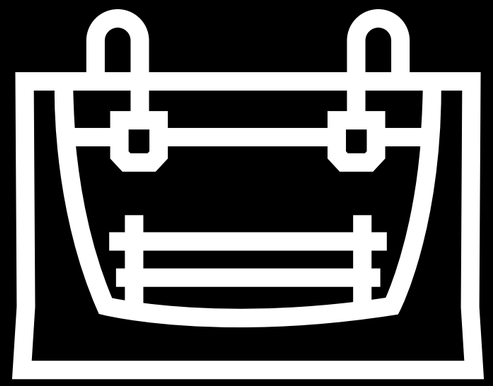


sigmax

Kit Upgrade to R19

Assembly manual

Welcome to the **#BCN3D** R19 ERA

Disclaimer

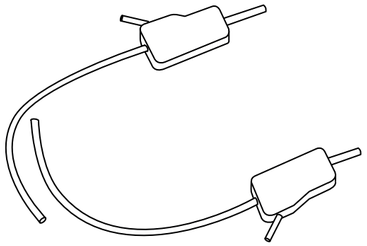
Before proceeding with the installation, please read and understand all the content and ensure that anyone who assembles this kit knows about this manual and its procedures. In case you have any doubts with some process, contact our support team at support@bcn3dtechnologies.com. In case you do not read the manual properly, it may lead to personal injury or to the BCN3D printer.

All the information and steps provided in this manual have been obtained from sources we believe are reliable. However, this information is provided without any warranty, express or implied, regarding its correctness.

As we can not supervise and control the circumstances and conditions in which you install this upgrade kit to R19, BCN3D do not assume responsibility and expressly disclaim liability for injuries, loss, damage or expense arising out of the assembly, handling, storage or use of the product.

¿What is in the box?

