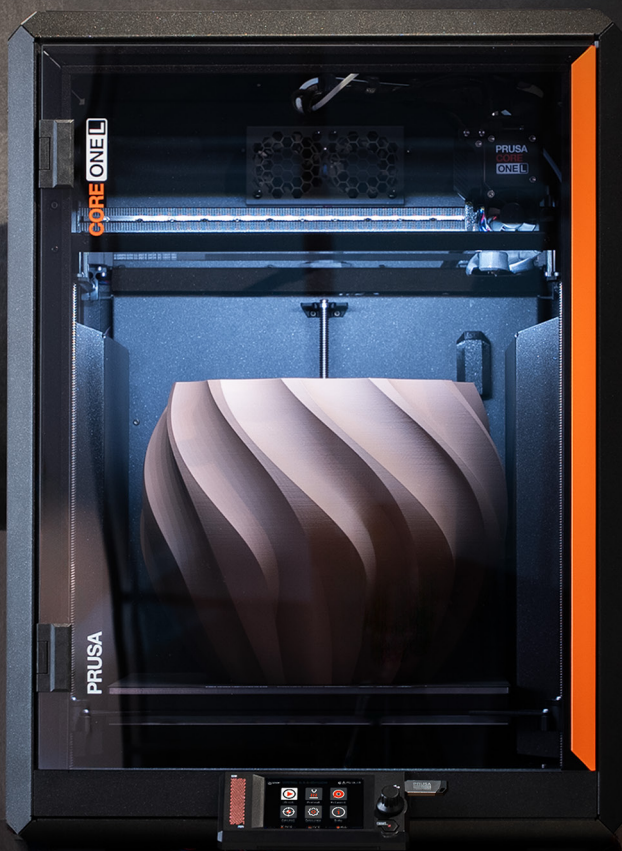


3D PRINTING HANDBOOK

FOR THE PRUSA CORE ONE L 3D PRINTER



Prusa CORE One L: Official Instructions

Handbook version 1.0 - November 14th, 2025

If you need to download this handbook in other languages, such as **Deutsch, Français, Italiano, Español, Čeština, and Polski**, visit <https://prusa.io/col> or scan the QR code on the right. This link will also take you to a hub containing the latest downloads (firmware, handbook, drivers, PrusaSlicer) and help articles.

In this handbook, you will learn everything you need to set up your printer, use it, perform routine maintenance, and more.

Other useful information can be found at prusa.io/col.



Quick Guide to the First Print

1. Read the Safety Instructions carefully.
2. Connect and attach the display panel to the printer.
3. Remove the three shipping screws holding the heatbed (marked with red tags).
4. Mount the side filament spool holder.
5. Plug in the power cable and turn the printer on.
6. Insert the USB drive that came with your printer and print your first object.



Tips, advice or important information that will help you when working with the printer.



This part of the text is very important, please read it carefully! It is directly related to the correct operation of the printer and its safe operation.

How to contact Prusa Research technical support:

First, check the last sections of this manual that deal with common problems, or go to prusa.io/col (you can also scan the QR code at the top of the page) for a complete list of the most common problems and solutions. If your problem is not listed here, or the solution does not work, please send an email to info@prusa3d.com and/or use our chat at prusa3d.com. Try to describe your problem as accurately as possible and include pictures or videos.

JOSEF PRUSA®, PRUSA RESEARCH®, PRUSA POLYMERS®, PRUSA ORANGE®, Prusa®, PRUSA 3D®, and PRUSAMENT® are registered trademarks of Prusa Development a.s. used by Prusa Research a.s. under license from Prusa Development a.s. | JOSEF PRUSA, Prusa, and PRUSAMENT are registered trademarks (or trademark applications) of Prusa Development a.s. and are used by Prusa Research a.s. under license from Prusa Development a.s. in the following countries: Australia, New Zealand, Israel, Mexico, South Korea, Turkey, Ukraine, Russia, Kazakhstan, Switzerland, China, Colombia, Uzbekistan, Philippines and Norway. | All other company names and product names mentioned in this publication are trademarks and registered trademarks of their respective companies.

About the Author

Josef Průša (*23. 2. 1990) became interested in 3D printing when he began studying at the University of Economics in 2009 - it started off as a hobby, a new technology open to modifications and improvements. The hobby quickly became his passion, and Josef became one of the main developers of the international open-source (all works are freely available for any use) RepRap project by Adrian Bowyer. Today, Prusa's design in various versions can be seen all over the world; it is one of the most used printer designs. The goal is to increase public awareness of 3D printing technology.

In the spirit of the RepRap project, certain parts of your machine are 3D-printed on Prusa 3D printers, making them easier to maintain and customize. The Prusa product range is constantly being expanded with new models and improvements.

His main goal is to make 3D printing technology more understandable and easier for ordinary users. Josef Průša also holds workshops for the public, participates in professional conferences, and promotes 3D printing. He has lectured at TEDx conferences in Prague and Vienna, at the World Maker Faire in New York, at the Maker Faire in Rome, and at the Open Hardware Summit at MIT. He has also taught the Arduino course at Charles University and was a lecturer at the Academy of Arts, Architecture and Design in Prague.

In his own words, he envisions a not-so-distant future where 3D printers will be available in every household. If anything is needed, you can easily print it out. The boundaries in this field are being pushed every day... We are glad you are part of it!



Table of contents

1. Introduction	10
2. Unpacking and Package Contents	11
2.1. Contents of the Package and Accessories	12
3. Printer Setup	13
3.1. Attaching the display panel	13
3.2. Removing the shipping screws	14
3.3. Mounting the spool holder	14
3.4. Connecting the camera	14
3.5. Reversing the Door Orientation	15
3.6. Connecting and Disconnecting the Power Cable	15
3.7. Setup Wizard	16
4. Prusa CORE One L Overview and Glossary	17
5. Your First Print	19
5.1. Basic controls	19
5.2. Preparing Flexible Print Sheets	20
5.3. Inserting (Loading) filament	21
5.4. Unloading (Removing) Filament	22
5.5. Starting the First Print	23
5.6. Removing a Printed Object from the Print Sheet	25
6. Additional Advice and Tips	26
6.1. Active Chamber Environment Management	26
6.2. LED Light	26
6.3. Updating the Firmware	27
6.4. Sample Models	28
6.5. Factory Reset	28
7. Advanced User Guide	29
7.1. Prusa Academy Courses	29
7.2. Network Connection	30
7.2.1. Wi-Fi Connection	30
7.2.2. Prusa Account	31
7.2.3. PrusaLink & Prusa Connect	31
7.3. Calibrations	32
7.3.1. Phase Stepping	32
7.3.2. Input Shaper and Pressure Advance	32
7.4. Manual Belt Tuning	33
7.5. Cancel Object	33
7.6. Stealth Mode	33
7.7. Mechanical Filament Sensor Disengage	33
7.8. Multi-Material Upgrade	33
7.9. Additional Accessories	34
7.10. Using Nozzles with Various Diameters	34
7.11. Flashing an Unofficial (Unsigned) Firmware:	35
8. Printing Your Own Models	36
8.1. Obtaining Printable Models	36
8.2. What is a G-code File?	37
8.3. Create Your Own Model	37
8.4. EasyPrint - The Easiest Way to Print!	37
8.5. PrusaSlicer - Step by step example	40

9. PrusaSlicer	43
9.1. PrusaSlicer Interface Explained	44
9.1.1. Initial Setup and General Workflow	45
9.1.2. Using Supports	46
9.1.3. Speed vs Print Quality	47
9.1.4. Infill	48
9.1.5. Brim	48
9.1.6. Printing Objects Larger than the Print Volume	49
9.1.7. Printing Multicolored Objects (without MMU3)	50
9.1.8. Slicing and Exporting	51
10. Material Guide	52
11. Regular Maintenance	53
11.1. Flexible Print Sheets	53
11.1.1. Double-Sided TEXTURED Print Sheet	55
11.1.2. Double-Sided SMOOTH Print Sheet	55
11.1.3. Double-Sided SATIN Print Sheet	56
11.1.4. Improving the Adhesion	56
11.2. Keeping the Printer Clean	56
11.3. Bearings	56
11.4. Fans	57
11.5. Extruder Feeding Gear	57
11.6. Electronics	57
11.7. Extruder is Clogged or Jammed	57
11.8. Cleaning the Nozzle	58
11.8.1. The filament does not come out of the nozzle.	58
11.8.2. The filament does not come out of the nozzle or only a small amount comes out	58
11.9. Troubleshooting Faulty Sensor Readings and Removing Errors	58
11.10. Filament Sensor	58
12. FAQ - Frequently Asked Questions and Basic Troubleshooting	59
12.1. Error Screens	59
12.2. First Print Troubleshooting	59
12.2.1. LoadCell calibration fails	59
12.2.2. First layer peeling off from the bed	59
12.2.3. Nozzle moves too high/low, or extrudes plastic outside the print area	60
12.2.4. After a few hours of printing, the nozzle stops extruding filament	60
12.2.5. The nozzle does not start extruding, even after multiple attempts	61
12.3. Mesh Bed Leveling Fails	62
12.4. Printer Does Not Recognize the Inserted USB Drive	62
12.5. Loose Belts	62
12.6. Homing Failed	63
12.7. Heating Error	63
12.8. Fan Error	63
12.9. Reverting to an Older Firmware	63
12.10. Nozzle Hitting the Sheet / Other Z-axis Issues	63
13. Advanced Hardware Troubleshooting	64
14. Troubleshooting Print Quality Issues	64

Product Information

Name:	Prusa CORE One L
Manufacturer:	Prusa Research a.s., Partyzánská 188/7a, Holešovice, 170 00 Praha 7, Česká republika
Contacts:	Phone: +420 222 263 718, e-mail: info@prusa3d.com
Power Supply:	100-240 VAC, 10 A max., 50-60 Hz
Frequency Bands:	WLAN: 2400,0-2483,5 MHz
	NFC: 13,553-13,567 MHz
Maximum Radiated Radio Frequency Performance (WLAN):	< 100 mW e.i.r.p.
Maximum Magnetic Field Strength (NFC):	< 42 dBuA/m at a distance of 10 m
WLAN standard:	IEEE 802.11 b/g/n
Operating Temperature Range:	18 °C - 38 °C
Maximum Air Humidity:	85%, non-condensing
Printer Dimensions:	Width: 469 mm
	Depth (with closed door): 521 mm
	Height: 635 mm
Build Volume (Width × Depth × Height):	300×300×330 mm
Installed Nozzle Diameter:	CHT 0.4 mm
Supported Filament Diameter:	1.75 mm
Weight (With Packaging / Without Packaging):	27 kg / 21.9 kg

The serial number of the Prusa CORE One L product is printed on the nameplate located on the printer frame and also on the packaging. The Prusa CORE One L is a device intended for use only in indoor environments, where it is protected from external influences.

