Multi-Color
3D Printing Module

PITTA User Manual

Contents

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

① 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.

- Always tidy up and clean after finishing work. (For the next time using PITTA, foreign substances such as strings may cause clogging of the nozzle or machine failure)

- The ideal ambient operating temperature is from 15 - 30 °C (60 - 86 °F).

Quick Check Points Before start printing

- Check that the PITTA and C 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.
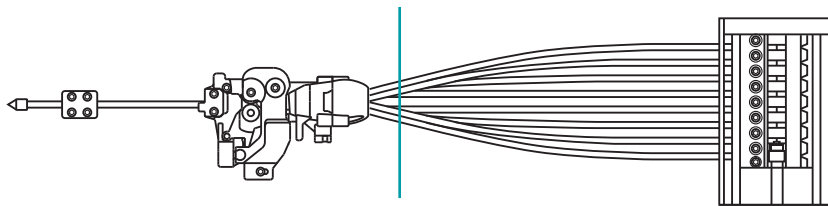
- Check that the drive gear of the PITTA and the Splitter Bobbin Usage is not loose.

- Check that PITTA's drive gear is adjusted to be in slot 1.

- Before starting printing, use the PreHeat function to check whether the exposure 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.

- Recommendation : Material PLA, Nozzle Temp 205~215, Bed Temp 50 ~ 60°C

② UNPACKING

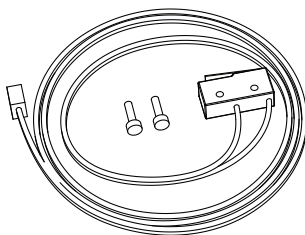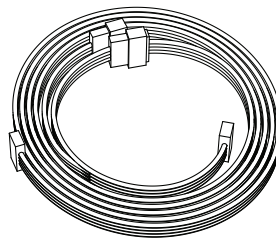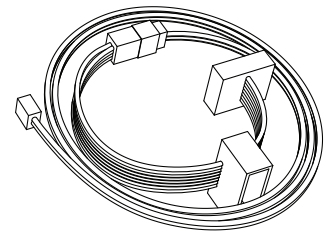## PITTA BASE
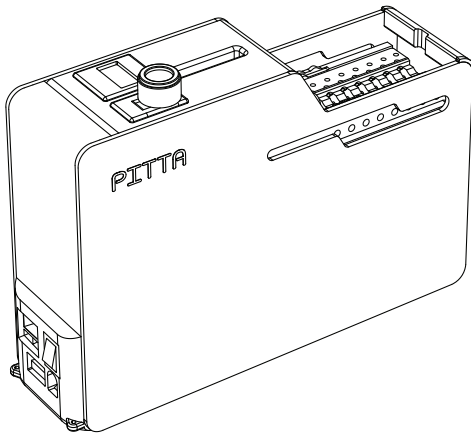
PITTA BASE
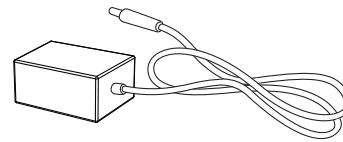
AC ADAPTER

EJECTOR PIN

HEX WRENCH

PITTA LOGO STIKER

DETECTOR CABLE

MOTOR EXTENSION CABLE

COMM EXTENSION CABLE

ADAPTATION KIT (For Ender3 V2 or Pro 32bit)
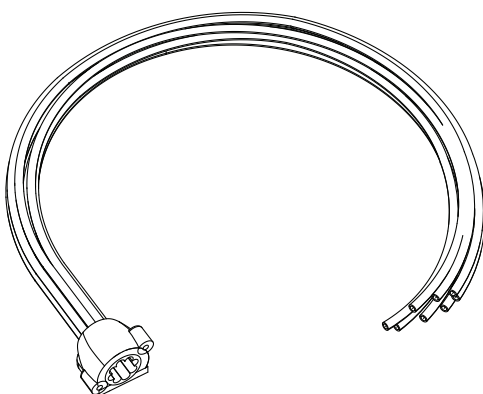
BOWDEN TUBE
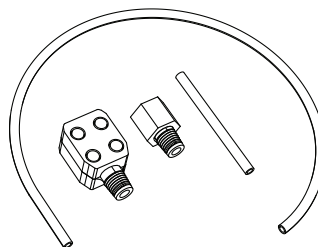
CYLINDER NOZZLE ASSEMBLE
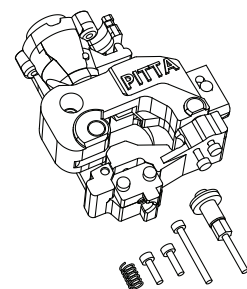
EXTRUDER COMBINER

- 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

LCD

Jog Dial

Multi Tube
Connector Module

Filament
insertion hole

Motor Connector

Detector Connector

Comm Connector

Power SW

USB (Upgrade)