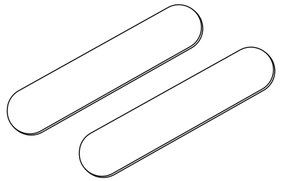
2x Filament runout sensor



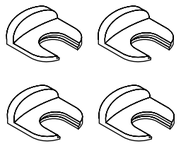
2x “Bowden entry” part

1x Industrial µSD with firmware files

Set of Calibration gauges

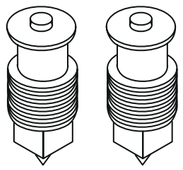


4x Black clips

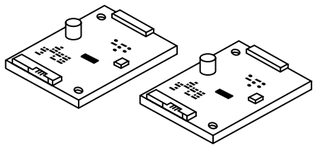


1x 2mm hex key

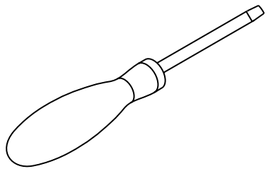
2x 0.6mm hotends by E3D™



2x Calibrated Stepper Drivers

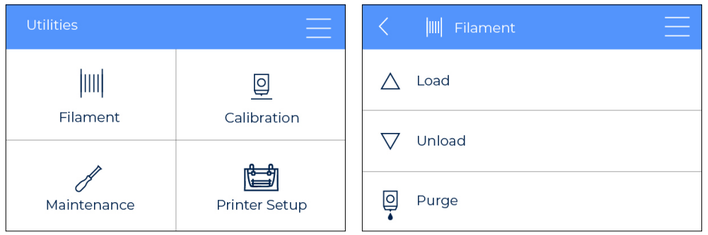


1x 5,5mm Socket wrench

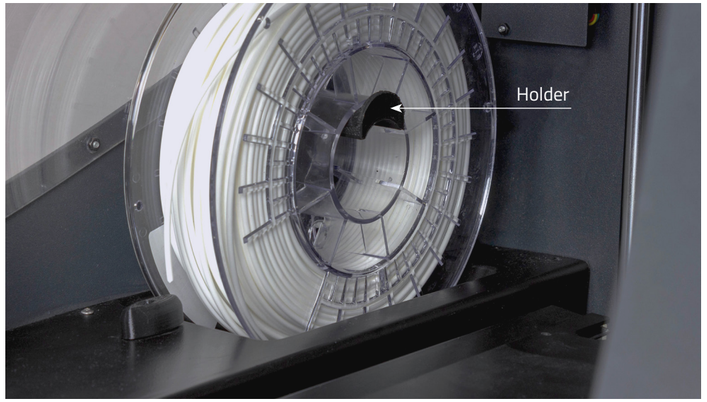


1. Set up

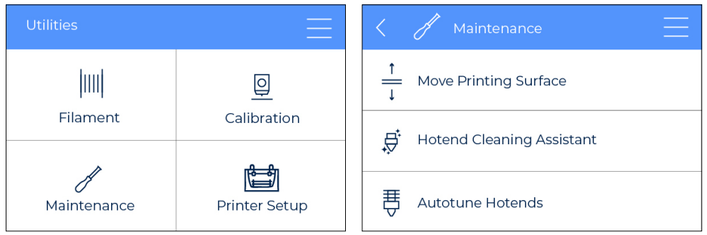
1.1 Do an Unload of the filaments from both toolheads. To do this, turn on the Sigmax and go to *Utilities* --> *Filament* --> *Unload.* Follow screens instructions to complete the task.



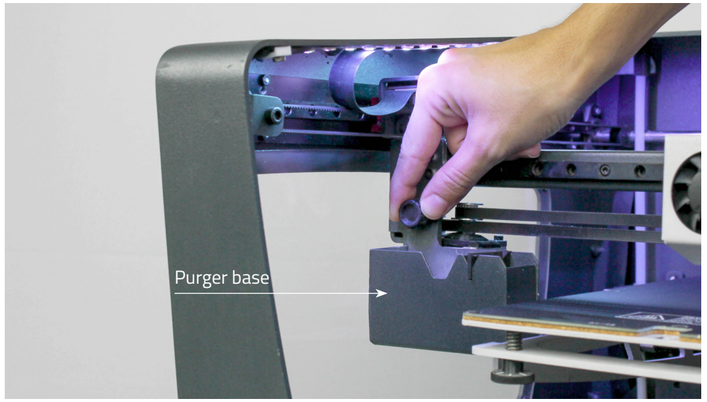
1.2 Once the filament has been removed from both sides, take away the spools and its holders.



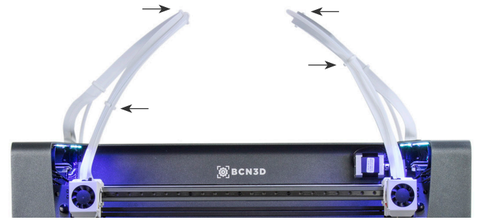
1.3 On the screen, go to *Utilities* --> *Maintenance* --> *Move Printing Surface* and raise the platform, making sure it is at its highest point.



1.4 In order to work more comfortable remove the glass printing surface. Temporarily remove both **purger base** by unscrewing the threaded screw in order to have more working space available.



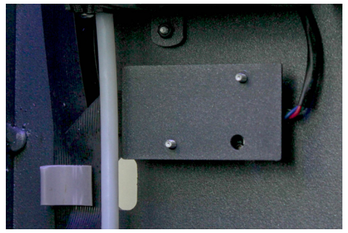
1.5 Remove the clips that are fixing the teflon tubes with the flat cables.



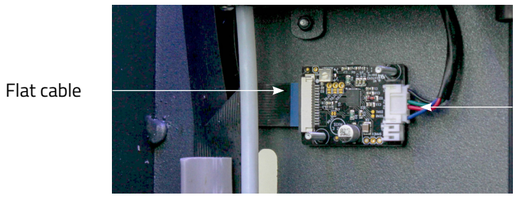
1.6 Turn off the printer and unplug the power cable and the USB cable if it is connected.

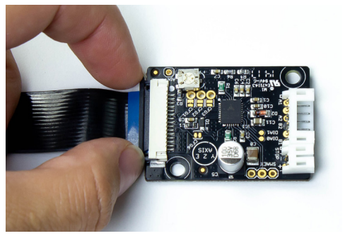
2. Disassembling

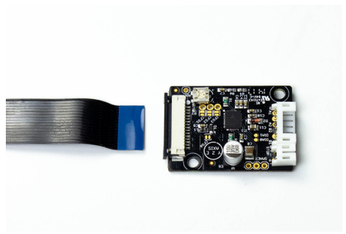
2.1 Remove the driver cover by unscrewing the M3 mm nuts with the 5.5mm socket wrench provided. Keep the cover, the M3 mm nuts and the spacers.