Operating conditions in accordance with the General Authorization of the Czech Telecommunication Office No. VO-R/10 and No. VO-R/12.

Simplified Declaration of Conformity

The manufacturer, Prusa Research a.s., hereby declares that the product Prusa CORE One L conforms with Directive 2014/53/EU applicable in the European Union and with Statutory Instruments 2017 No. 1206 applicable in the United Kingdom. The full text of the Declaration of Conformity is available on the website prusa3d.com.

Prusa CORE One L Warranty Information

Prusa CORE One L 3D printers are covered by a 24-month warranty for end customers in the EU, and a 12-month warranty for business customers and end customers in the rest of the world. Consumables and parts subject to wear and tear are excluded from this warranty. The warranty period starts on the day the customer receives the goods.

The seller is not liable for any damage caused by improper handling of the purchased product, or damage caused by handling in violation of the information and recommendations given in the official manuals and instructions. The warranty also expires in the event of unskilled interventions and the use of unofficial hardware and software modifications.

Safety Symbols and Their Meanings



Warning: strong magnetic fields. Do not place objects sensitive to magnetic fields on the marked areas, as they could be irreversibly damaged.



Warning: moving mechanical parts. Be careful not to injure your hands when you are in close proximity to equipment with mechanical parts.



Information on function, operation and service can be found in this manual or online at help.prusa3d.com.



Before any servicing, read the instructions and disconnect the product from the power supply.



Take extra care when handling or touching parts marked with this symbol and avoid other hazards listed for specific symbols, such as hot surface hazards - burns may occur.



Attention: hot surface! The marked object may be hot and extra care must be taken when touching it to avoid burns.



Attention: moving parts. Unprotected moving mechanical parts can cause injury, so take extra care.



Do not print directly on this surface!



This product is made up of components that must be disposed of in accordance with the Waste Electrical and Electronic Equipment Directive, so take it to an e-waste collection point.



Safety Instructions and Disclaimer

Acting contrary to the information provided in this manual can result in injuries, poor print results, or damage to the 3D printer. Ensure that anyone working with the printer understands and comprehends the contents of this manual. Since we cannot control the conditions in which you use the Prusa CORE One L printer, we do not accept responsibility for any losses, injuries, damages, or expenses arising from or associated with the handling, storage, use, or disposal of the product. Information in this manual is provided without any express or implied warranty.

Handling the 3D Printer

Exercise caution when handling the 3D printer. It is an electrical device with moving and heated parts.

Placement and Basic Use

- Ensure the printer is placed and operated in a suitable location to avoid potential risks.
- This device is intended for indoor use only. Do not expose it to water or snow. Contact with water and other liquids can damage electronics, cause short circuits, and other types of damage. Always operate the printer in a dry environment.
- Place the printer in a secure, dry location. The surface must be level and stable—ideally, a workbench.
- Ensure that no vents/fans are blocked. The printer has built-in fan speed monitoring, but in some cases (component damage, unofficial firmware), the monitoring may not work correctly. Insufficient cooling can lead to overheating and severe printer damage (risk of electronic damage, fire).
- Ensure the printer is placed to prevent tipping or falling. If the printer has suffered physical damage, do not use it—damaged parts can pose a safety risk.
- Power adapters and cords must be placed to avoid tripping, stepping on, or otherwise damaging them. Make sure the cables are not damaged. If they are, stop using the device immediately and replace the cables. Damaged cables are a safety risk - risk of electric shock.
- Do not leave the printer unattended while it is on! The printer is equipped with temperature control and several smart safety features, but misuse or unexpected component failure can pose a fire hazard.
- Never interfere with the print area when the printer is in operation. Also, prevent foreign objects from entering the print area to avoid collisions.

Electrical Safety

- The printer can only be powered through a standard 230 VAC, 50 Hz or 110 VAC, 60 Hz power outlet. Never use alternative sources, they may cause problems or even damage the printer.
- Do not use the printer if the power cable is damaged—damaged cables can lead to electric shock.
- Never disassemble the printer's power supply or the heatbed. Both components contain hazardous voltage and have no user-serviceable parts inside. Improper handling can lead to printer damage and increased risk of electric shock.
- You can disconnect the device from the electrical grid by pulling out the plug. The electrical outlet must be easily accessible.
- When disconnecting the power cord from the outlet, pull the plug, not the cord. This will reduce the risk of damage to the plug or the power outlet.
- Never, under no circumstances, disconnect electrical parts while the Prusa CORE One L printer is on — this includes disconnecting the Nextruder from the motherboard, disconnecting the LCD, and others. Always turn off the printer before disconnecting electrical parts.

The printer is equipped with a replaceable fuse located in the fuse holder near the connecting connector of the power source and it protects the entire printer. Before replacing the fuse, switch off the printer and disconnect the power supply by pulling out the power cord from the outlet. Push the fuse holder out using a flat screwdriver, remove the fuse and insert a new one. Push the fuse holder back in place. Always make sure the new fuse has the same value as stated on the label. If the fuse blows repeatedly, contact the tech support.

Mechanical Risk

Moving mechanical parts of the printer can cause injury.

- Never interfere with the internal components of the printer when it is connected to power or in operation—risk of injury from mechanical parts or electric shock.
- Prevent unauthorized persons, including children, from handling the printer, even when it is not printing.

Burn Risk

- Do not touch heated parts of the printer until the print has finished and the printer has cooled down – heatbed, print plate, and parts of the printhead. There is a risk of burns.

Proper Use of Double-Sided Print Sheets

Each type of print sheet requires slightly different maintenance. Improper handling and use can damage the print sheet, heated bed, or other parts of the printer. Print sheets are consumables and subject to wear.



The surface of the textured and satin print sheet must not be cleaned with acetone!

- Please refer to the Flexible Print Sheets chapter for maintenance instructions.
- Use highly concentrated isopropyl alcohol (90% or more) to degrease the sheet surface.
- Do not use products that contain IPA as one of the components (e.g. hand sanitizers) - these products usually contain other additives that may negatively affect the properties of the printing plate.
- Do not wash under running water, as the sheet may corrode.
- Do not remove the PEI film from the plate surface.
- Before printing, clean the print sheet surface with a cloth moistened with isopropyl alcohol.
- Printing sheets are held firmly on the heated bed with strong magnets - be careful when placing the sheet on the heatbed to avoid injury.
- Do not move (drag) the sheet when it is magnetically attached to the heated bed. Friction can damage the heated bed.

Working with Filaments

When handled correctly, working with filaments is simple and safe. Please read the following recommendations.

- Always use the recommended temperatures for the selected material.
- Beware of molten plastic! It can cause burns! If molten plastic hangs from the nozzle, do not remove it by hand. Use pliers or another tool.
- Some materials may emit a strong odor when printing - regularly ventilate the room.
- Handle the filament according to the instructions on the following pages of the handbook.
- Always ensure the end of the filament is properly secured - either inserted into the extruder or threaded through the spool hole. If you accidentally release the end of the filament, it can easily tangle and knot.

1. Introduction

Thank you for purchasing the Prusa CORE One L 3D printer from Prusa Research! Your support allows us to invest in further development of 3D printers and other 3D printing products, such as PrusaSlicer, our amazing slicing software. We also have our own in-house line of resins and filaments (Prusament), operate [Printables.com](https://www.printables.com) and partake in many other awesome activities - check it out on our Blog at blog.prusa3d.com!

The **Prusa CORE One L** is a fully enclosed CoreXY 3D printer. Despite its compact size, it offers a large print volume and features exceptional strength and robustness, thanks to its smart exoskeleton frame design.

With an enclosed chamber allowing the internal temperature to reach up to **60 °C**, the Prusa CORE One L supports printing with advanced materials requiring elevated temperatures. Its active airflow control also allows printing with PLA and PETG with the door closed.

The Prusa CORE One L combines the **best features** of our previous printers, including the Nextruder with LoadCell technology and 360° cooling, enabling high-speed printing optimized for superior quality and durability.



2. Unpacking and Package Contents

To unpack the printer, please follow the instructions on the packaging and place it on a suitable surface. When moving the Prusa CORE One L 3D printer, use the handles on each side. Never lift it by any cables, spool holder, or door. Remove all packaging and protective films before you continue.



The Prusa CORE One L requires approximately **469×521 mm** of space, with at least **420 mm** of clearance in front to fully open the door.

