

Witbox 2

Quick start guide



Leave
your
imprint.

bq

Welcome .

Thank you for choosing us. This manual will help you to use your new 3D printer correctly. Welcome to the world of Witbox 2.

How do I use this manual?

To make sure that you use your Witbox 2 correctly, please read this manual carefully before you start using it.

These instructions are based on the factory settings.

The device images are not contractually binding and could be subject to changes.

BQ shall not be held liable for any issues relating to performance or incompatibility resulting from modification of the settings by the user.

Icon guide



Note: Tips and notifications on using your 3D printer.



Next: The order of steps to follow to carry out an action.



Tool needed: This task requires the help of a tool.

Trademarks

Witbox 2 and BQ are registered trademarks and logos of Mundo Reader, S.L.

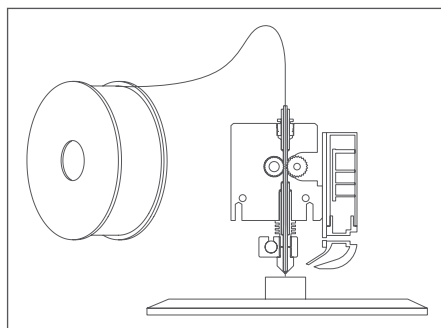
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What is a 3D printer?

A 3D printer is a machine which can produce three-dimensional solid objects from a computer-generated design. Various technologies are currently available for this purpose. Your Witbox 2 uses Fused Filament Fabrication (FFF) which consists in adding layer upon layer of melted polymer material until the desired piece has been created



Witbox 2 online material.

You can find the latest version of this quick start guide on our website:

🌐 www.bq.com/support/witbox-2

We have also made a series of online video tutorials available in order to help you in getting the best out of your Witbox 2 desktop printer:

🌐 goo.gl/MnzhyX

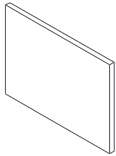
Getting Started.

Box Contents

Before using your Witbox 2 for the first time, please check the contents of the box. If any of the following items are missing, please contact the distributor that sold you the 3D printer:

- ✓ Witbox 2 3D printer
- ✓ Quick Start Guide and Warranty
- ✓ Cold print bed
- ✓ One set of two keys
- ✓ One top panel and two side panels
- ✓ USB cable
- ✓ European power cable
- ✓ UK power cable
- ✓ Reel of 1.75mm diameter PLA filament
- ✓ Reel-holder
- ✓ SD card (with preloaded 3D models)
- ✓ Printed test piece
- ✓ Four support legs for the printer
- ✓ Maintenance kit consisting of five PTFE tubes, two cleaning needles, a spatula, a metal bristle brush and four Allen keys of 1.5, 2, 2.5 and 4 mm.
- ✓ Carriage immobiliser for transportation