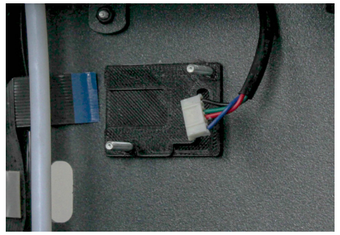
2.2 Disconnect the flat cable that goes to the driver, opening the tab that fixes it. Also disconnect the motor cable connector.

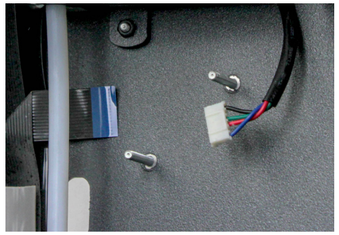




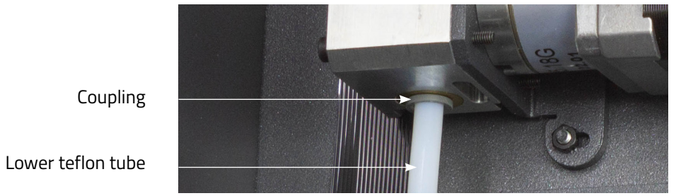


2.3 Remove the driver and the driver spacer (black piece). Do not keep these parts, as they willl not used again.
Note: Note: If when removing the driver spacer you find a heat sink sticked to the Sigmax's frame, remove it too.



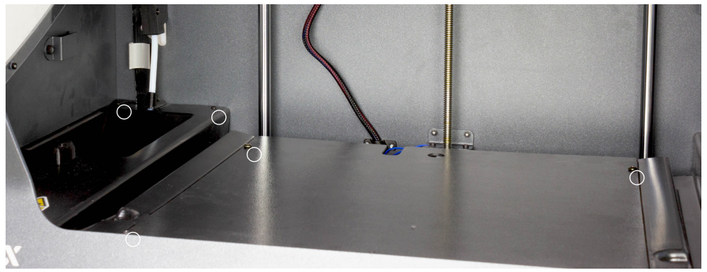


2.4 Remove the lower teflon tube from both sides. To do this, hold down the coupling with your fingers and pull out the tube.

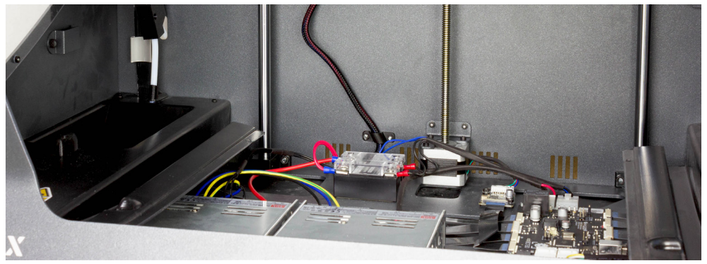


2.5 Remove the trim placed at the rear of the printer.

2.6 Using the provided 2mm allen key and a cross-head screwdriver, unscrew and store all the screws that hold the covers to the structure.



2.7 Remove the central cover.

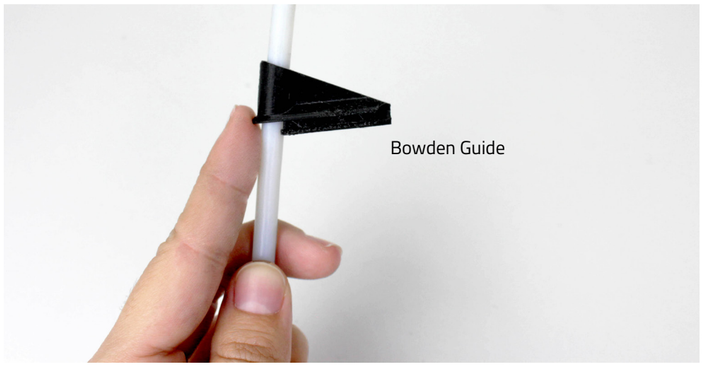


2. Disassembling

2.8 Carefully lift both lateral covers as indicated in the picture and take them out of the structure.

2.9 Unscrew the two screws at the bottom of the cover and remove the printed part “Bowden entry”. Don’t keep this part, as it won’t be used again.

2.10 Remove and keep the printed part “Bowden guide” from the lower teflon tube. Don’t keep the lower bowden tube, as it won’t be used again.