2.1. Contents of the Package and Accessories

Your Prusa CORE One L printer package includes:

- Documentation
- Buddy3D camera
- USB drive with sample prints (G-codes)
- Prusa CORE One L toolset
- Alcohol-saturated wipe (for initial calibration), acupuncture needle
- Double-sided Satin print sheet
- High-Flow CHT nozzle (pre-installed on the printer)
- Hardened nozzle (for printing abrasive filaments, which wear out the standard brass nozzle very quickly)
- Filament spool holder
- 1kg spool of Prusament
- Spare parts
- Prusa lubricant for bearings
- A pack of Haribo gummy bears

These are the basic tools and accessories necessary for basic maintenance. **We recommend purchasing a few extra accessories**, such as:

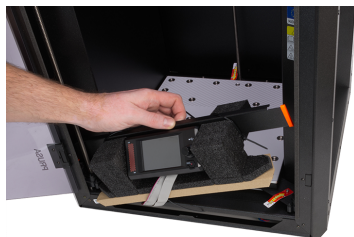
- **Cutting pliers** for cutting the end of filaments or removing supports from printed objects
- **Isopropyl alcohol** (90% or more) for cleaning the print sheet
- **Paper wipes** for cleaning the print sheet
- **Plastic spatula** for removing plastic from the print sheet - you can actually print one!
- **Brass brush** for nozzle cleaning

3. Printer Setup

3.1. Attaching the display panel

The printer is shipped with the display panel detached to reduce the risk of damage during transport. To attach the display panel, follow the image guide below.

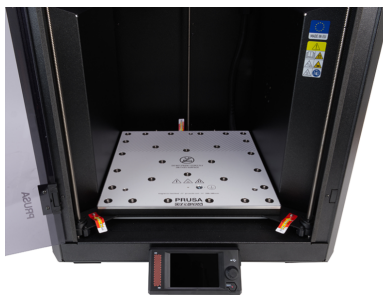
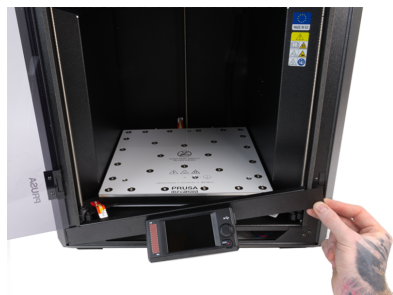
1. Open the printer door, and remove the display panel from inside the chamber.



2. Remove the packaging and the two orange plastic protective covers from both sides of the display panel. Check that both cables running from the printer to the display are connected as shown in the image.

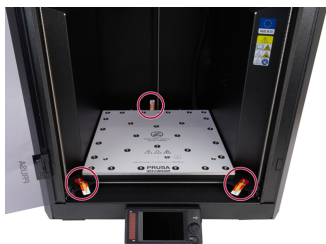


3. Attach the display panel to the printer. The panel is held in place magnetically. First, insert the left side, then the right side, and carefully slide it down.



3.2. Removing the shipping screws

The heatbed is secured for transport by **three** shipping screws, marked by red tags. **These screws must be removed before operating the printer.**



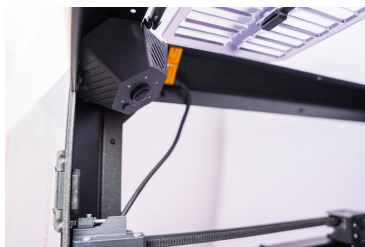
3.3. Mounting the spool holder

Place the included rubber O-ring onto the spool holder. Then, mount the spool holder by inserting it into the puck on the side of the printer and twisting it clockwise to lock it in place.



3.4. Connecting the camera

A pre-installed USB-C cable is located in the top-left corner of the chamber. Connect the cable to the camera and then place the camera in the same corner so the cable points to the right. The camera attaches to the frame using embedded magnets. For the correct camera orientation, please refer to the image below.



i Please note that the camera requires Wi-Fi network and Prusa Connect to work. The entire process is described in the manual that comes with the camera and also online at prusa.io/buddy3d-cam

3.5. Reversing the Door Orientation

If needed, you can reverse the door orientation by swapping the positions of the hinges and magnets, allowing the door to open in the opposite direction. A full guide on how to do so is available at prusa.io/col-door-reversal.

3.6. Connecting and Disconnecting the Power Cable



Always pull the connector, do not pull on the cable itself! Incorrect handling can lead to damage to the connector or cable.

The power supply port is located on the rear side of the printer. Before you plug or unplug the cable, turn the printer off using the physical switch on the power supply unit next to the power supply port.



3.7. Setup Wizard

When you first power on the Prusa CORE One L, the Setup Wizard will guide you through the initial setup. This includes selecting a language, configuring the network connection, and connecting the printer to Prusa Connect.



The network and Prusa Connect steps are optional, and you can complete them later or skip them entirely. The printer will be completely functional even in fully offline mode. You can find more information about network connection and other features in the **Advanced User Guide**.

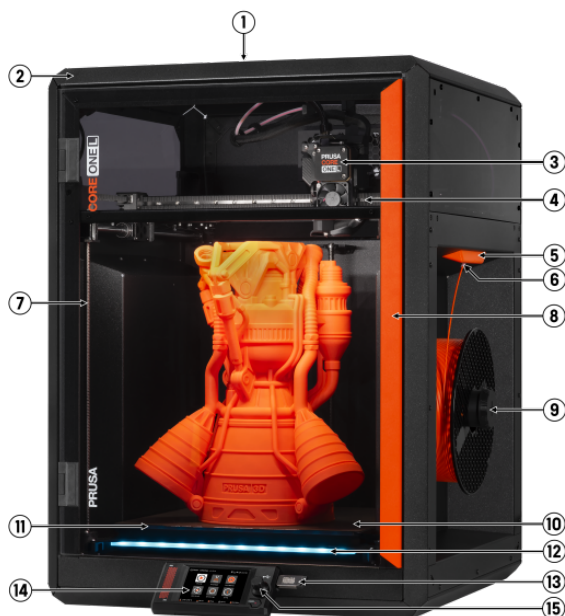
The Prusa CORE One L is equipped with a door sensor with a safety feature, which automatically pauses the print whenever the door is opened. This prevents damage or user injury. Keep the door closed while the printer is in operation. During the initial setup, the Wizard will prompt you to enable this feature.



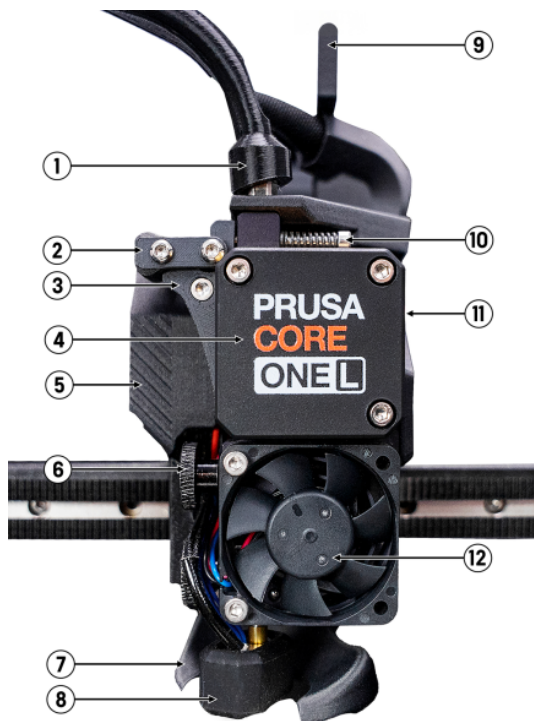
By choosing to skip this step, you acknowledge and assume all risks associated with operating the printer with safety systems deactivated. We will not be held liable for any damage or injury resulting from this choice.

The wizard will also prompt you to remove the three shipping screws. If you have not already removed them, please do so now. **Running the printer with the heatbed still fixed by the shipping screws could seriously damage your device.**

4. Prusa CORE One L Overview and Glossary



1. **Ventilation grille (on the top)** - to maintain airflow when printing with materials such as PLA or PETG
2. **Frame** - an exoskeleton design for maximum strength and robustness
3. **Nextruder** - our next-generation extruder with a planetary gearbox and LoadCell sensor
4. **XY-carriage** - a horizontal assembly consisting of motors, belts, linear rails, pulleys, and plastic parts; moves the Nextruder left and right, and forward and backward
5. **Handle** - located on both sides, used for lifting and moving the printer
6. **PTFE tube** - insertion point for filament
7. **Z-Axis** - a vertical assembly consisting of smooth and threaded rods and three motors; moves the heatbed up and down
8. **Door Handle** - used to open the door
9. **Spool Holder and Filament Spool** - the Prusa CORE One L is compatible with 1.75mm filaments
10. **Print sheet** - easy to maintain; held in place with strong magnets embedded in the heatbed
11. **Heatbed** - heated pad with aluminum construction for perfect heat conduction
12. **LED indicator light** - indicates the printer's current status using different colors
13. **USB port and USB drive** - used to print G-Codes (print files) and flash firmware from the USB drive
14. **LCD** - used for control and configuration of the printer
15. **Rotary knob** - the main control device with the reset button directly below it



1. **Filament Insertion Point** - As you insert the filament into the PTFE tube on the side of the printer (next to the spool holder), this is the point where it feeds into the Nextruder.
2. **Idler lock (swivel)** - flip upwards to unlock the idler door
3. **Idler** - maintains pressure on the filament strand which is moved further into the extruder by the extruder gear
4. **Planetary gearbox and extruder motor**
5. **Electronics cover** - covers the break-out board
6. **Thumbscrews** - you can detach the nozzle by unscrewing the thumbscrews
7. **Print Fan shroud** - directs the air from the high-performance turbine print fan towards the printed object
8. **Heaterblock with Nozzle** - by default, a CHT 0.4 mm nozzle is installed
9. **Nextruder lever** - for automatically opening and closing the ventilation grille
10. **Idler screws** - these screws are used to adjust the pressure of the idler
11. **Print fan (back side)** - high-performance turbine for cooling the printed object
12. **Heatsink fan** - cools the aluminum heatsink behind it

! DO NOT remove the cover of the gearbox as the gearbox is precisely aligned and calibrated. There is no need to access it. You could misalign the gearbox by removing the cover.

5. Your First Print

To get your printer up and running, please pay attention to the information in the following chapters. We will go through the basics together - you'll be printing in no time! If you encounter any problems during your first print, refer to **the Basic Troubleshooting** chapter at the end of the handbook.