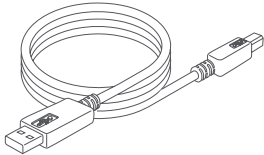
Cold print bed



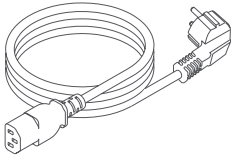
Set of two keys



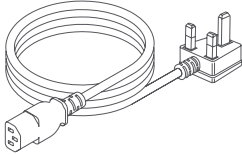
USB cable



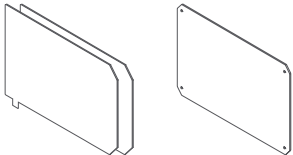
European power cable



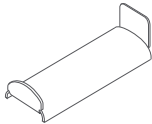
UK power cable



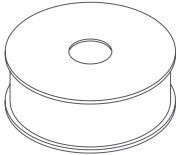
Two side panels and one top panel



Reel-holder



Reel of 1.75mm PLA filament



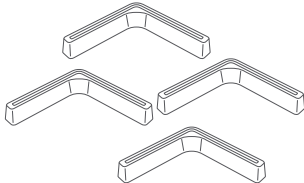
SD card



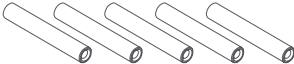
Printed test piece



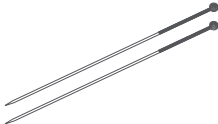
Four support legs



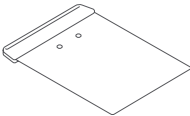
Five PTFE tubes



Two cleaning needles



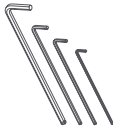
Spatula



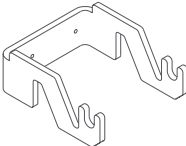
Metallic bristle brush



Four Allen keys of 1.5, 2, 2.5 and 4 mm

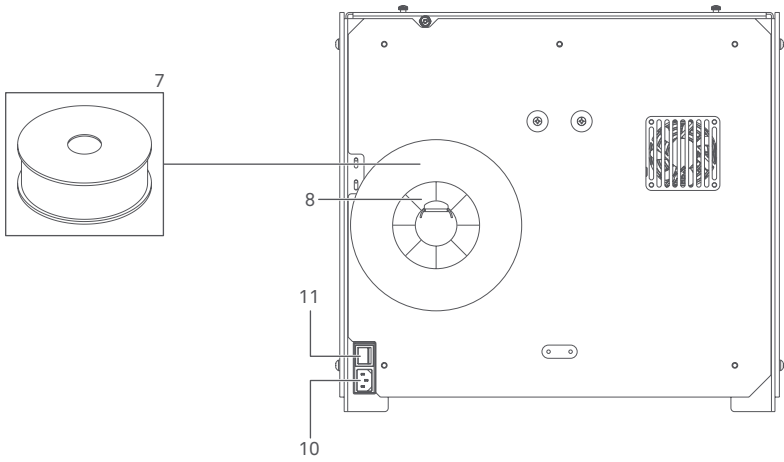
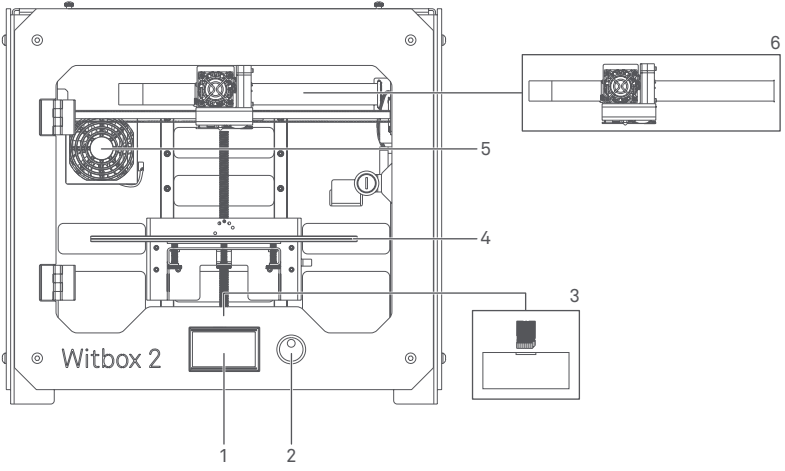


Carriage immobiliser for transportation



Basic glossary

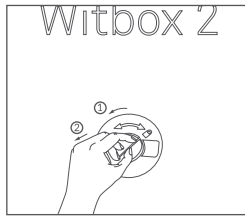
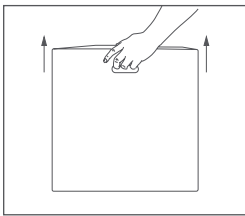
- ① **LCD panel:** the illuminated panel that displays information on the status of the machine.
- ② **Control wheel:** the metallic wheel for browsing through the different menus.
- ③ **SD slot:** the slot where the SD card is inserted, located inside the printer, at the top of the control panel.
- ④ **Print bed:** the glass rectangle with a metallic base that serves as a support during printing.
- ⑤ **Hot-End:** a component consisting of a heater block, PTFE tube, heat cartridge, thermistor and metallic nozzle which reaches high temperature and expels the melted filament.
- ⑥ **Extruder:** a component consisting of the hot-end, the filament traction motor, the blower and fans.
- ⑦ **Reel of filament:** a reel of different materials of 1.75 mm diameter such as, PLA, wood or copper.
- ⑧ **Reel-holder:** the metal part that supports the reel at the rear of the printer.
- ⑨ **Fibonacci guide:** a plastic tube that serves to guide the filament towards the extruder. The form enables it to adapt to the movements of the printer and to protect the filament.
- ⑩ **Power inlet:** located at the rear of the printer.
- ⑪ **Power switch:** the button for switching the Witbox 2 on and off.
- ⑫ **USB port:** the USB cable connector situated on the right side of the printer.