2.12 Repeat the same steps for the other teflon tube.

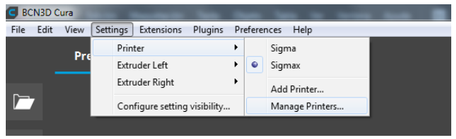
3. Updating the firmware

3.1 Now its time to update the firmware due all covers are removed. This will ease the process. This step will allow you to implement into the printer all the improvements related to the new interface and user experience created in the new R19.

Use the BCN3D Cura software (if you have not downloaded it yet, you can get the latest version in this link: https://www.bcn3dtechnologies.com/bcn3d-cura) to install the latest firmware version.

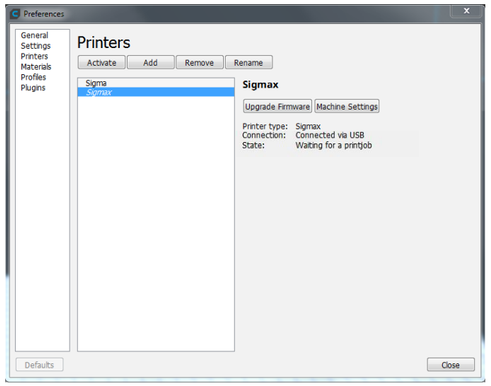
3.1.1 Use the USB cable to connect the Sigmax to the computer.

3.1.2 Open BCN3D Cura. Go to *Settings* --> *Printer* --> *Manage Printers.*

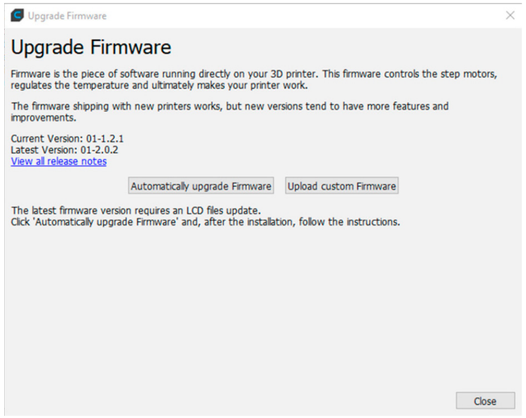


3.1.3 Select *Upgrade Firmware.*

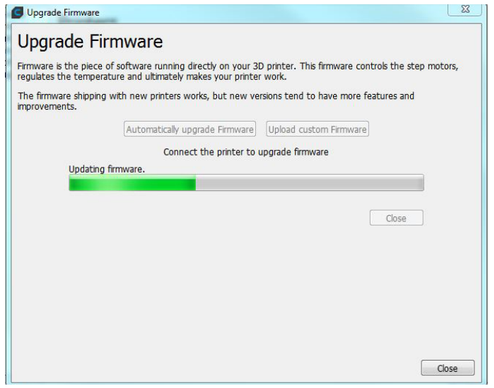
Note: In case your computer does not detect the printer, follow the steps in this manual.



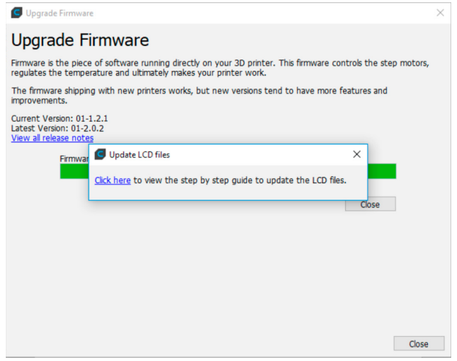
3.1.4 Click *Automatically upgrade Firmware* to download and install the latest version available (2.0.2 or newer).



3.1.5 Wait until the firmware is installed. The process may take a few minutes to complete.



3.1.6 Once the process is completed, a window will prompt. It informs it is necessary to update the files of the printer's LCD screen. **It is not necessary** to click on the link, in this case the micro µSD card provided in the Upgrade Kit already includes the new files of the LCD screen.