In this chapter you will learn how to:

- Control the printer
- Prepare the print sheet for the first print
- Perform initial calibration
- Insert filament
- Start the first print
- Remove the print

5.1. Basic controls

1. Rotary Knob: Turn to navigate and press to confirm selections.

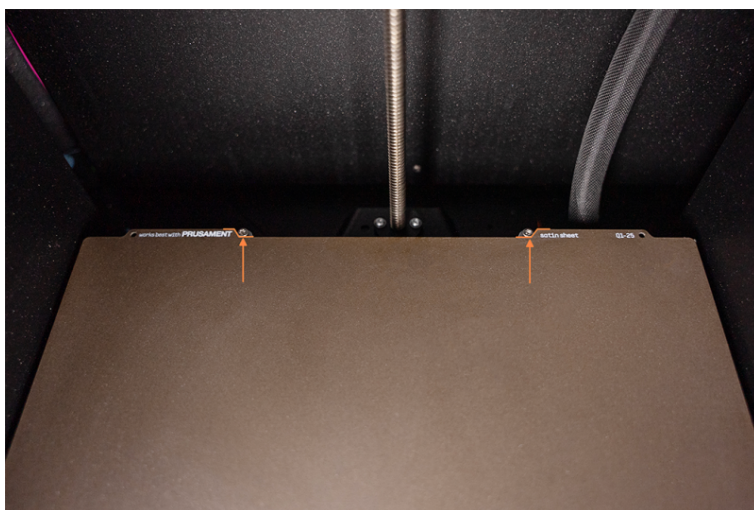
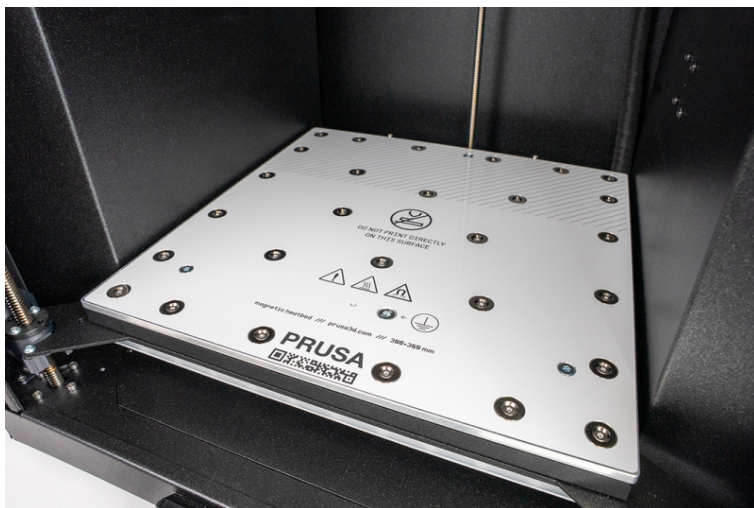
2. Touchscreen: Tap and swipe to navigate and select items in the menu.

3. Reset Button: Instantly restarts the printer. Useful when an immediate stop is needed.



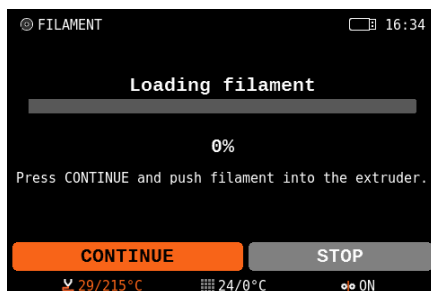
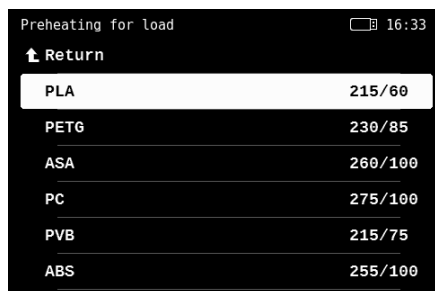
5.2. Preparing Flexible Print Sheets

1. The Prusa CORE One L comes with a double-sided Satin print sheet. Learn about all print sheet types in the **Regular Maintenance chapter**.
2. Before you place the print sheet, **the heatbed must be free of any debris** - it could affect the calibration or damage the printer. **Never print directly on the heated bed!**
3. To move the print sheet on the magnetic heatbed, lift it up by grabbing the front part, adjust the position, align the print sheet with two screw heads on the heatbed that fit into the cutout of the print sheet and slowly place it back. **Never drag it on the heatbed!** Watch your fingers!
4. **Wipe the print sheet using the supplied cleaning wipes soaked with isopropyl alcohol**. Do not touch the surface of the sheet afterward.



5.3. Inserting (Loading) filament

- Prepare a spool of filament (PLA is recommended), place it on the spool holder on the side of the printer, and unhook the filament end carefully to avoid tangling.
- Cut the filament to a sharp point and push it through the PTFE tube all the way to the Nextruder. Once it reaches the filament sensor in the print head, the loading process will begin automatically.
- When the Preheat menu appears, select the filament material and wait for the nozzle to reach the desired temperature. Once it heats up fully, it will push out a bit of material from the nozzle.
- **The printer will ask if the color of the extruded filament is okay.** Check if there is filament extruded from the nozzle, and select one of the options:
 - Filament extruded, correct color: **YES**
 - Filament not extruded or wrong color: **PURGE MORE** (repeatable)
 - Filament not extruded and PURGE MORE doesn't help: **RETRY** (restart loading).

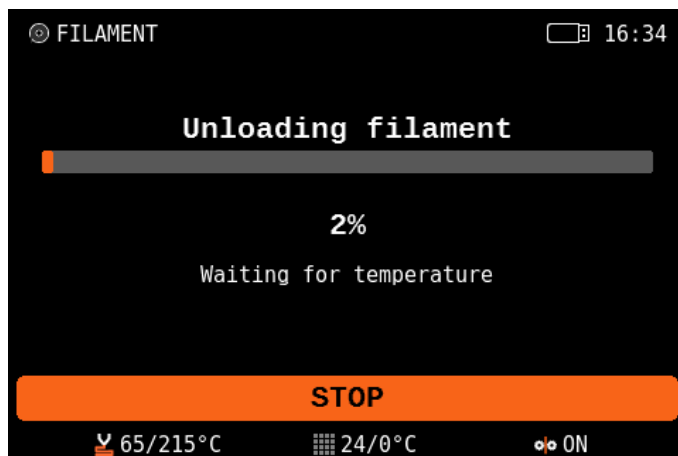


The printer remembers which filament is inserted into it even when you turn it off. The type of filament is displayed in the lower section of the LCD menu.

For the next step (Starting the First Print), you can leave the filament inserted in the printer. If you need to change it, the procedure is described on the next page.

5.4. Unloading (Removing) Filament

1. Select *LCD Menu - Filament - Unload Filament*
2. The printer will preheat automatically. As soon as it reaches the right temperature, the filament will be unloaded from the extruder in a few seconds.
3. Once the extruder stops unloading the filament, remove it by hand from the PTFE tube. The filament needs to be wound up on the spool and secured carefully so that it does not tangle up.



Tangled filament? Let's fix it!

If you accidentally let go of the filament end and it retracts onto the spool, it may tangle, posing a risk during printing—a knot could form, leading to a failed print. To fix this, remove the spool, unwind the strand until you locate the crossed section, correct it, and rewind the filament.

5.5. Starting the First Print

If you haven't done it already, clean the print sheet with the enclosed wipe saturated with isopropyl alcohol or spray a bit of isopropyl alcohol onto the sheet and wipe it clean with a paper towel. Please note that the enclosed wipe has limited use as IPA evaporates quickly.



When printing with materials such as PLA or PETG, the Prusa CORE One L automatically opens the ventilation grille on the top of the printer by pushing it with the lever on the top of the nextruder. The Prusa CORE One L will then maintain internal airflow and the correct temperature in the chamber using fans, allowing you to print with these materials with the door closed.



Insert the USB drive that came with your printer and select one of the test objects from the Print menu (we recommend **the Keychain**). Confirm the selection by pressing the rotary knob.

The printer will handle everything **automatically**, so you can just observe your first print, which will proceed in the following order:

1. The nozzle will preheat to 170 °C (independent of the selected filament - the temperature is lower to prevent the filament from dripping from the nozzle).
2. The printer performs **Mesh Bed Leveling** - the nozzle will check the distance to the print sheet in several places to create a virtual surface height map. This allows the printer to lay down a perfect first layer every time.
3. The nozzle will heat to the desired temperature, and the printing of the first object will start.
4. Carefully observe the quality of the first layer. The Prusa CORE One L is equipped with very accurate LoadCell technology, which measures the distance between the nozzle and the bed with perfect accuracy. However, it may happen that **due to, e.g., traces of grease, the print may not hold well**.

Optionally, **if you have more than one color of PLA filament**, you can also select **the Dual-Color Keychain**. It's a great demonstration of multi-colored print using only one extruder. During the print, the machine will ask you to change the filament. Simply **follow the instructions on the screen** to achieve the effect visible in the photo below.



If you find that the plastic is peeling off the bed, **stop the print by selecting the Stop print icon on the screen**. Clean the bed and try again.



If the first print fails repeatedly, go to the **First Print Troubleshooting chapter (Chapter 12.3)**, where you will find useful tips and tricks.

5.6. Removing a Printed Object from the Print Sheet

Once the print job is finished, wait until the print sheet cools down. The print plate and heated bed may exceed 100 °C, depending on the settings - contact with unprotected skin can cause burns, so check the heatbed temperature in the footer of the LCD screen!

Depending on the type of material, it may happen that the print will separate from the print sheet automatically by itself after cooling. If not, remove the print plate and carefully bend it on both sides. Then turn it by 90° and repeat the bending. **Be sure to remove all pieces of plastic** - don't forget the purge line next to the print.