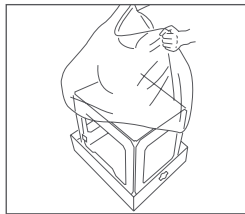
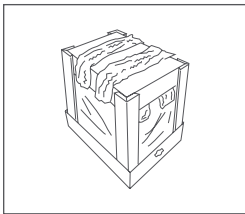
Unpacking your Witbox 2

Your Witbox 2 printer has been carefully packed using safety parts and resistant materials to protect it during transportation.

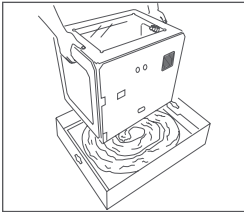
1. The box is made from two pieces of cardboard: a tray at the top and a printed cover. To lift off the cover, you will need to remove the two circular plastic tabs that join the two parts together. Once the fasteners have been removed, take off the cover using the handles at the top. It should come away easily.



2. The interior packaging consists of three parts: a box of accessories at the top, a tray containing the printer at the bottom and four protective cardboard corner pieces, as well as the protective paper.



3. After removing the printer from its protective bag, hold it firmly by the sides and place it on a table.



⚠ *Caution: heavy object.*

4. To avoid scratching the table: The Witbox 2 sits on four metal support legs which have been designed to enable you to stack up to three printers on top of each other. Move it with caution. Take care not to drag the printer when moving it in order to prevent any scratches on the surface of the table. Four protective covers are included with your Witbox 2 which can be attached to the legs.

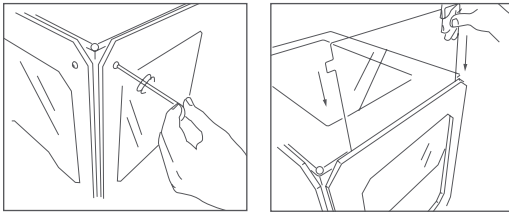
⚠ *Make sure you keep the original packaging for future transportation. Failing this, your printer could get damaged.*

⚠ *If you need to send your Witbox 2 printer to our technical support service for repair, we remind you that BQ accepts no liability for damage to the product resulting from failure to pack it correctly on the part of the Customer, who must bear the cost for any such damage. We therefore request that you keep the original box along with all the protective packaging included, and that you unpack your printer according to the instructions. Any return with boxes or protective packaging other than the original ones is made at the risk and the expense of the Customer.*

Attaching the side panels

Find the side panels in the accessories box. Remove the plastic protectors from each side.

- ✂ Gently loosen the four screws located on the sides of the printer (two on each side). Use the 4 mm Allen key to do this. Once you have loosened them, slide the side panels in towards the rear of the printer and then tighten the screws again.

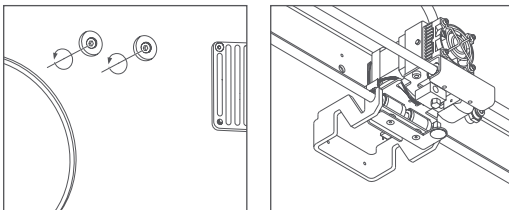


- ✂ Open the door at the front using the set of keys included in the accessories box.

Removing the protective cover from the extruder

The extruder of your Witbox 2 is immobilised with a protective cover to prevent damage during transport..

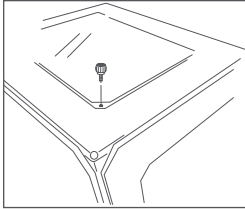
To take it off, first remove the screws located at the back and then lift off the shield. Keep it safe so that you can re-use it for transportation.



Attaching the top panel

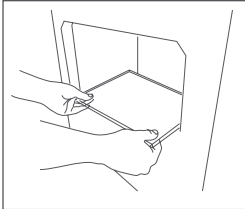
Remove the plastic protectors from each side of the top panel.

Place the panel on top of the Witbox 2. You will find four screws in the accessories box. Place them into the holes in the corners and tighten them by hand.



Inserting the print bed

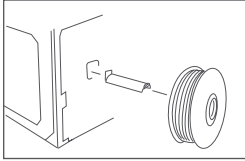
You will find the print bed in the box of accessories. Place it gently on the support inside the printer, ensuring that the methacrylate and the magnets are facing downwards, as shown in the diagram.



⚠ *Handle the print bed with care.*

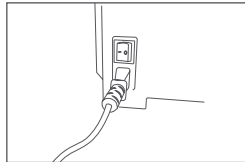
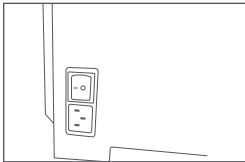
Installing the support and the reel

The reel of filament must be fitted onto the rear support. Attach the metal support by inserting the short end into the slot at the back. Remove the plastic wrapping from the reel and place it onto the support. The filament is loaded later.