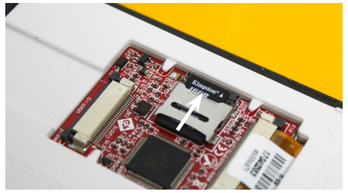


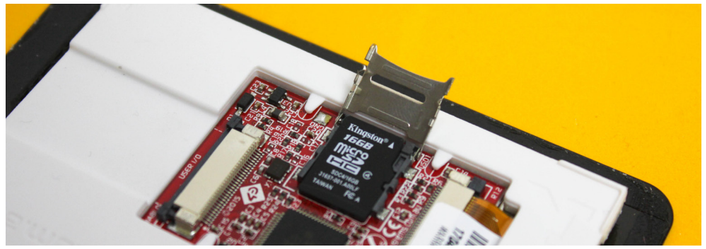
3. Updating the firmware

3.3. Once the covers are removed in steps (2.7 and 2.8) you can easily access the micro SD that is behind the screen. **Remove it and replace it** with the new micro µSD industrial card provided in the Upgrade Kit.

The micro SD socket has two positions: up (unlocked) and down (locked).
To remove the micro SD, drag the socket up as shown in the pictures. (It's not necessary to detach the screen from the printer's frame). Then, place the new µSD card provided with the kit.

**Be careful when removing the micro SD to avoid causing any damage to the mechanism.*

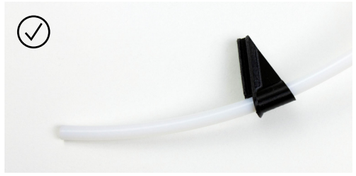




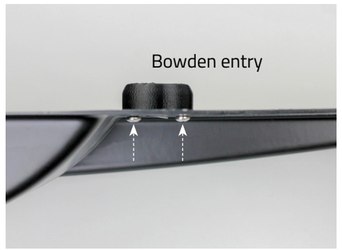
4. Assembling

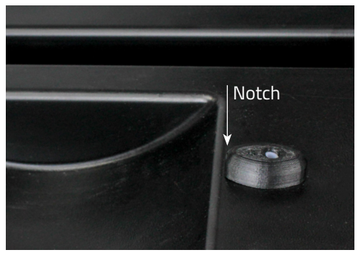
Before proceeding, make sure to disconect the USB cable previously used to update the firmware.

4.1 Insert the printed part “Bowden guide” removed in the step (2.10) into the new Teflon tube with the filament runout sensor provided in the kit. Insert it in the indicated orientation.

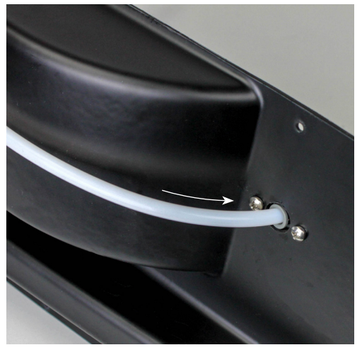


4.2 Screw the new printed part “Bowden entry” provided with the kit on the lateral covers with the two screws used in the step (2.9) as shown in the picture, with the orientation indicated (notch inwards).



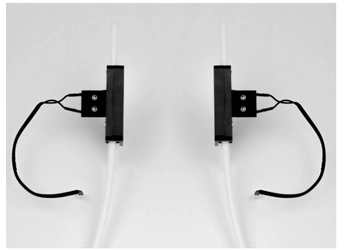


4.3 Insert the new teflon tube with the filament sensor into the”Bowden entry”. Press until you feel that you have reached the end.
Note: Pay attention to the correct orientation of each filament sensor, when inserting it into the covers. As indicated in the pictures.