! If there are plastic remnants on the plate, do not remove them with your nails, you could get injured. Use a plastic spatula to remove the remaining plastic.

i Try to avoid touching the print surface with your fingers more than necessary, as fingerprints are greasy and can reduce adhesion.

Now that you've successfully completed your first print, look forward to **Chapter 8**, where you'll find a simple guide to obtaining, slicing, and printing your own model.

6. Additional Advice and Tips

After completing your first print, here are a few additional things to know for using your printer.

6.1. Active Chamber Environment Management

The Prusa CORE One L's compact enclosure is designed to heat up to 60 °C using only the heatbed, without any additional heating elements. This efficient heating design ensures optimal printing conditions, even for challenging materials. The Prusa CORE One L heatbed features fans on its underside. These fans help with active heat circulation, which accelerates the chamber's heating time.

When printing with materials such as PLA or PETG, the Nextruder automatically slides open the ventilation grille on the top of the printer. The Prusa CORE One L will then maintain internal airflow and the correct temperature in the chamber using fans, allowing you to print with these materials with the door closed.



The chamber takes some time to reach the required temperature. However, you don't need to wait—the first layers are close enough to the heatbed to keep the correct ambient temperature. By the time the nozzle moves to higher layers, the chamber will already be properly heated.

6.2. LED Light

The Prusa CORE One L features an internal LED light located on the inner side of the XY carriage frame. The LED intensity can be adjusted in the printer settings menu.

6.3. Updating the Firmware

The Prusa CORE One L is ready to print once powered on. To make sure you have the most up-to-date version of the firmware with the latest features and settings, we recommend checking prusa3d.com/drivers. To check your firmware version, navigate to *LCD Menu -> Info -> Version info*.

You can update your printer's firmware either using Prusa Connect, our network remote management system, or using a USB drive. To learn more about Prusa Connect, see the **Advanced User Guide** section.

To update your printer's firmware using a USB drive, follow these instructions:

1. Download the correct version of the firmware from prusa3d.com/drivers and unzip the file.
2. Copy the .BBF file to a USB drive formatted with FAT32 - you can use the USB drive that comes with your Prusa CORE One L printer.
3. Insert the USB drive into the printer.
4. Restart the device using the reset button (located under the rotary knob).
5. The update process should begin automatically. Confirm flashing by selecting FLASH and pressing the knob.
6. Wait until the process is completed.



We publish new firmware versions all the time, bringing useful new features. Check our social media channels or GitHub (github.com/prusa3d) often to get the latest news!



To force a firmware installation (e.g., to load an older version), insert a USB drive containing the desired .BBF file, restart the printer, wait for the logo to appear, and press and release the control button. The firmware installation screen will then appear.

6.4. Sample Models

The USB drive that came with your Prusa CORE One L 3D printer contains a number of **sample files** (G-codes). We recommend keeping them on the flash drive.

These files have been prepared (sliced) and thoroughly tested by us. **If you encounter issues with print quality at any time, try loading and printing one of the sample files** - especially the Prusa Logo Keychain. These sample files are designed to test the basic functionality of your Prusa CORE One L.

If your own custom print fails and the sample files are printed correctly, it means there's probably an issue with the way your files are sliced. Try reslicing them again with the default PrusaSlicer settings and check for the basic issues:

- Incorrect printer/nozzle profile (the Prusa CORE One L is equipped with a CHT 0.4mm nozzle by default)
- Incorrect material settings
- Missing supports
- Incorrectly configured infill
- The model is not in contact with the print sheet

If the sample files are not printed correctly, check the Troubleshooting section, our Knowledge Base at help.prusa3d.com or contact our tech support.

6.5. Factory Reset

If you feel like you changed settings that have negatively affected your 3D printer, you can always revert to factory default values and try again. Factory Reset can be done via *LCD Menu* -> *Settings* -> *System* -> *Factory Reset*. Here you find several options:

- **Ownership Transfer** - Useful when you're giving the printer to someone else. Will reset all your personal settings, such as network and filament profiles, but keep things like hardware configuration, calibrations, and statistics.
- **Fix Common Misconfigurations** - Intended to fix things like filament sensor not working because it was accidentally turned off from the menu.
- **Keep HW Config** - Keeps only the hardware configuration (what nozzles, fans, extruders the printer has), nothing else.
- **Shipping Reset** - Similar to the Keep HW Config, but keeps all calibrations and shows Setup Wizard after reset. This reset is performed before shipping the printer.
- **Reset Settings & Calibrations** - Deletes all changes done by the user and reverts the system to its original state (including statistics).
- **Hard Reset (USB with FW needed)** - Completely deletes all settings. Requires a USB drive with firmware to restore the system.

7. Advanced User Guide

This part of the handbook covers everything you need to know once you manage to successfully print your first sample object. Network connection, printing your own models, slicing - all this (and more) is covered on the following pages.

7.1. Prusa Academy Courses

Become an expert in 3D printing! Our Prusa Academy offers **comprehensive online courses on various 3D printing-related topics**. Each course features easy-to-read texts with many pictures and short videos, links for inspiration and further study, quizzes for testing your knowledge, a certificate of completion and more! With our online courses, you can quickly learn how to model your own models and master advanced 3D printing techniques. Visit academy.prusa3d.com to join!

3D Printing and Modeling for Beginners (CORE One L)



8% complete

- 1 Unboxing and first look
- 2 Initial setup and Wizard
- 3 **First print**
 - ✓ 3.1. Choosing a 3D model from the included USB drive
 - ✓ 3.2. Alternative: Getting the print files using the Prusa app
 - 3.3. **Starting the print process**
 - 3.4. Watching the printer mechanics
 - 3.5. Watching the 3D print itself
 - 3.6. Manipulation with a completed model
 - 3.7. Quiz: Lesson 3
- 4 Downloading 3D models
 - 4.1. Printables.com: Introduction
 - 4.2. Our Printables.com sample picks
 - 4.3. Printables.com extra

3D Printing and Modeling for Beginners (CORE One L) / First print

Starting the print process



If you decided to print from the USB, use the controlling knob to open the **Print** menu and select the Water Dragon model.



Your printer comes with a free 3D printing and modeling course (CORE One L) for beginners, so you can start printing right away without any worries! The course is available under your Prusa account at prusa.io/col-course.

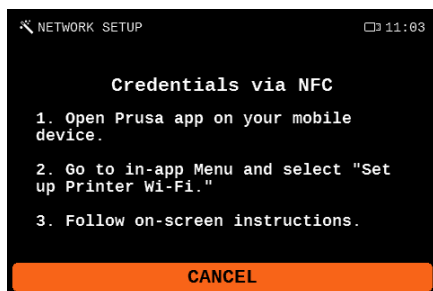
7.2. Network Connection

Prusa CORE One L has an onboard Ethernet (RJ45) interface and a detachable Wi-Fi module for connecting to the network.

7.2.1. Wi-Fi Connection

To connect your printer to the wireless network, choose one of four options:

- **Entering credentials using the touchscreen:** You can manually enter the Wi-Fi SSID and password via the touchscreen. Due to the limited space on the screen, the touch keyboard has a layout well-known from phones with hardware keyboards. Each button is assigned a certain number of characters. You select each character by pressing the button a certain number of times.
- **Network scan:** Similar to entering all your credentials via the touchscreen, except here you can select the Wi-Fi SSID from the list of detected wireless networks and then use the touchscreen to enter just the password.
- **NFC & Prusa mobile application:** If you have a mobile device with NFC and the Prusa app installed, you can enter your Wi-Fi credentials into the application and share them with the printer by tapping your phone on the NFC antenna on the rear of the Prusa CORE One L. For more information about the Prusa mobile application, see the following section.



- **Setup file with network credentials:** To connect the printer to a wireless network, via the **credentials file** please navigate to the *Network* menu and select *Wi-Fi* and look for the *Load credentials from a file* menu option. To generate setup file:
 1. Start PrusaSlicer 2.8.0 or newer.
 2. Insert a USB drive into your computer.
 3. In PrusaSlicer, navigate to: *Menu -> Configuration -> Wi-Fi configuration file*.
 4. Enter login credentials for your Wi-Fi.
 5. Select "Write" and save the file to the USB drive.
 6. Save the file.
 7. Insert the USB drive into your printer and choose Load Credentials from File in the printer's menu.
 8. You should be connected to Wi-Fi in a couple of seconds.

7.2.2. Prusa Account

You can log in to all Prusa services, including Connect, mobile application, Printables, and PrusaSlicer, with a single Prusa Account, which can be created at account.prusa3d.com. This integration of all our services allows you to easily slice and send models directly from Printables or PrusaSlicer to the printer, without needing to transfer them to a USB drive. Additionally, with your Prusa Account, you can access the mobile app using the same credentials as for Prusa Connect.

7.2.3. PrusaLink & Prusa Connect

You can use two options to access your Prusa CORE One L over the network:

- **PrusaLink:** A lightweight web interface with limited functionality, accessible within your local network via the printer's IP address. By default, DHCP is enabled on the printer. You can find the assigned IP address in the LCD Menu -> *Settings* -> *Network*. Log in to PrusaLink using the credentials located in the LCD Menu -> *Settings* -> *Network* - *PrusaLink*.
- **Prusa Connect:** A comprehensive remote printer management system, accessible over the internet, allowing you to control your printer from anywhere. With Prusa Connect, you can remotely manage all your printers at once. Visit connect.prusa3d.com and log in using your Prusa Account. To add your printer to Prusa Connect, go to LCD Menu -> *Settings* -> *Network* -> *Prusa Connect*.

You can also access your connected printers in Prusa Connect via the Prusa mobile application. To download the Prusa mobile app for iOS and Android use the QR codes below.



App Store



Google Play



For more information about connecting to Wi-Fi networks and activating Prusa Connect online features, please check our website help.prusa3d.com.

7.3. Calibrations

Below you will find a description of several calibrations that can improve your printer's performance or make it quieter.



Your printer comes fully calibrated, and it is not necessary to run the calibrations again.