DC Jack

PITTA

TM Screw Handle

EXTRUDER COMBINER

Bearing

PTFE Grip

Hard Grip Screw

Drive Gear

Sensor recovery spring

Sensor Depth Control Bar

Material Sensor

CYLINDER NOZZLE ASSEMBLE

Fitting Holder

Nipple

PTFE Tube 2/4

PTFE Tube 1.9/4
(Capricorn)
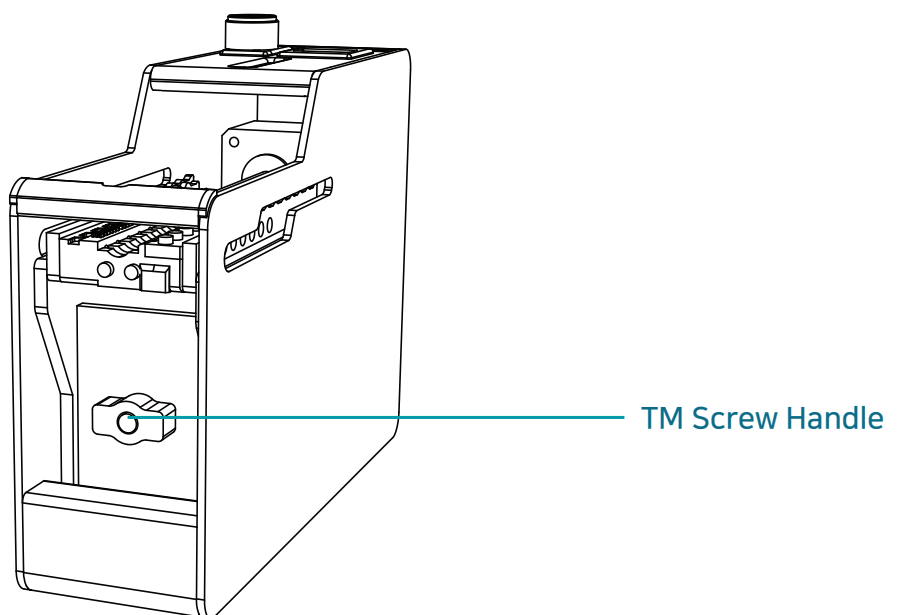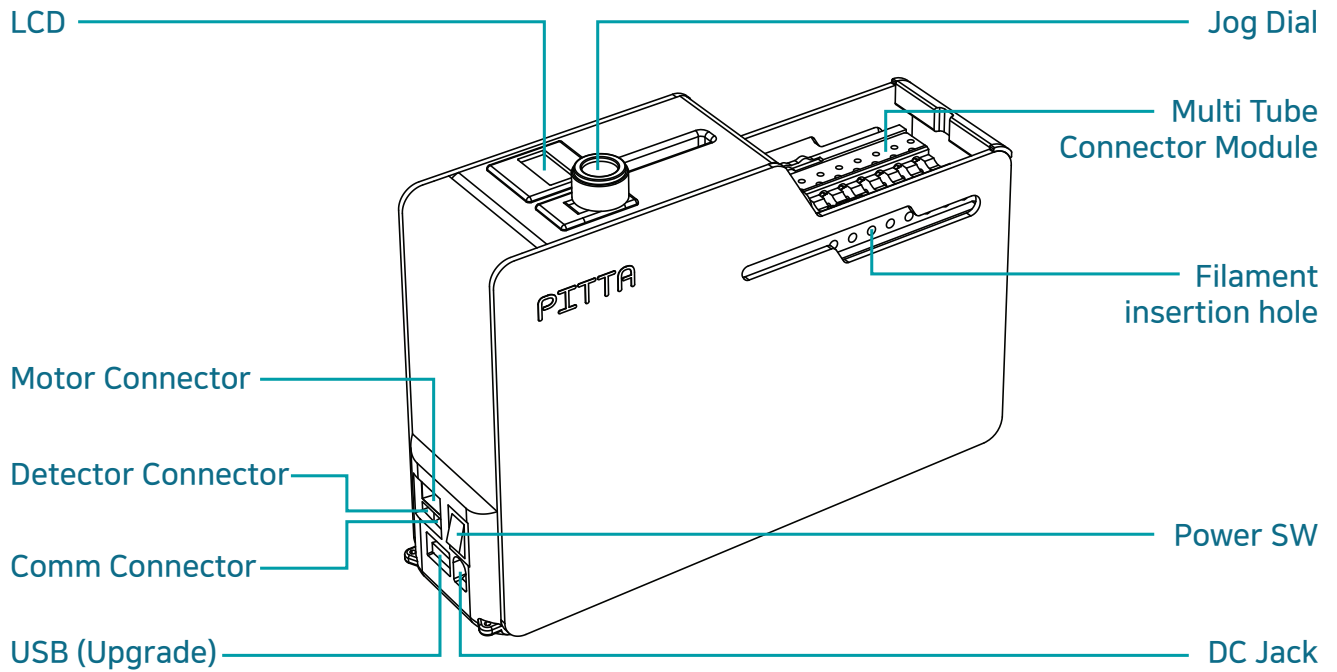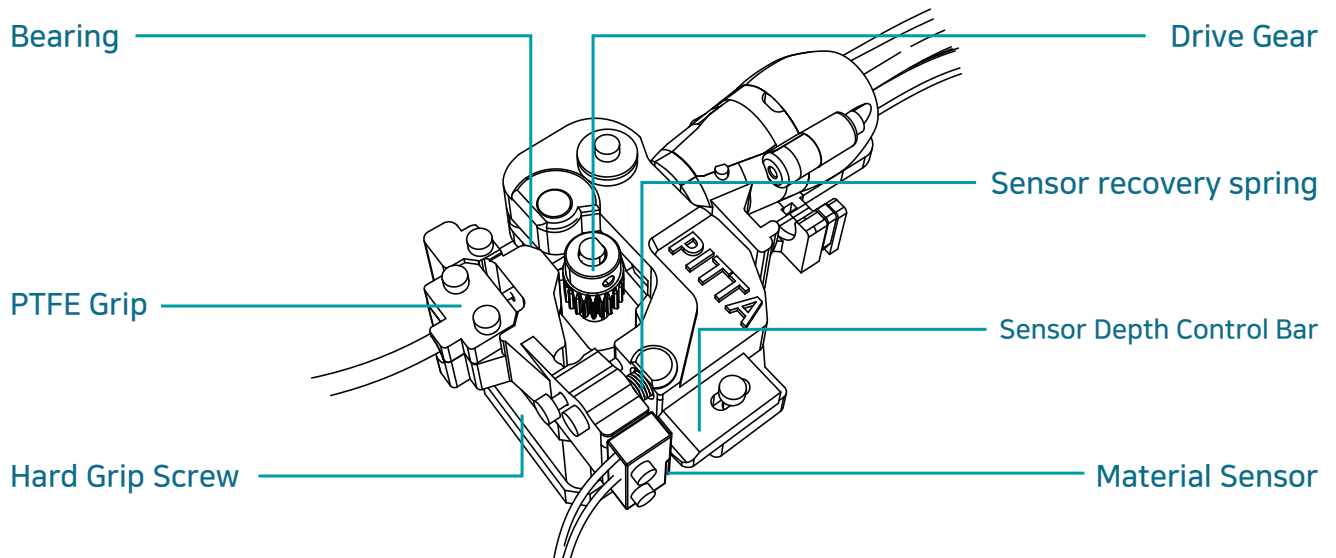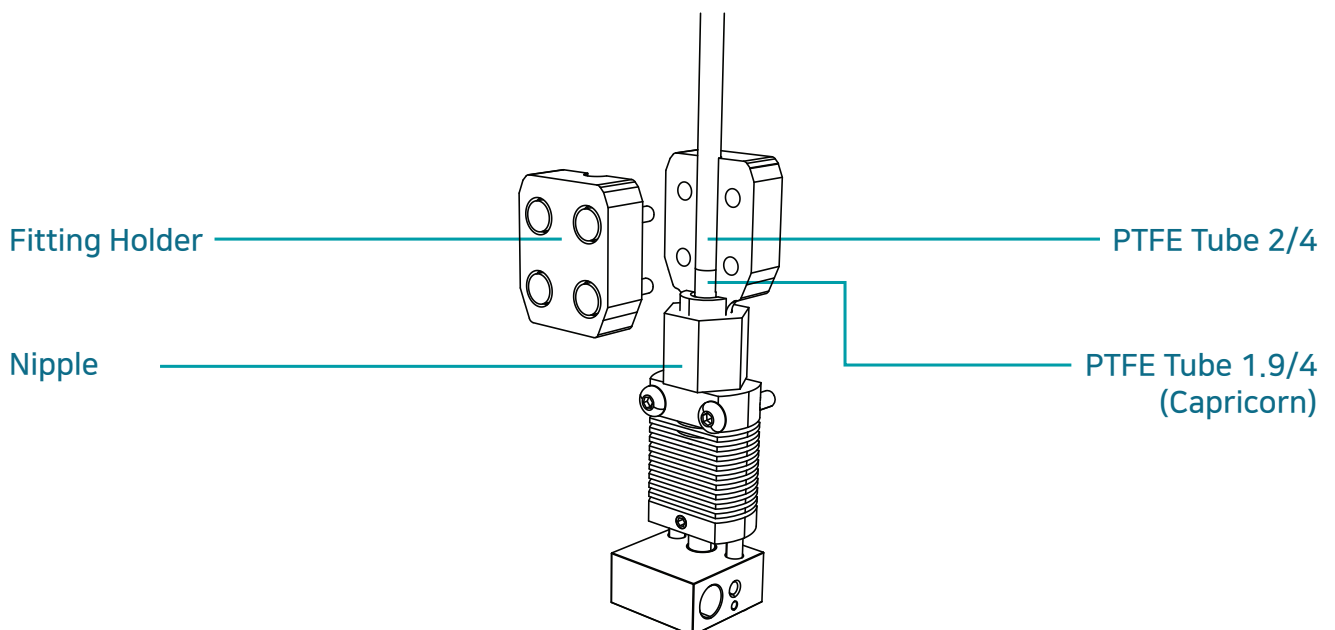
4 INSTALLATION & PREPARATION

