③ Motor Connector then the extruder gear becomes loose. Then remove the filament.
2. Plug the ③ Motor Connector back and rotate the ① TM Screw Handle back into place.
3. Push the ② Material Sensor for a while(~1sec), printing starts when after the Nozzle temperature reaches around 185°C.

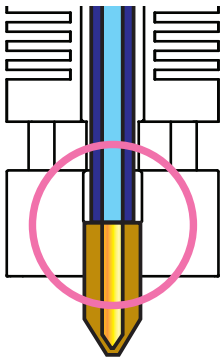


## ► TROUBLESHOOTING (continue)

*Tube connection troubleshooting when string happens or material exchange jam happens.*

### *Normal connection*

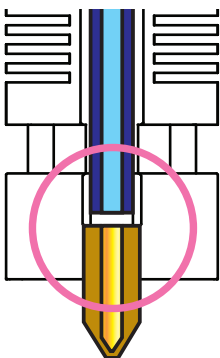
smooth flow of material



### *Gap between nozzle and tube*

Material flow is impeded by the gap.

Causes of nozzle clogging

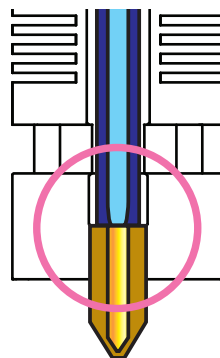


### ► *Solution*

Reassemble so that nozzle and tube are in contact

### *No gap occurs due to excessive pressing, but the tube is deformed.*

The end of the tube is narrowed, which impedes the flow of the material, and the shape of the material end becomes unstable during material exchange, increasing the possibility of material exchange failure.



### ► *Solution*

Reassemble the narrowed tube by widening it using EJECTPR PIN or replacing it with a new tube

## 9

## SPLITTER BOBBIN USAGE

The use of a splitter bobbin is strongly recommended to prevent twists of the material and ensure stable printing.

As shown in the picture, place the bobbin at least 50cm below the PITTA, wind the material 2 turn around the bobbin and insert it into the PITTA as below.