7.3.1. Phase Stepping

Phase Stepping Calibration is designed to make your Prusa CORE One L printer quieter. Due to the natural variance in stepper motor manufacturing, each motor responds uniquely to driver signals, causing visible fine artifacts (VFAs) and noise. Phase Stepping customizes the drive signal for each motor, addressing these discrepancies by reducing VFAs and audible noise, thereby enhancing the printing experience.

Phase Stepping does not affect the printer's speed. If you wish to make the printer even quieter, you can enable Stealth Mode in the Settings. This will further reduce noise at the cost of a slight decrease in speed.

The function is available in *Menu -> Control -> Calibrations & Tests -> Phase Stepping Calibration*. The calibration shouldn't run on multiple printers side by side simultaneously. The neighboring printer performing similar motions may affect the measurement.

7.3.2. Input Shaper and Pressure Advance

Prusa CORE One L utilizes Input Shaper and Pressure Advance features, allowing it to print faster and with better quality, reducing ringing, overshoots, and issues with inconsistent filament extrusion.

Input Shaper analyzes the printer's movements and applies a filter to the input signals, leading to canceling resonance vibrations and reducing ringing (ghosting). Thanks to faster travel speed and acceleration, it enables faster printing and minimizes stringing.

Pressure Advance aims to improve the quality of printed parts by compensating for the pressure changes in the nozzle during printing.



Built-in Accelerometer

You can use the built-in accelerometer to **fine-tune the Input Shaper** and **Phase Stepping** values, or to **recalibrate** them after making modifications to your Prusa CORE One L.

7.4. Manual Belt Tuning

You can fine-tune the optimal tension of the belts on your Prusa CORE One L using Manual Belt Tuning. This feature allows you to see the biggest amplitude of your belt using a stroboscopic effect and fine-tune its tension. To do this, go to *Settings* -> *Manual Belt Tuning* and follow the instructions on the screen.

7.5. Cancel Object

When printing multiple objects at once, if any of them becomes detached or fails to print for any reason, you don't have to stop and discard the entire print. Instead, you can easily cancel the printing of that single object using the *Tune menu* -> *Cancel Object*, while the rest will continue unchanged, saving you a lot of potentially wasted filament.

If you are unsure which object to select (for example, you have individual instances-copies instead of names), you can wait for the nozzle to move to the failed object and then select the Cancel Current Object option. If you have selected an incorrect object to skip, you can use the menu actions to resume printing it.

7.6. Stealth Mode

With Stealth Mode enabled, the firmware limits acceleration, feed rate, and jerk values, reducing printer noise but also leading to longer print times. You can switch between Normal and Stealth Mode anytime, even during printing. After enabling, Stealth Mode will be activated once several G-code commands in the buffer (printer memory) are processed. You can enable the Stealth Mode option in *Settings* -> *Stealth Mode*.

7.7. Mechanical Filament Sensor Disengage

You can mechanically disengage the side filament sensor to make it easier to insert flexible filaments without resistance. To do this, slide the orange switch on the sensor housing located inside the print chamber. When the sensor is disengaged, an orange 'X' is visible in the indicator window.

7.8. Multi-Material Upgrade

The Prusa CORE One L is fully compatible with the latest generation of our **Original Prusa MMU3 add-on**, or MMU3 for short. The MMU3 vastly expands your 3D printing possibilities by giving you the option to **print with up to 5 colors at the same time**. You can also mix different materials, e.g., standard filaments (PLA) with **water-soluble filaments**. You can learn more about the MMU3 at prusa3d.com!

7.9. Additional Accessories

The Prusa CORE One L can be equipped with additional accessories such as a USB-C camera, an Advanced Filtration System, **Original Prusa GPIO Hackerboard**, or a **Prusa Drybox**, which fits the recess with the spool holder. You can also print custom accessories, such as Allen key holders. By adding magnets to them, you can attach the accessories directly to the steel surface of the exoskeleton frame. Alternatively, use the mounting holes to attach them to the sides. Find out more info about accessories at prusa3d.com.

7.10. Using Nozzles with Various Diameters

The Prusa CORE One L comes equipped with a **CHT 0.4mm nozzle** by default. This nozzle offers a good quality-speed ratio. However, for some projects, a nozzle of a different diameter might be more suitable.

The Prusa CORE One L uses **special nozzles with a metal filament guide**, making them easy to swap and highly reliable. We offer a wide range of nozzles of various diameters on our e-shop, ranging from 0.25mm to 0.8mm nozzles. You can set the diameter of your nozzle from 0.25mm to 1.0mm in increments of 0.05mm in *Menu -> Settings -> Hardware -> Printhead -> Nozzle Diameter*.



To give you even more options for your 3D printing projects, we developed a **Nextruder to V6 nozzle adapter**. When you install it, you can easily use any type of V6-compatible nozzles, including high-flow models. More information on alternative nozzles and their installation can be found at prusa3d.com and help.prusa3d.com.

7.11. Flashing an Unofficial (Unsigned) Firmware:

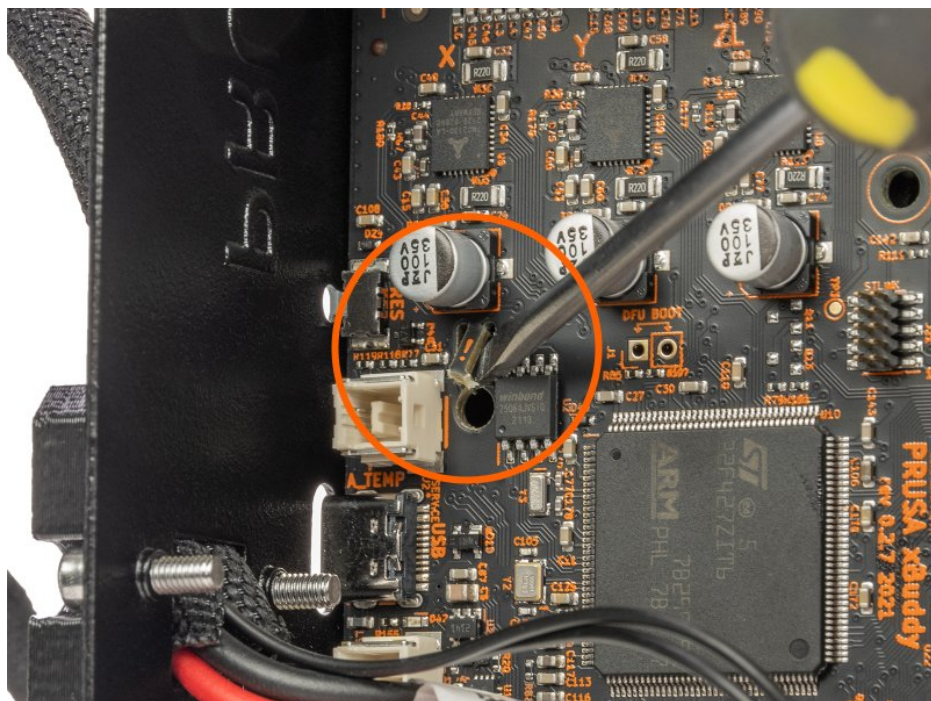
We take security seriously. Before each firmware update, we rigorously test it to ensure that all of its security features are working correctly. **If any of the sensors detect an unexpected reading, the heater will be immediately disconnected to prevent any damage to the printer or its surroundings.** We cannot guarantee the same level of security with unofficial (community) firmware.

Official firmware is signed with a private key and the printer verifies the key before updating.

To flash your own (or unofficial) firmware to the printer, you must first **break the seal** on the mainboard and place a jumper in the correct position. To break the seal, you must open the electronics box and locate a safety fuse. Then, take a small flathead screwdriver or very thin sharp pliers and break off the thin middle part of the fuse. **Before attempting this procedure, carefully review the photo in this chapter!** Breaking the seal is recommended only for very experienced users.



Breaking the seal on the mainboard of the Prusa CORE One L is **IRREVERSIBLE**. While this will not void the warranty on electronic parts of the printer, if you break the seal, we disclaim any responsibility for any damage to the printer and/or its surroundings (e.g. in case of a fire).



8. Printing Your Own Models

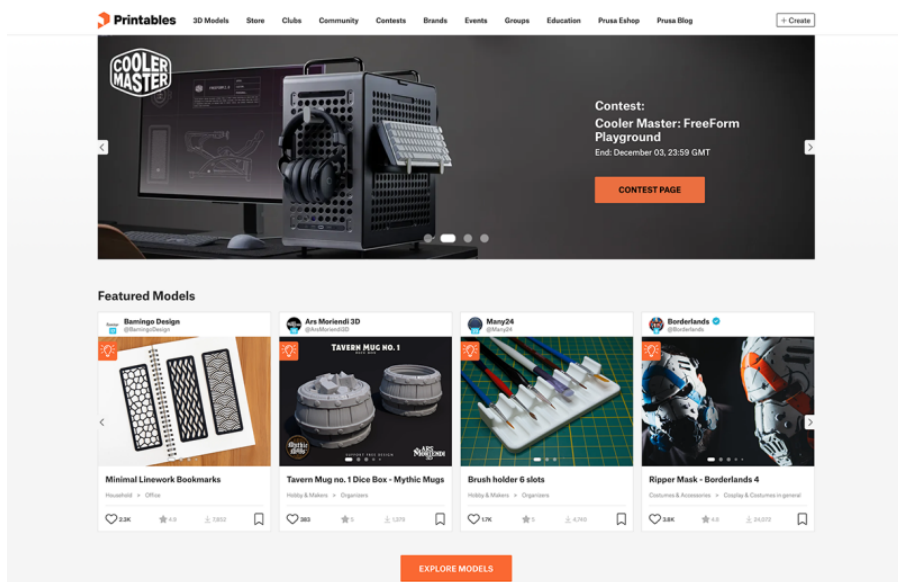
Your Prusa CORE One L should be now fully calibrated and the first print was a success. And now, you want to print your own model.