Connecting the power supply

Before connecting the power cable, make sure that the switch is in position “0”. First plug the connector into the printer and then plug the other end into the mains.



Packing your Witbox 2 for transportation

If you will be transporting your printer, follow the instructions in the **Unpacking your Witbox 2** section in reverse order to prevent it from being damaged during transit.

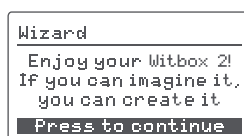
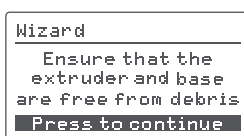
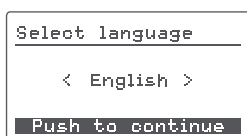
- ⚠ *If you need to send your Witbox 2 printer to our technical support service for repair, we remind you that BQ accepts no liability for damage to the product resulting from failure to pack it correctly on the part of the Customer, who must bear the cost for any such damage. We therefore request that you keep the original box along with all the protective packaging included, and that you unpack your printer according to the instructions. Any return with boxes or protective packaging other than the original ones is made at the risk and the expense of the Customer.*

Operating Your Printer.

Once you have connected your printer to the mains, you can switch it on. The LCD panel will light up and the initial configuration of your Witbox 2 will be displayed.

Initial configuration

Select your preferred language to start using your Witbox 2.



Main menu

The control wheel is located next to the LCD panel. Press and turn the wheel left or right to browse through the main menu. You will see the following options:



Print from SD



Remove filament



Home



Move axes



Motors: OFF



Insert filament



Level bed



Settings



Motors: ON



25°

Temperature

Loading the filament

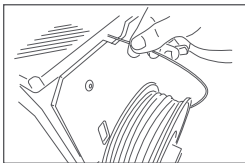
You can now load the filament into your Witbox 2 and print your first test piece.

1. Go to *Insert filament*, select the temperature you want the extruder to reach and follow the heating process.



2. Once the heating process is complete, load the filament through the cable gland fitting, the plastic part covering the hole at the back of the printer. It is very important to position the reel correctly with the loose end of filament on the right. Using scissors, cut the end of the filament diagonally in order to make it easier to insert it into the tube.

3. Feed the end of the filament through the guide tube until it touches the extruder. Push it in firmly to make sure that the filament reaches the end of the tube. Press the wheel.

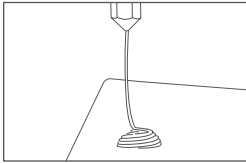


4. After a few seconds, the melted material will appear in the nozzle of the hot-end, which indicates that it has been loaded correctly.



⚠ *Caution: high temperature.*

5. Press *OK* to complete the loading process.



6. Wait a few minutes for the extruded material to cool down before opening the door.



⚠ *Caution: do not touch the end of the extruder as it will still be hot.*

If your 3D printer is not active for a prolonged period of time, it will switch to idle mode and the extruder will cool down.

First test print

You will find different files preloaded onto the SD card (included with the Witbox 2) for printing the test pieces. All printers have been tested prior to being dispatched from our facilities.

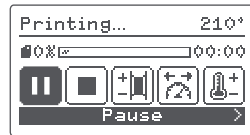
In the contents of the box, you will find a plastic piece that consists of two parts that fit together. It was printed in medium quality using the same unit to make sure that it functions correctly before leaving the factory. As a result, the print bed will be already levelled and you might find some traces of material inside the hot-end.

Before printing your first test piece, you will need to prepare the print bed to ensure that the material will adhere to it correctly. To do this:

1. Remove the print bed from the Witbox 2 and spray it with 3D printing lacquer. If you prefer, you can use Fixpad or tape to cover the bed to increase the adhesion. If you use Fixpad or tape, remember to level the print bed again after putting it back in place.

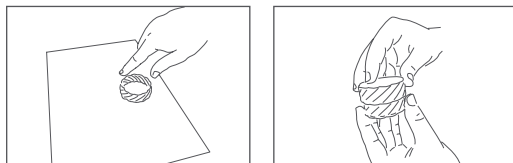
2. Make sure that the bed is inserted in the correct position.

Access the main menu and press *Print from SD*. The name of the different models you can print will be displayed. Select the *Twisted BOX* files and print them, one by one. These two pieces are identical to the two test pieces that come with the Witbox 2 and will fit together the same way. Select any model, confirm and your Witbox 2 will automatically start printing. You can monitor the progress of the print job and the temperature of extrusion via the LCD panel.