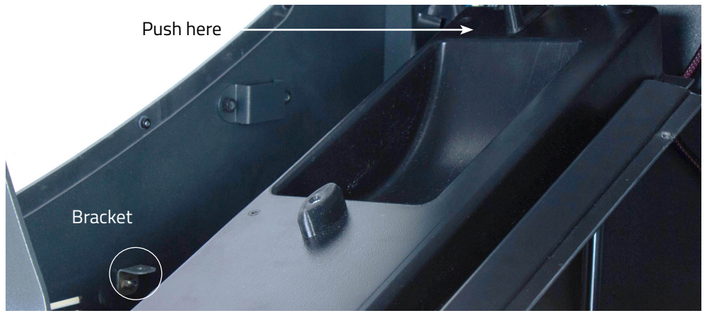
Left Filament runout sensor

Right Filament runout sensor



4.4 Place the “Bowden guide” piece into the lateral covers with the orientation indicated in the picture.

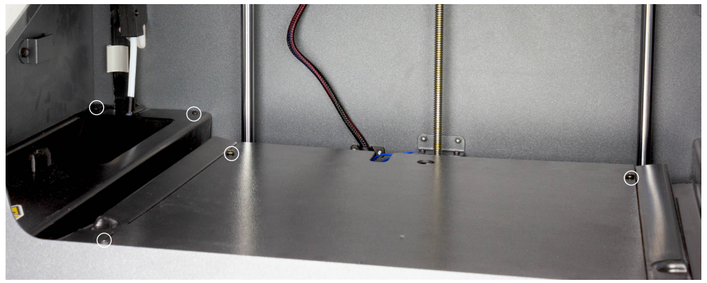
4.5 Before carrying out this step, make sure that the brackets are placed with the flat side facing up.
Place the side covers. To do this, place the cover as shown in the image. Then, push on the side indicated in the picture.



4.6 Repeat the same steps for the other lateral cover.

4.7 Place the central cover.

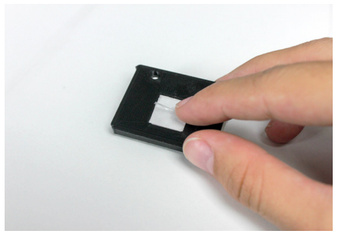
4.8 Screw the central and lateral covers, using the screws of the step (2.6).
Tip: *To ease this process use an Allen key to ensure that the holes in the cover and the brackets are concentric.*

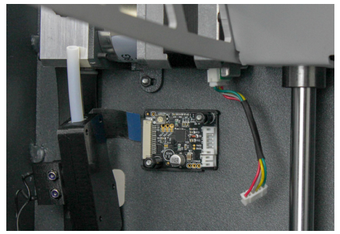


4. Assembling

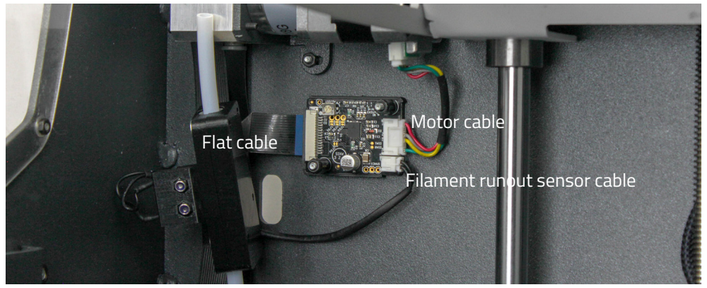
4.9 Place back the trim (step 2.5) at the rear of the printer.

4.10 Before installing the new stepper drivers provided with the kit, remove the protective film from the back of the driver. To ease the connection of the wiring, place the driver in its location and provisionally fix its position by placing the spacers and nuts removed in the step (2.1).

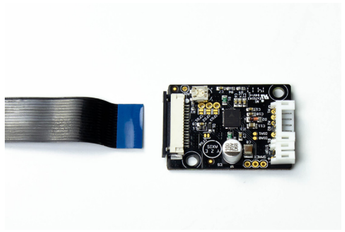


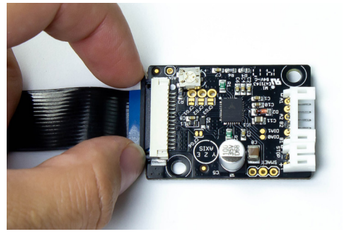


4.11 Connect the flat cable, and then connect the motor cable and the filament runout sensor cable as indicated the picture.