3D models can't be printed **directly**—they need to be prepared using **a process called "slicing"**. This process provides the printer with instructions on how to print the model, including details like infill and other settings. We'll go through the process with you. You can find more information about slicing and our PrusaSlicer software in the **PrusaSlicer chapter**.

8.1. Obtaining Printable Models

The easiest way to start 3D printing is by **downloading** models in .3mf, .stl, or .obj formats. Thanks to many enthusiasts, a large number of these models are available for **free**, ranging from simple dice to detailed figures, mechanical parts, household items, and even complex projects.

One of the best places for free 3D models is [Printables.com](https://www.printables.com), a large online library of **high-quality 3D models** managed by Prusa Research. Its main goal is to bring together a large community of designers, creators, and 3D printing enthusiasts - regardless of the brand of 3D printer they prefer. There are also regular community contests with great prizes, as well as a reward system offering both physical and virtual goods.



You can also find more 3D models to download on these websites:

- www.thingiverse.com
- www.myminifactory.com
- www.cults3d.com

8.2. What is a G-code File?

3D models you have created or downloaded from the internet need to be converted from their original format (.stl, .obj, .3mf, etc.) into a file containing specific instructions for the printer - the G-code. This is the format that 3D printers can understand. This file contains instructions about the movement of the nozzle, temperature settings and more. There are many different slicers available, each with its advantages and disadvantages. We suggest using our PrusaSlicer.

8.3. Create Your Own Model

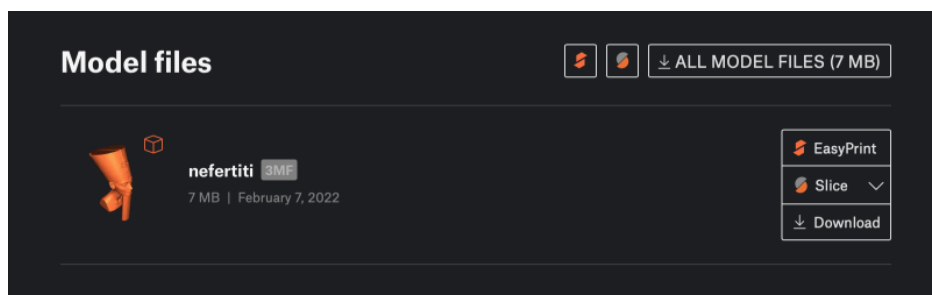
To create your own 3D model, you'll need a 3D editor. Many programs are available to suit different needs. For beginners, Tinkercad (www.tinkercad.com) is an excellent choice—it's free, runs in your browser without installation, and is ideal for creating larger, less detailed mechanical parts for FFF/FDM printing. It also offers plenty of online tutorials.

Another popular option is Autodesk Fusion 360 (www.autodesk.com/products/fusion-360), available for PC, Mac, and iPad. It includes detailed guides and video tutorials, making it suitable for both beginners and professionals. For more beginner tutorials, check out Prusa Academy at prusa3d.com/category/prusa-academy!

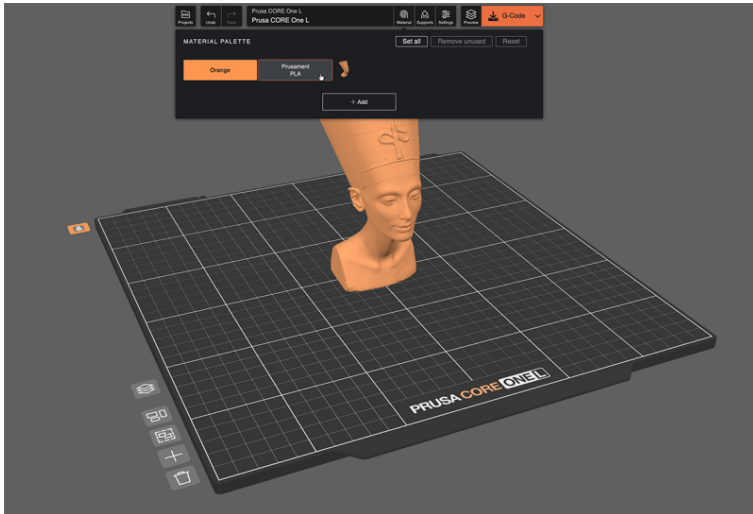
8.4. EasyPrint - The Easiest Way to Print!

The absolutely fastest way to print anything is the EasyPrint function at Printables.com. You can access it with your PC or a Chromebook (in a web browser) or by downloading the Prusa App on your smartphone or tablet. Simply browse for any model you like - in this case, we chose Nefertiti: printables.com/model/3112-nefertiti.

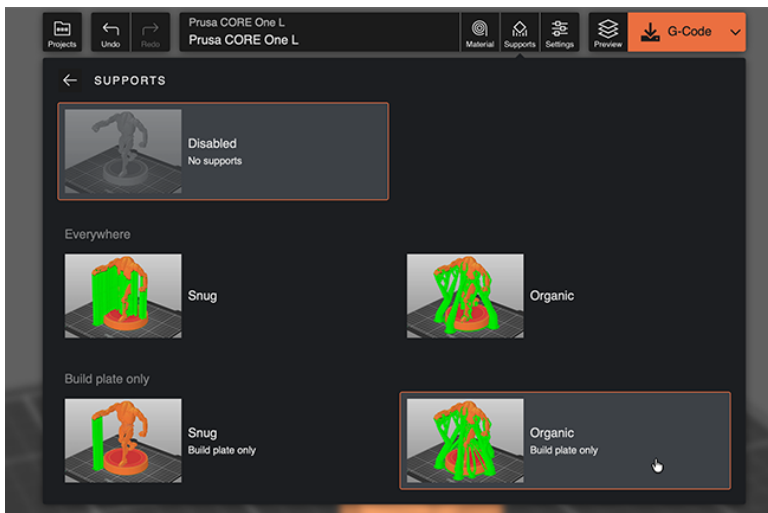
1. Make sure you're logged in with your Prusa Account at Printables.com and that your Prusa CORE One L 3D printer is connected to the network and added to Prusa Connect. All of this is described in the previous chapters.
2. Open the desired model. Click the Download button, which will take you to the file list. Click the EasyPrint button and then choose Continue. You will be taken to the EasyPrint interface.



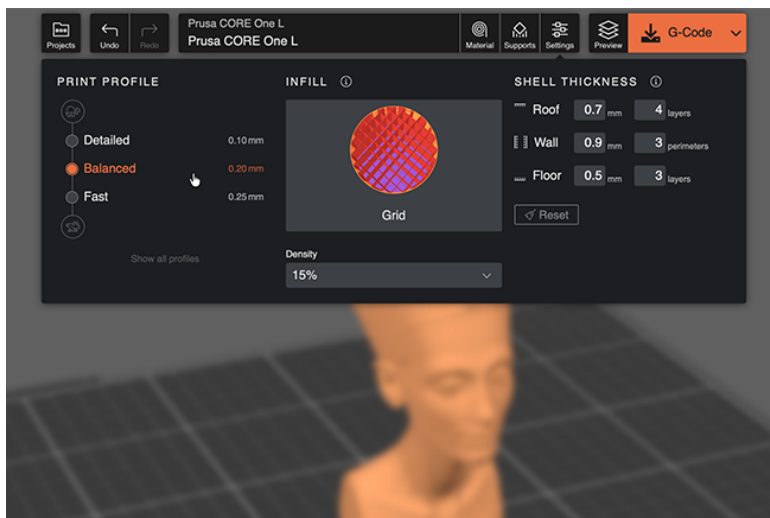
3. Here, you can use the mouse to rotate the view and also set up some useful basic options. Make sure that your printer is selected in the top menu.
4. Click Material and "Select a Material" - choose PLA and then Prusament PLA, provided that you're using Prusament PLA. Select an appropriate material in case you have a different one loaded.



5. Click Supports and select Organic (build plate only). Please note that for the sake of reliability, the density of supports is set to a higher number by default. This ensures your model will have no trouble printing.

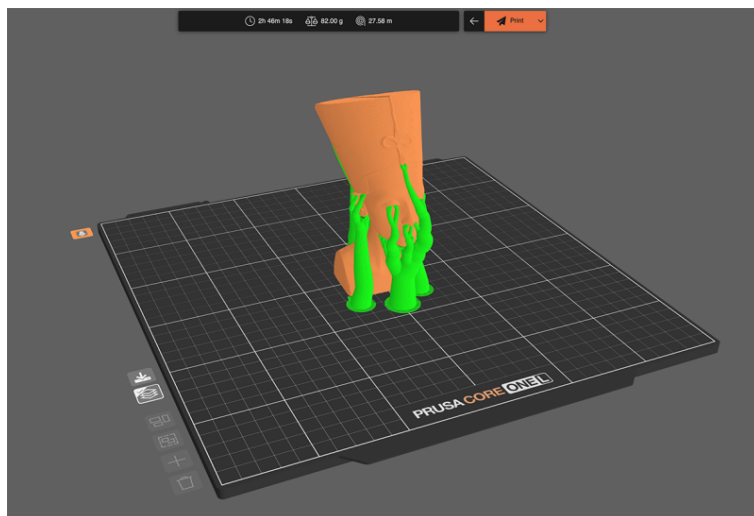


6. In Settings, you can choose the quality of the printed model. Don't forget that better quality takes longer to print. Keep the 0.2mm layer height for a balance between speed and quality. You can use the default Grid infill with 15% density, but for your next project, feel free to experiment - e.g., a 5% gyroid is often a good choice.



7. Click Preview and wait for a couple of seconds. EasyPrint will prepare your file for printing - once it's done, you will see the new supports (required for printing steep overhangs, etc.).