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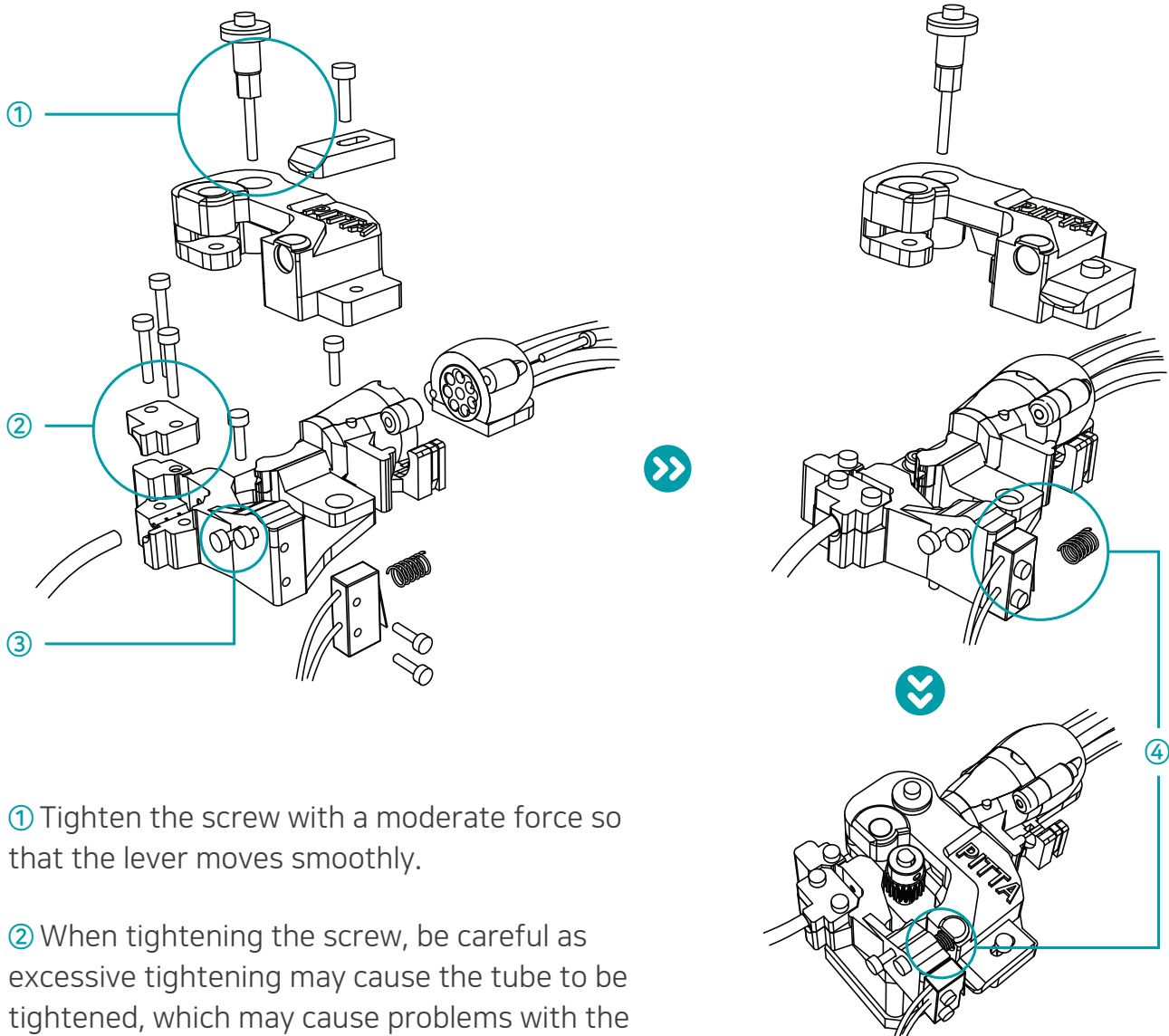
① Tighten the screw with a moderate force so that the lever moves smoothly.