Checking the print

Once the printing process has been completed, open the safety door and remove the print bed. Place it onto a table for support and then remove the pieces by pulling firmly, or use the spatula provided in the accessories box to assist you. You can now check that both pieces match and fit together with the test pieces included with your Witbox 2.



General Configuration.

Customising the speed during printing

You can adjust the speed during printing by pressing *Change speed*. This option enables you to set the percentage of the initial value that you want it to print. It is set at 100% by default. Take care when changing it, as any increase or decrease will modify the values of all speeds within the .gcode that you are printing.



Changing the filament and the temperature during printing

You can change the filament during printing by pressing *Change filament* and adjust the temperature under *Temperature*.

Levelling the print bed

Your Witbox 2 comes with an auto-levelling system that checks the angle of inclination of the print bed prior to printing, by measuring three points in order to be able to compensate it. In auto-levelling mode, if there is any inclination on the bed, the printer will adjust the movement of the motors accordingly so that it prints correctly. Achieving good printing results depends on the print bed being levelled correctly.

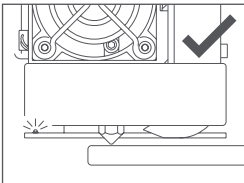
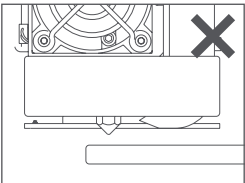
Why is it important?

- If the extruder nozzle is too far from the bed, or if one part of the bed is closer than the other, the printed objects will not adhere correctly.
- If the nozzle is too close to the bed, this could prevent the filament from being extruded, which would damage the extruder and could also scratch the bed.

Adjusting the offset

The offset is the distance between the inductive sensor at the rear of the extruder and the bed. To adjust it, go to *Settings > Offset*. The printer will read the three points automatically and stop in the centre, enabling you to adjust the distance between the extruder nozzle and the bed.

The offset will be correct when the nozzle is lightly touching the bed. Otherwise, you will need to turn the wheel to the right to move the nozzle closer.

<p>Instructions</p> <p>Press and adjust the value until the nozzle touches the bed</p> <p>Press to start</p>	<p>Adjust Offset</p> <p>< 0.00 mm ></p> <p>Press to confirm</p>	<p>Finished</p> <p>ALL OK?</p> <p>OK</p> <p>Try again</p>
		

Enabling/Disabling auto-levelling

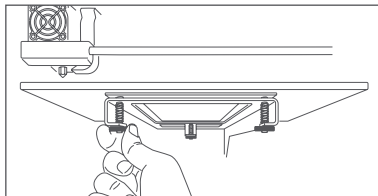
Go to *Settings > Auto-levelling*. It is enabled by default (*ON*). Press the control wheel to disable it (*OFF*). If auto-levelling is disabled, you will need to level the bed manually.

Levelling the bed manually

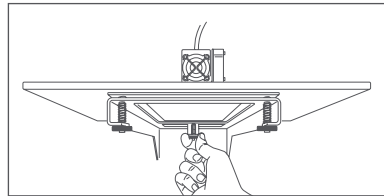
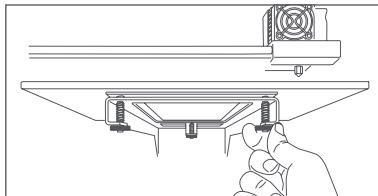
To level your Witbox 2 manually, press Level bed to start the process.



The printer will take a reading from the centre of the bed and will move to the first front left point. If the red LED of the sensor lights up, it means that the distance between the bed and the extruder is correct. If it blinks, you will need to turn the knurled wheel below which corresponds to this point, in order to move the bed on the Z axis until the LED stops blinking.



Repeat this step with the front right and the central rear points, adjusting the wheel on each side respectively until the LED lights up.



The central point is only measured to check that these three adjustments have been made correctly. Witbox 2 comes levelled as standard, so generally, the knurled wheels should not need to be adjusted. To do this, you would need to touch the three wheels.

Press the control wheel and select *OK* to complete the levelling process.

Printing a File with Cura.

Cura is a slicing software and printer host, which has a simple and intuitive graphical interface and is easy to configure. Using this program, you can get an idea of how the object will be extruded and the slicing results. You can also generate the .gcode and send it your 3D printer or copy it to the SD card.

For more information, go to:

 www.bq.com/support/witbox-2

Printing Remotely with Octoprint.