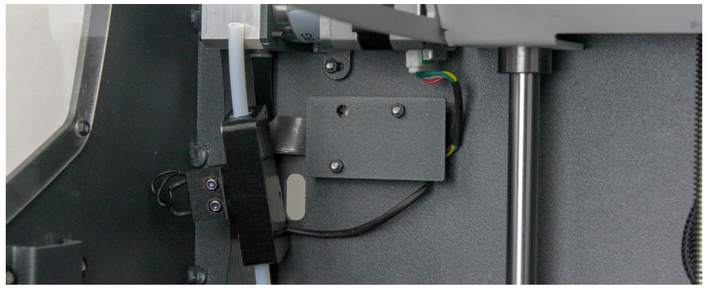


4.12 When connecting the flat cable, remember to open the tab of the driver as indicated in the following picture.

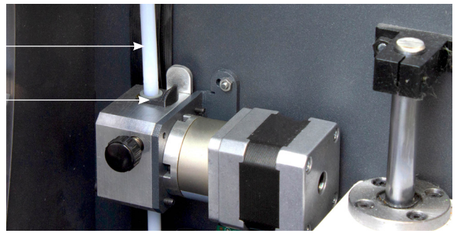


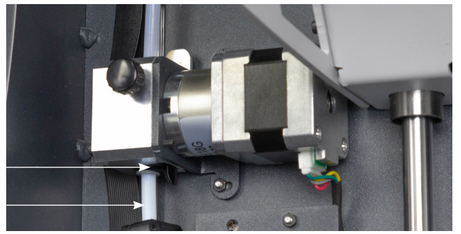


4.13 Finally, remove again the nuts, place the removed driver cover in the step (2.1), and screw the nuts.



4.14 Insert the lower teflon tubes, making sure they are properly placed.
Finally, place the new black clips provided with the kit both above and below the extruder.

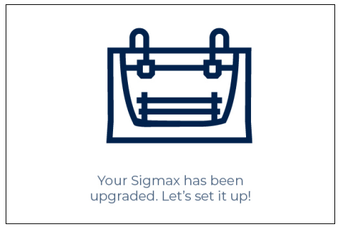


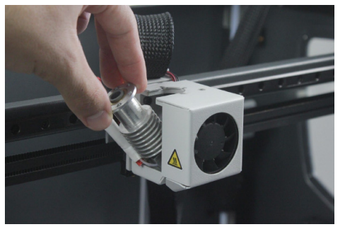


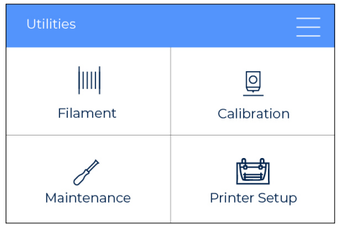
4. Assembling

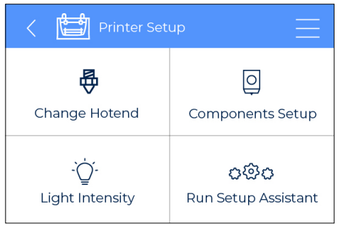
4.15 **Place the glass printing surface again and turn on the printer.**

4.16 Follow the screens of the new firmware to configure your upgraded printer. At the end of the process, place the new e3D hotends provided in the kit. Follow the new screen's assistant in order to do it. *Utilities -> Printer Setup -> Change Hotend.* During the change hotend process, perform the *Load Filament* and *Autotune*, but press **Skip** on *Printer Calibration*, as we will wait to have both hotends installed to calibrate the printer.

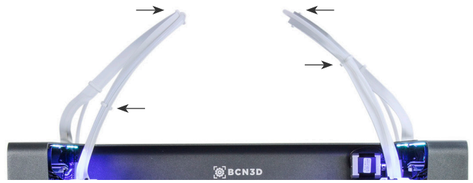








4.17 Place the clips that hold both teflon tubes of the hotend with the flat cable, removed at the beggining.



4.18 Finally, place again both purger base removed in the step (1.4).

5. Verification

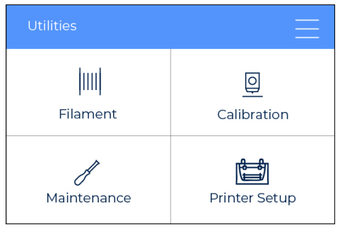
5.1 Now let's calibrate the printer:

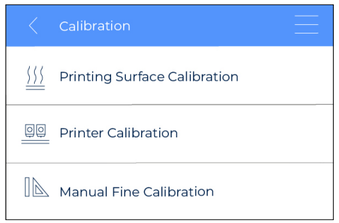
5.1.1 Press *Utilities* from the main menu.

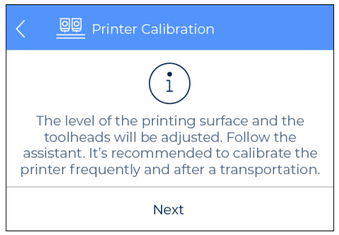
5.1.2 Press *Calibration.*

5.1.3 Finally, press *Printer Calibration.*

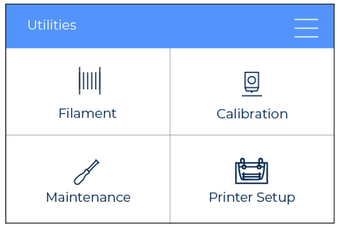
5.1.4 For this process it will be necessary to use the calibration gauges included in the kit. For more details go to step 6.1.