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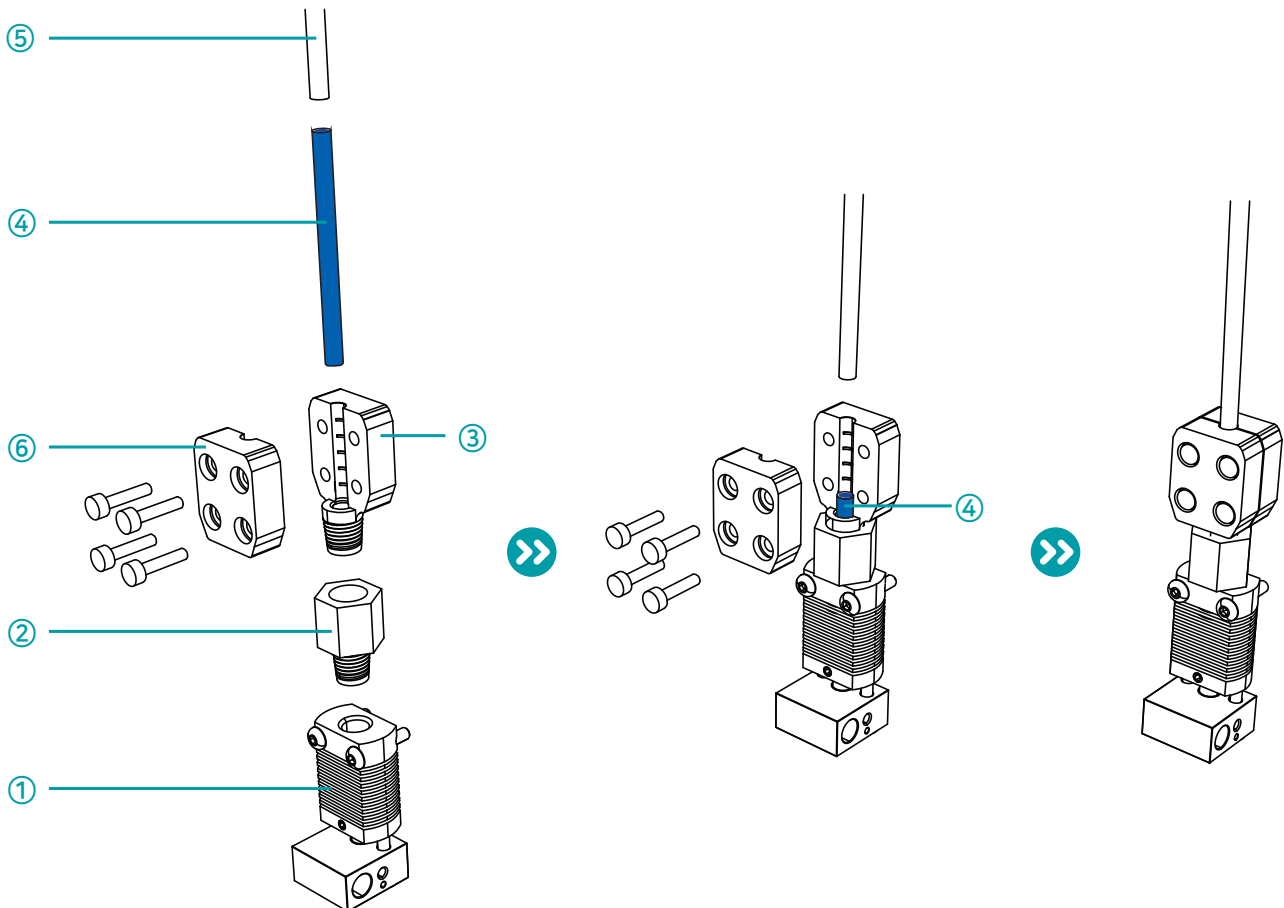
STEP1 After raising the temperature of the heater to 200 degrees or more, clean the inside of the ① cylinder so that there are no obstructions that may interfere with assembly work.