Octoprint is an open source software application which creates a server on your computer or on devices such as Raspberry Pi, so that you can control your printer remotely via serial port.

 <http://octoprint.org>

 <http://goo.gl/gpCvHf>

Use and Maintenance of Your Witbox 2.

Importance of correct use and maintenance

By using your printer correctly, problems can be avoided in the future. A basic maintenance kit is included with the printer, which consists of four Allen keys, two cleaning needles and five spare PTFE tubes.

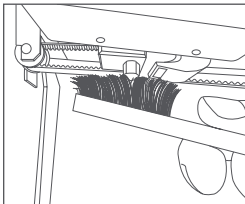
Online material

Before starting any maintenance, we recommend that you click on the link below to access material and information on how to carry out these tasks with maximum safety:

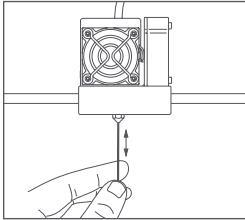
 goo.gl/MnzhyX

Cleaning the Hot-End

It is important to remove any remaining material that has accumulated around the nozzle after continuous use of the machine. Heat up the hot-end and you can either use the metal bristle brush provided or simply some needle-nose pliers to clean it out. Keeping this part clean will prevent the extruded material from sticking to the nozzle rather than the print bed.



Using the needles provided is also recommended. To do this, unload the filament from the main menu and remove the Fibonacci guide by pressing the fitting. To remove any traces of material left in the hot-end, insert one of the needles into the nozzle. Make sure that the point comes out of the top part of the fitting. Make upward and downward movements to ensure that it is thoroughly cleaned out. Load the filament and print out a test piece.



Filament blockage in the Hot-End

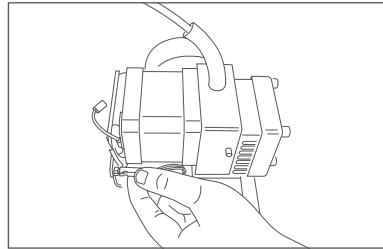
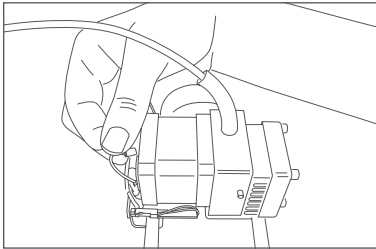
If no filament comes out of the nozzle when attempting to print a piece, or if it comes out unevenly, follow these steps:

1. Under the main menu, select *Remove filament*.
2. Insert the needle (included in the accessories box) into the nozzle. Make upward and downward movements.
3. Then load it again and check that the filament is expelled consistently with the same diameter and flow.
4. Print one of the test files included on the SD card to check that the issue is not related to the .gcode.

If the hot-end is still unblocked, follow the instructions under the section on **Replacing the PTFE tube on the Hot-End**.

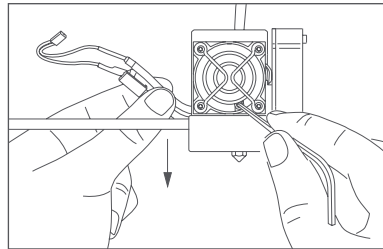
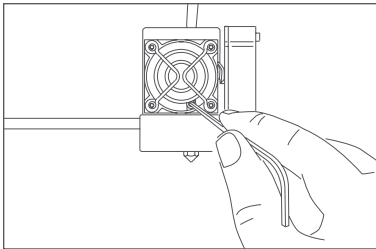
Replacing the PTFE tube on the Hot-End

1. Move the Z axis to 200 mm.
2. Unload the filament. This step is very important in preventing any issues.
3. In the main menu, press *Temperature* and select 50 °C.
4. Once it reaches that temperature, turn off the printer by pressing the power button at the back.
5. Disconnect the cables from the heat cartridge at the top and from the thermistor on the left side.

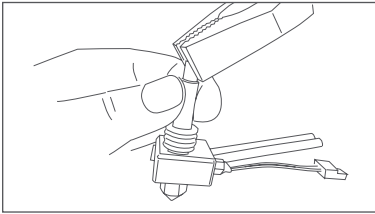


⚠ *Take care with the inductive sensor located at the rear of the extruder.*

6. Use one hand to hold the cables and, with the 2 mm Allen key, use the other hand to loosen the set screw from the Hot-End hidden behind the fan, until you can remove the Hot-End with a gentle pull. Take care not to remove the set screw entirely.