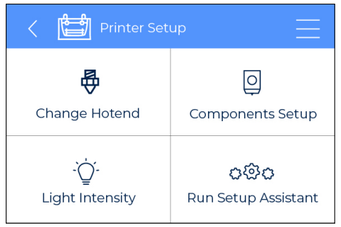


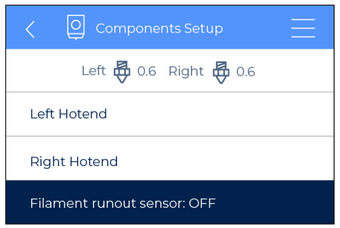




5.2 The filament runout sensor is activated by default.
If you want to deactivate the filament sensor, press:
Utilities --> Printer Setup --> Components Setup --> Filament runout sensor.

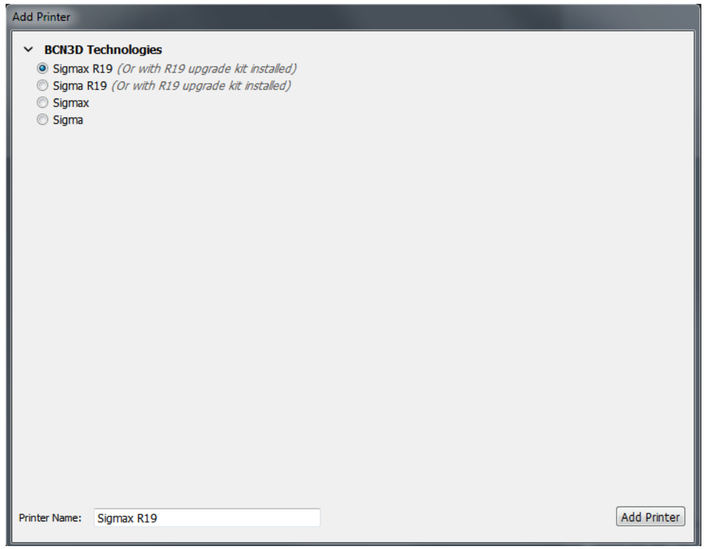






5.3 Configure your upgraded printer in BCN3D Cura.

Go to *Add printer* and select the option Sigmax R19.

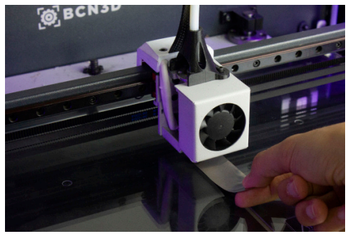


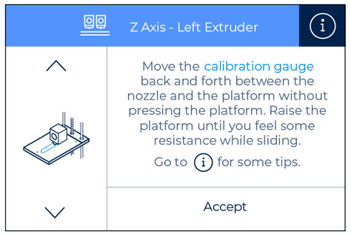
6. Accessories included in the Kit to enjoy a full R19 experience

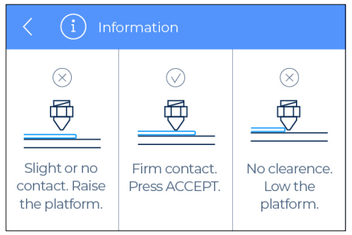
Calibration gauges have been included in the upgrade kit.

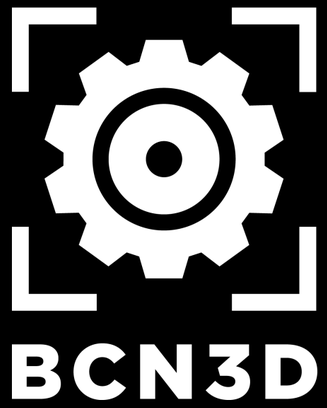
6.1 Calibration gauge:

Besides the internal improvements to make the *Printer Calibration* process more accurate, it is recommendable to use the Calibration Gauge provided instead of a piece of paper to adjust the Z height of the hotend. The use of a steel gauge reduces the subjectivity of the process and provides an unambiguous feedback. When calibraing the Z axis, follow screen's steps to use the gauge properly.








BCN3D