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
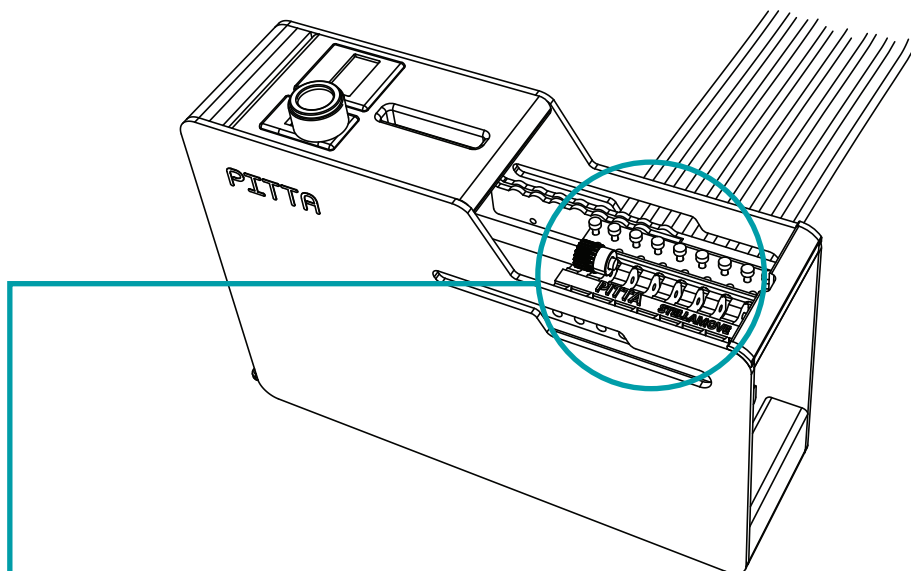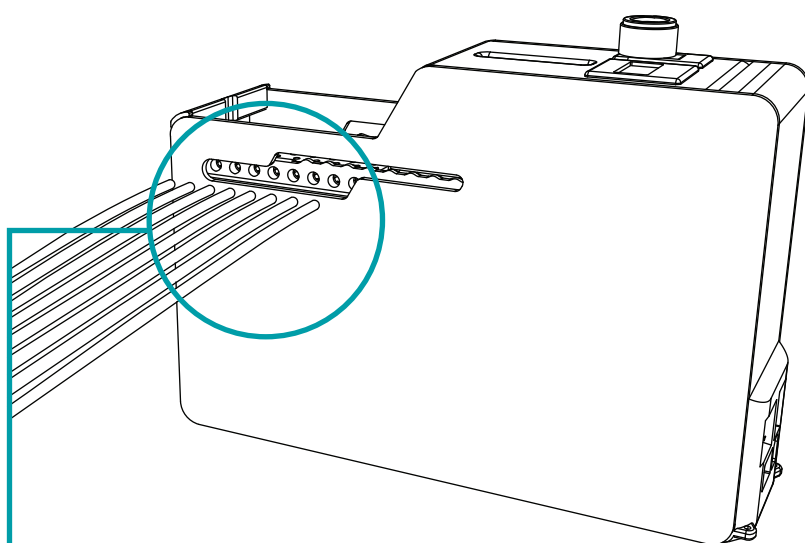

STEP1 The Multi Tube Connector Module of the pita base is shipped with the screws loosely locked as shown in the picture.
Each screw has a different length, and if it is completely loosened, you may not be able to lock it again, so please never loosen it all the way.
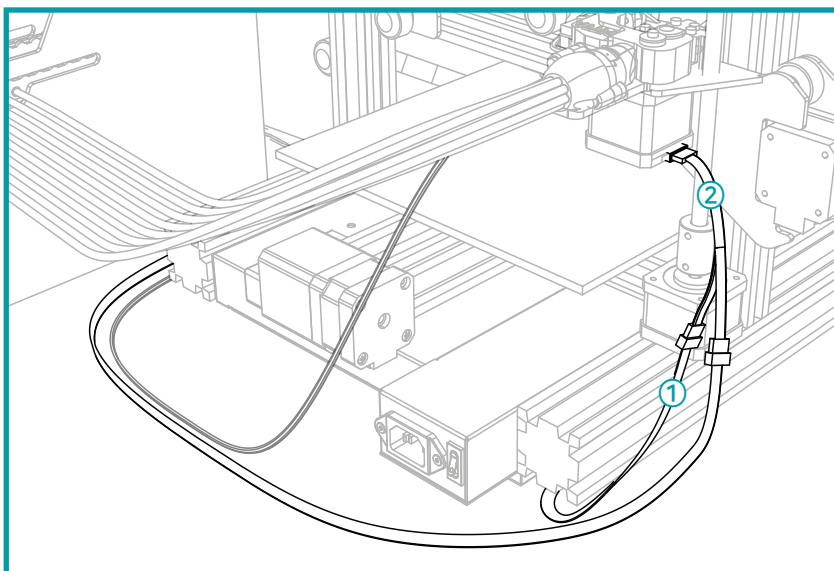

STEP2 Push the Bowden tube all the way through between the loose cover, and then lock the screw tightly.

Install MOTOR EXTENSION CABLE
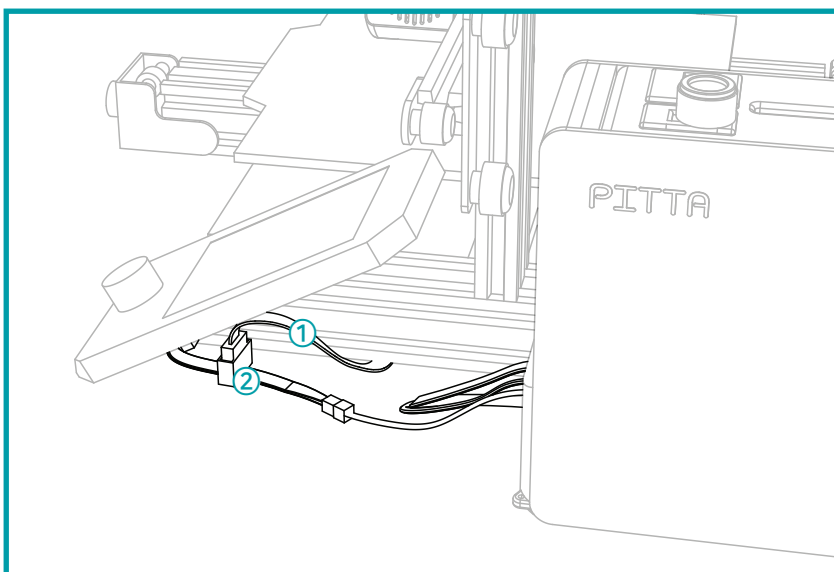

After Unpluging the ① Motor cable of the 3D Printer, **plug the** ② PITTA MOTOR EXTENSION CABLE as in the figure.