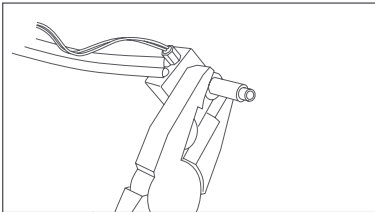


- 7.** Hold the Hot-End in one hand and use pliers to remove the PTFE tube from the top part.

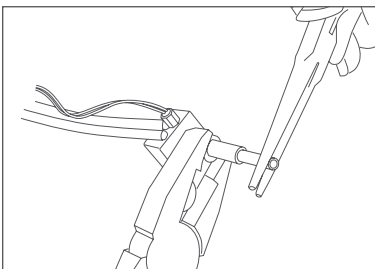


If removing the tube proves to be very difficult, there could be some filament trapped inside the hot-end. In this case, follow these steps below, otherwise you can skip to step 11:

- 8.** With the hot-end removed from the extruder, connect the cables that you removed in step 6 and switch on the printer.
- 9.** Grip the Hot-End using pliers as shown below. To prevent any damage, pay close attention to where you should grip it.

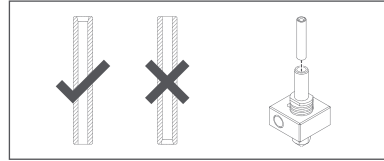
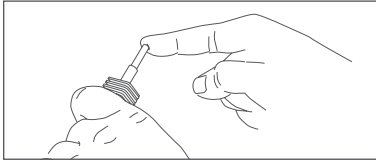


- 10.** In the main menu, go to *Temperature* and select 80 °C and continue to grip the hot-end while it heats up. Once it has reached this temperature, use another set of pliers to carefully remove the PTFE tube.

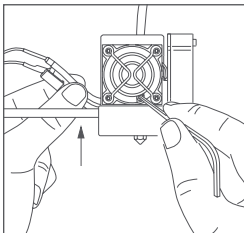
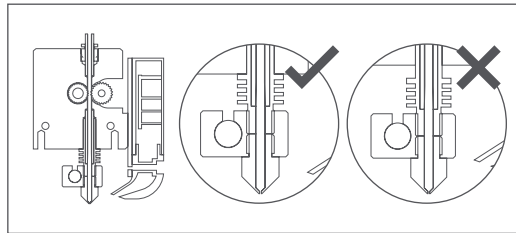
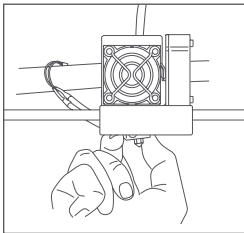


11. Make sure that no traces are left inside. If so, remove it with an Allen key.

12. Now insert the PTFE tube into the hot-end, making sure that it touches the end. You will need to look carefully to see that one par is wider than the other. The narrowest part should be inserted into the hot-end and the widest part should be remain exposed.

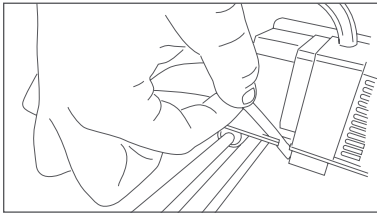


13. Place the hot-end right inside with the cables facing the rear of the extruder and firmly tighten the set screw to prevent it from slipping down.



⚠ *If you have had to heat up the hot-end, you will need to select Temperature > OFF and wait until it has cooled to 50 °C in order to handle it with your hands and then switch off the printer.*

14. Guide the cables into place and cable them.

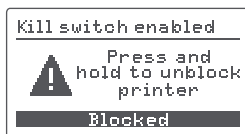


15. Switch on the printer.
16. Make sure that everything is correctly connected by following these steps.
- Firstly, set the temperature via the main menu.
 - Secondly, check that the temperature is rising. If so, then the heat cartridges are connected correctly.
17. To adjust the offset, go to *Settings > Offset*.
18. Load the filament to make sure that the hot-end is working correctly.
19. Level the print bed. If auto-levelling is enabled, this will be done automatically.
20. Print out an object to check that everything has been done correctly.

Kill switch

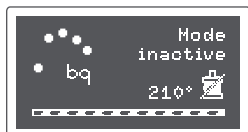
Your Witbox 2 is equipped with a kill switch system which enables you to stop any process immediately, in the event of detecting a fault.

To do this, press and hold the control wheel until you hear a beep. The Witbox 2 system will shut down and then restart with a warning screen. Press and hold the control wheel again until the warning screen has disappeared and the main menu has returned. If you were printing when you enabled the kill switch, the print job will not be resumed.