Install COMM EXTENSION CABLE

After Unpluging 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.
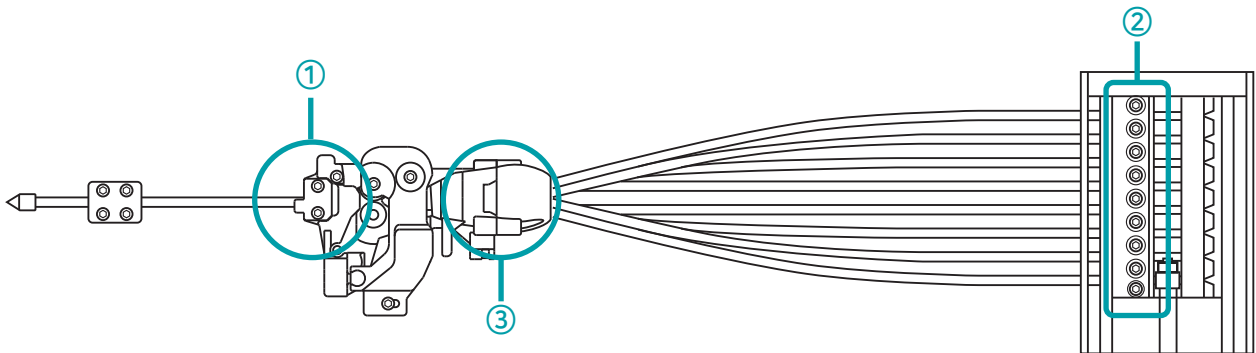
③ Loosen 2 screws and dismantle the Bowden tube. Insert the EJECTOR PIN(2mm diameter) as shown in the right figure to widen the ① tube.
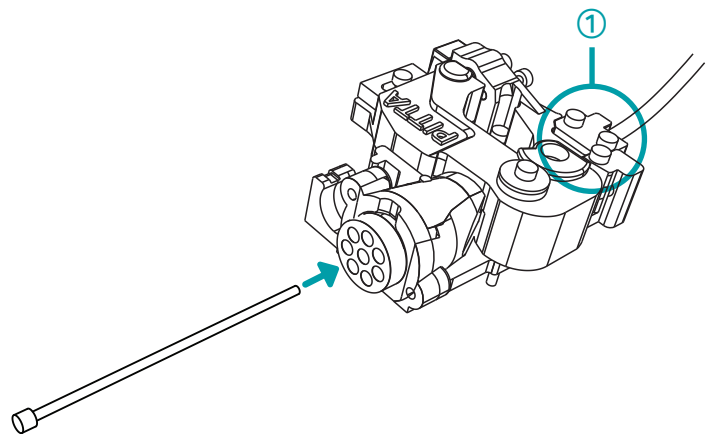
Insert the EJECTOR PIN as shown in the picture on the right to widen the ② tube(1~8).

5 HARD GRIP TUNING

STEP1 condition: without filament
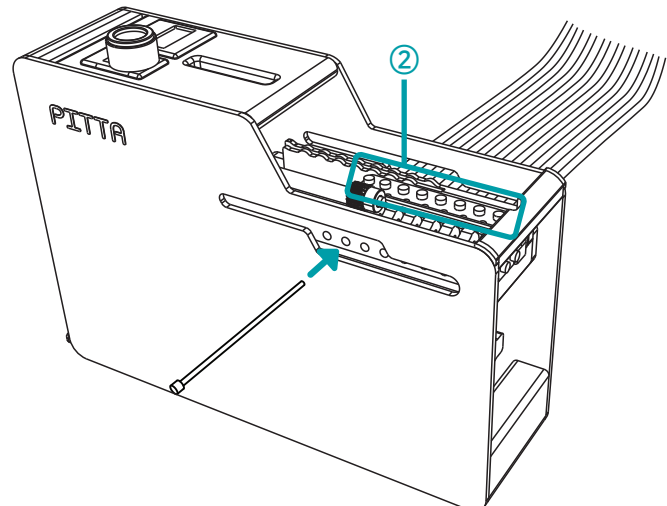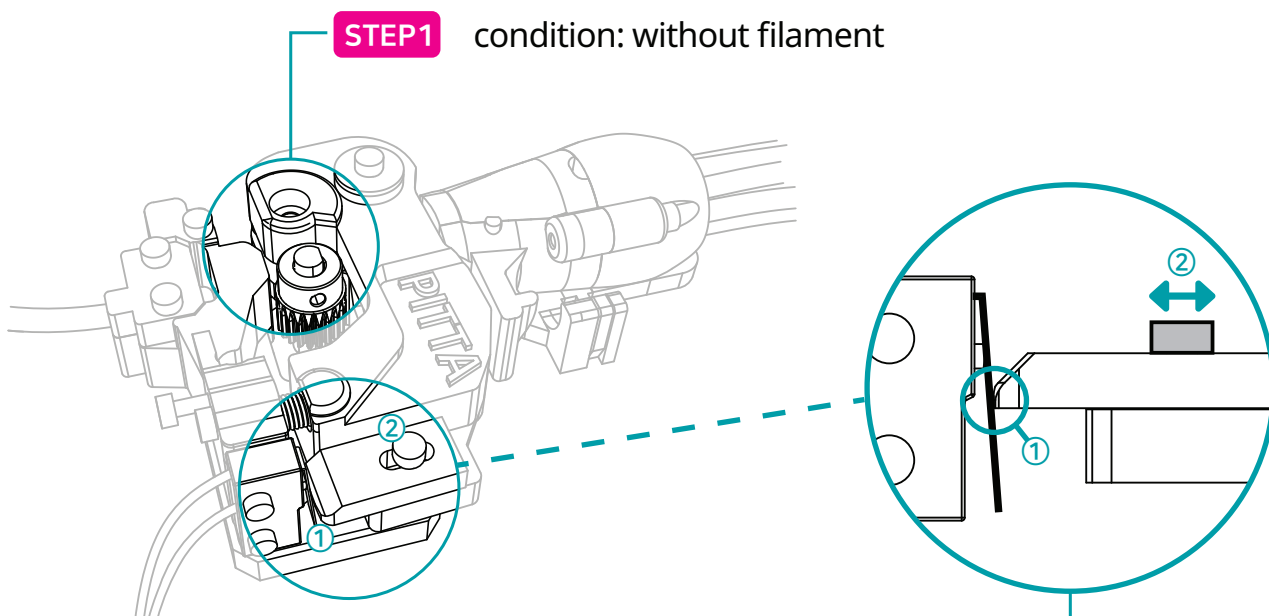
STEP2 Place ① the end tip of the bar close to the detector as shown in the picture ② with loosing screw, and then screw tightly.