Idle mode

If your 3D printer is not active for a prolonged period of time, it will switch to idle mode. Press or turn the control wheel to activate it again.



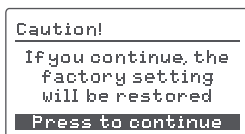
Updating the firmware

A professional team works every day to improve the capacities of your printer. To guarantee the best printing results and technical support, keep your printer updated with the latest firmware.

 www.bq.com/support/witbox-2

Hard reset

If you want to restore your 3D printer to the original factory settings, you can this by going to *Settings > Hard reset*. This will cause you to lose any settings that you have previously saved.



Troubleshooting.

Common issues

I can't load the filament into the extruder

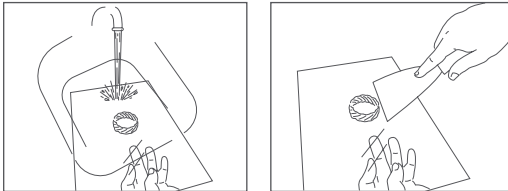
Cut the end of the filament. Discard any areas which have been damaged, folded or bent. Check that there are no traces of previous filament remaining in the guide tube.

When the printing is complete, I can't remove the pieces.

This is due to the extruder being too close to the bed, which makes the first layer of the pieces adhere excessively.

To remove the piece, place the print bed in hot water. If you are still unable to detach it, use the spatula or a similar object to carefully detach the edges.

To avoid this from happening again, go back to adjust the offset and set the extruder at a greater distance away from the bed.



The piece doesn't stick to the print bed

This is due to the extruder being too far away from the bed. Adjust the offset again if you are using auto-levelling, or readjust it manually to reduce the distance between the extruder nozzle and the print bed. Use lacquer, Fixpad or tape make it stick the print bed.

The piece is being printed OK but the edges have started to come unstuck

This is due to incorrect levelling. If the distance between the extruder nozzle and the bed is too large, the filament at the ends of the piece will not adhere properly and will come away. Make sure that auto-levelling is enabled, or alternatively, you can level the bed manually again.

How can I increase adhesion to the bed?

You can achieve greater adhesion by removing the bed from the machine and spraying it with 3D printing lacquer or by sticking Fixpad or tape to it. If you use Fixpad or tape, remember to readjust the offset once you have put the bed back in place.

Can I pause a print job?

You can pause a print job in progress by pressing the control wheel and selecting the *Pause* option. When you are ready to resume printing, select *Resume*. If you switch off the printer, it will not be possible to resume the print job.

Can I stop a print job?

You can stop a print job in progress by pressing the control wheel and selecting the *Stop* option.

The filament has broken inside the Fibonacci guide.

If this occurs, you will need to remove the damage material manually. To do this, remove the Fibonacci guide from the extruder by applying pressure down onto the extruder fitting and pulling the guide upwards. This will enable you to access and remove the damaged filament.

The piece was being printed correctly and the material stopped coming out

This is due to a knot in the filament reel, which prevents material from entering the extruder. To prevent this from happening when storing a reel that you have been using, insert the end of the filament into one of the holes in the plastic reel. It could also be caused by a filament blockage in the hot-end. See the section on **Use and maintenance of your Witbox 2** to resolve this.

The contents of the SD card are not being displayed

Extract the SD card from the printer and then re-insert. If the problem persists, try switching the machine off and on again. Use another device, such as a computer, to check that it is detected and read correctly.

A temperature reading error appears on the LCD

This message appears when the thermistor cable is disconnected or broken, or another cable is damaged, or alternatively, when the electronics fail to read the temperature correctly.

Technical Specifications.

Dimensions

- Printer with PLA reel: (x)508.06 x (y)485.08 x (z)461 mm
- Printer without PLA reel: (x)508.06 x (y)393.38 x (z)461 mm
- Print area: (x)297 x (y)210 x (z)200 mm

Layer resolution

- Very high: 50 microns
- High: 100 microns
- Medium: 200 microns
- Low: 300 microns

Printing speed

- Maximum speed: 200 mm/s

Software

- Marlin-derived firmware designed by BQ
- Recommended environment: Cura Software and Slic3r
- Files accepted: .gcode
- Compatible operating systems: Windows XP or later
Mac OS X or later
Linux

Materials

- 1.75 mm diameter filaments: PLA, wood, bronze, copper and FilaFlex

Operating conditions

- Optimum operating temperature range 15 °C to 25 °C

Firmware 1.0