STEP1 condition: filament inserted
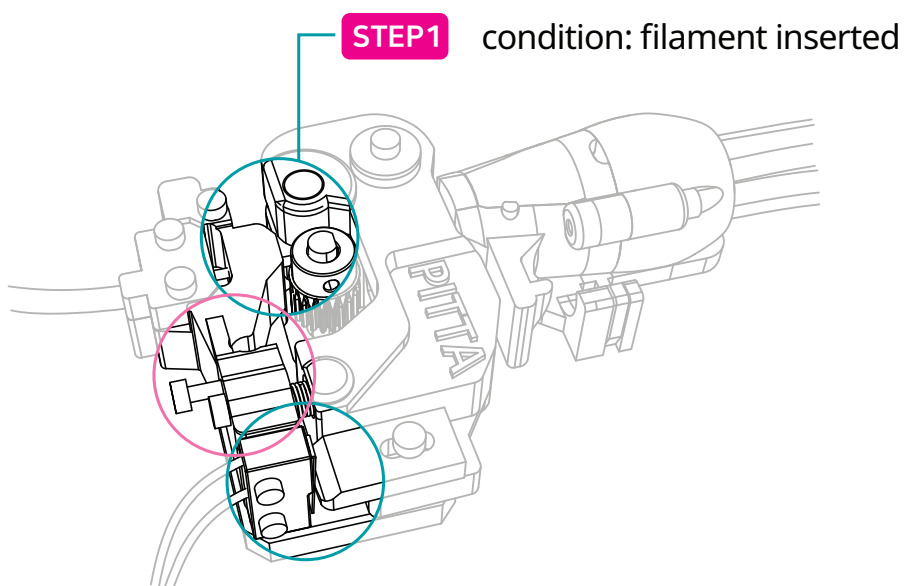
Tune   Result

STEP4

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

③

④
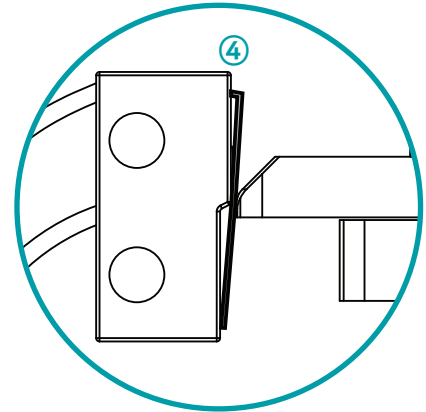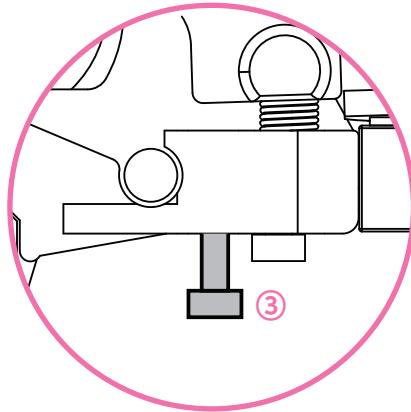
STEP5

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

③

④ 90°
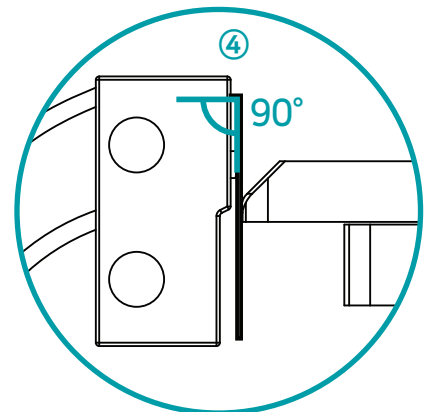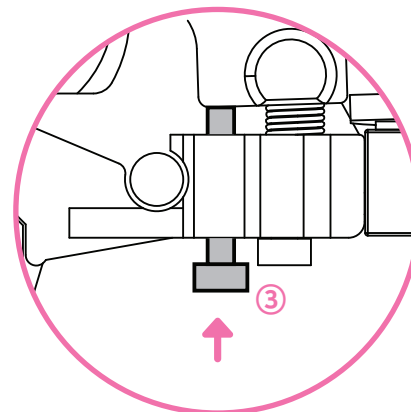
caution

• *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.

6 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

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 3D card and reassemble the LCD.

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

Ender3 Pro

| 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)

7 PITTA MENU

MENU & FUNCTIONS
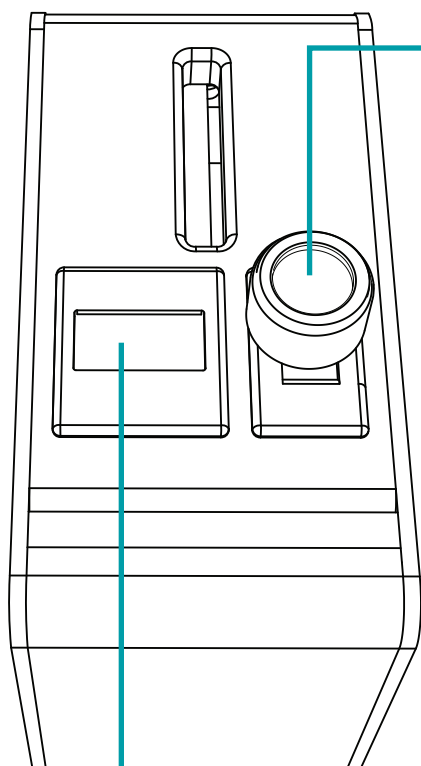
Jog Dial

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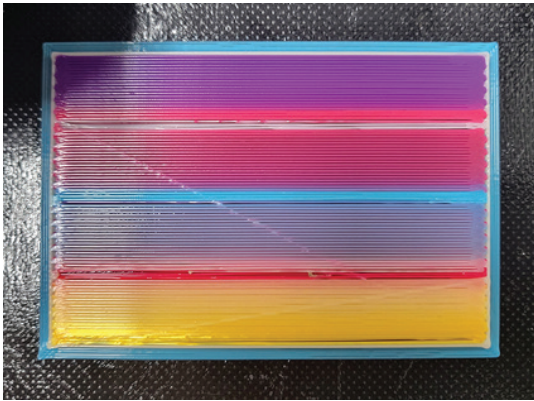
- Slot : Current Slot Position
- Turn : Number of Exchanges

```
Status        ^
TB_LEN:  440
RESRV1:   60
RESRV2:    0
RESRV3:   55
RESRV4:    0
PTRN_N:    0
BR_POS:    0
```

- TB_LEN : Tube Length
- RESRV01~4 : Not Use
- PTRN_N : 0 (should be 0)
- BR_POS : PITTA Wave Bearing Position
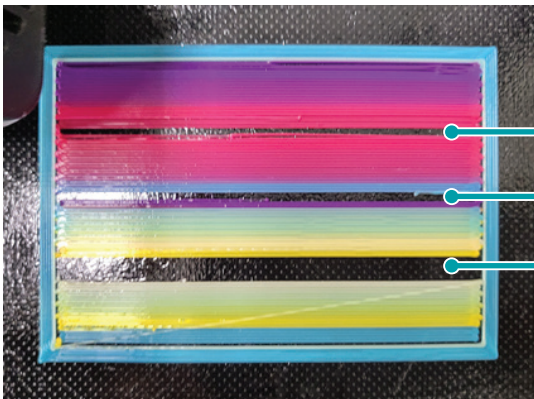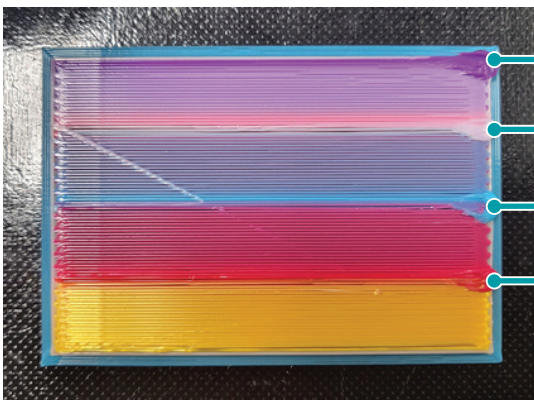
TB_LEN : Length of detector to nozzle tube

Status ^
TB_LEN: 440
RESRV1:   60
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 timebecause 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
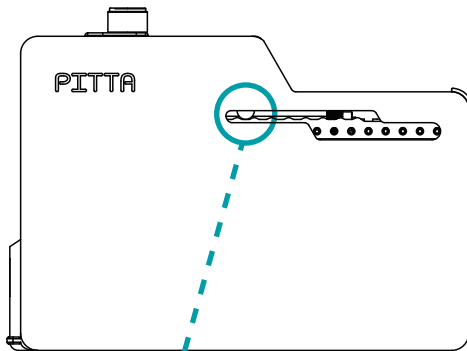
```
Status          ^
TB_LEN:  440
RESRV1:   60
RESRV2:    0
RESRV3:   55
RESRV4:    0
PTRN_N:    0
BR_POS:    0
```
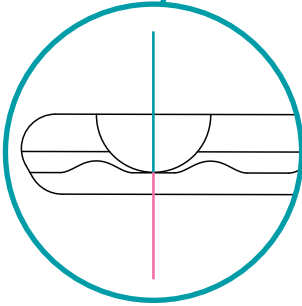
The offset value of the BR_POS should be corrected so that the center of the bearing in the figure aligns with the center of the wave-shaped guide.
When the center of the bearing and the center of the wave-shaped guide are aligned, the material can be fed with the maximum pressure of the drive gear.
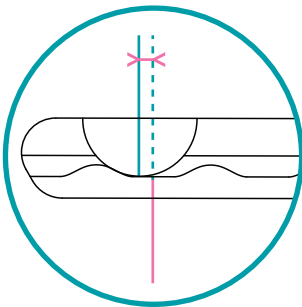
When the drive gear moves for material selection if it does not match the center as shown in the left figure, increase the value of BR_POS appropriately.
(ex: 10 means shift right the bearing aproximately 1mm `BR_POS:  10`)
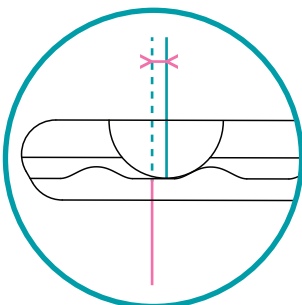
When the drive gear moves for material selection if it does not match the center as shown in the left figure, lower the value of BR_POS appropriately.
(ex: 10 means shift left the bearing aproximately 1mm `BR_POS:  -10`)

- 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℃ and Bed temperature 40℃.

Reason

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

Solution

1. Turn the TM Screw Handle slightly and take out the filament.

2. Cut the abnormal parts of the filament.

3. Insert the filament and turn the TM Screw Handle back into place.

4. Push the Material Sensor for a while(~1sec), printing starts when after the Nozzle temperature reaches around 185℃.
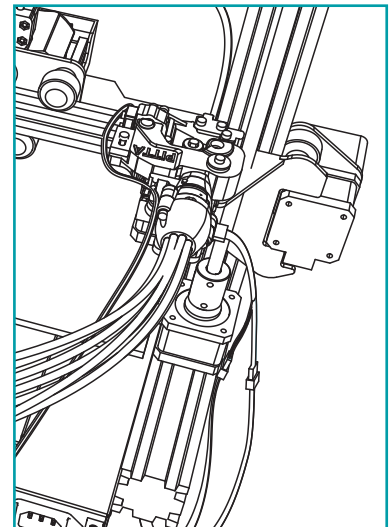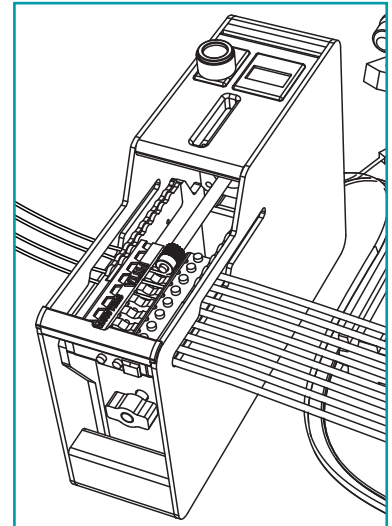
Check2

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 TM Screw Handle slightly and disconnect the motor connector then the extruder gear becomes loose. Then remove the filament.

2. Plug the motor connector back and rotate the TM Screw Handle back into place.

3. Push the Material Sensor for a while(~1sec), printing starts when after the Nozzle temperature reaches around 185℃.

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.

50cm

STELLAMOVE

We Make Robots