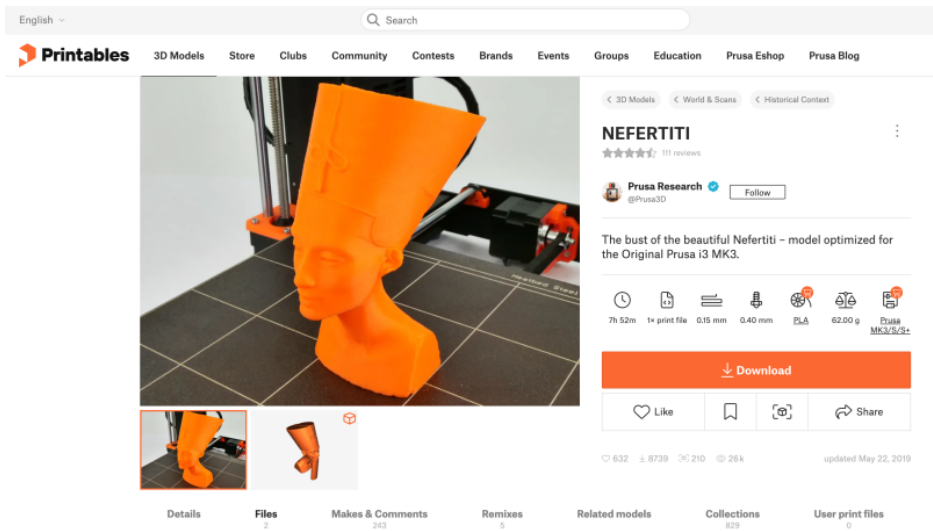
8. Finally, the orange button next to Preview should say Print (click the small arrow and choose Print if you don't see it right away). This will send the model to your printer's queue. Make sure your Prusa CORE One L is ready for printing - the same filament you chose in EasyPrint is loaded, the print sheet is installed and clean.



8.5. PrusaSlicer - Step by step example

In this section, we will demonstrate how to download and prepare a 3D model for printing step by step using PrusaSlicer. PrusaSlicer is available from [prusaslicer.com](https://www.prusaslicer.com) and it is our comprehensive and feature-packed slicing software with plenty of options for advanced users. You will print a model of Nefertiti, the queen of Egypt.

1. Download the 3D model from Printables: www.printables.com/model/3112-nefertiti. Make sure you download the **.3mf** file as it contains pre-painted positions where the supports should be placed.



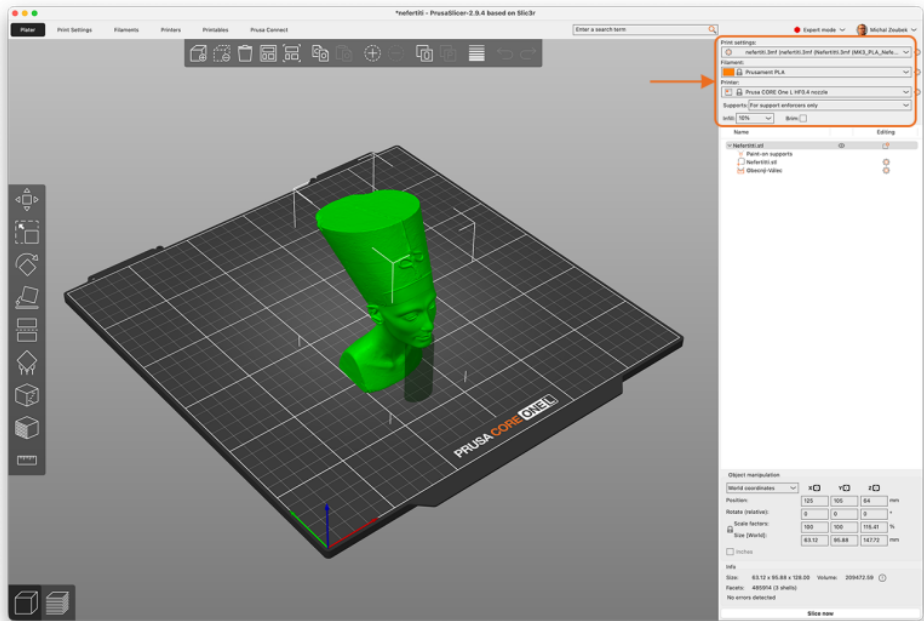
2. Import the 3D model into PrusaSlicer - if you don't have it yet, download version 2.9.4 or higher from www.prusaslicer.com. You can either drag and drop it into the PrusaSlicer window, click the Add button on the top menu bar, or use the *File - Import* menu. If the pop-up window appears, select the **Import 3D models only** option.

3. In the menu on the right side of the screen, you can adjust various print settings, such as filament type, support settings, or model fill density. We'll explain all these settings in detail in the following PrusaSlicer chapter. For now, we'll just set everything up quickly.

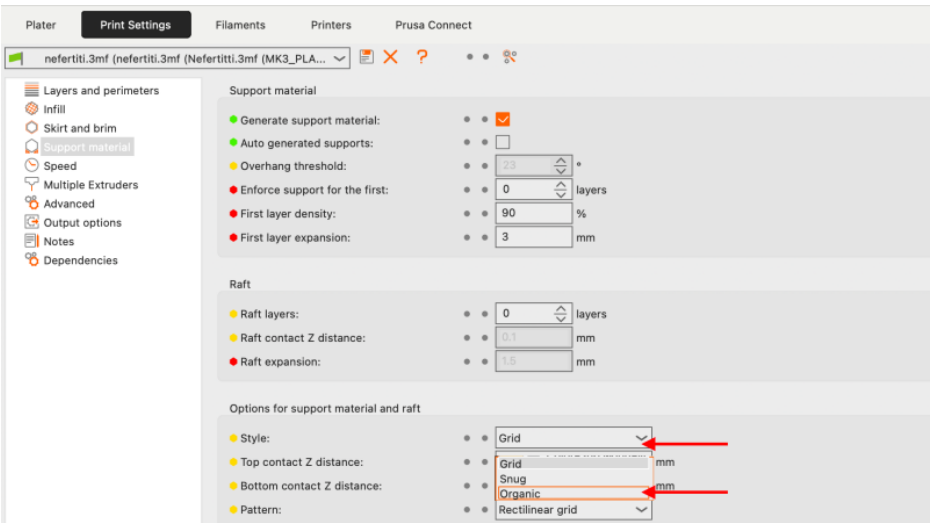
4. First, set the filament type to **Prusament PLA**. Then, set the infill value to 10% - a higher value increases the model's strength but also raises filament consumption and extends printing time. Ensure the corresponding filament type is loaded in the printer.

5. Finally, configure where the supports will be generated. You can choose from four options: None, Support on build plate only, For support enforcers only, or Everywhere. For this project, we will choose **For support enforcers only**, as it generates supports only in positions marked by the support paint tool - it's the semi-transparent ellipse under Nefertiti's chin. This is only possible because our model already has support enforcers. Otherwise, you would select Everywhere.

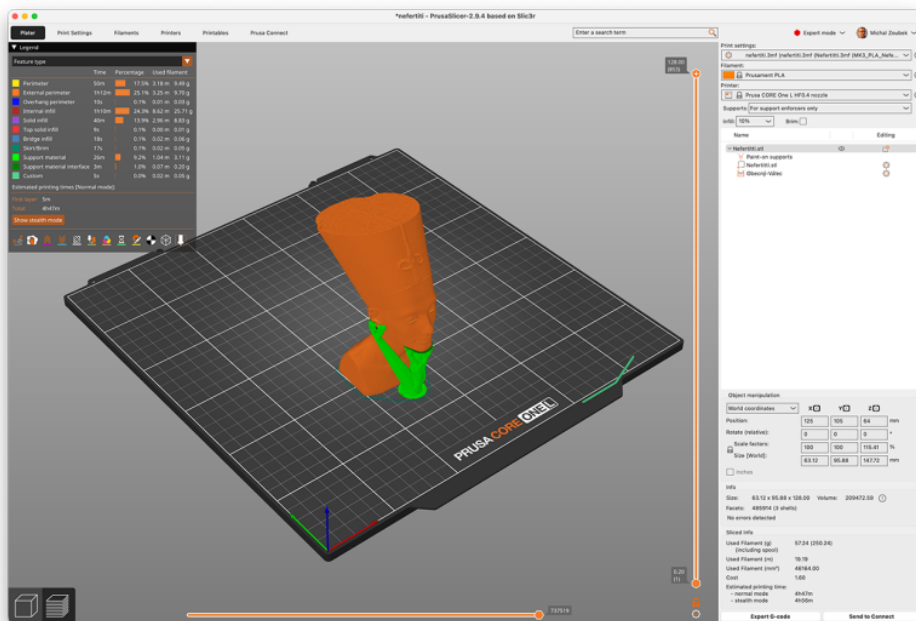
You will learn more about supports and the paint tool in the following PrusaSlicer chapter.



6. Now, let's adjust the style of supports to a more suitable type: Navigate to the **Print Settings** menu in the top bar, select **Support Material** from the left menu, and change the **Style** option to **Organic**.



7. Click the **Slice now** button. Once sliced, you can inspect the Nefertiti model with its generated supports, and view each layer using the slider next to the model preview.



8. Export the sliced G-code:

- Use the **Export G-code** button to generate a **.bgcode file** (G-code in binary format) that can be saved to a USB flash drive and inserted into the printer.
- Alternatively, if you are logged in to PrusaSlicer with your Prusa Account linked to Prusa Connect, you can send the sliced G-code directly to the printer by clicking the **Send to Connect** button.

This is a very general guide on slicing downloaded objects. Please keep in mind that more complex projects might require slightly adjusted approach. It all comes with experience, so keep experimenting!

In the following chapter, we'll introduce you to PrusaSlicer and its advanced features in more detail.

9. PrusaSlicer

As the name suggests, PrusaSlicer (prusaslicer.com) is our own in-house developed slicer software based on the open-source project Slic3r. **PrusaSlicer is an open-source, feature-rich, frequently updated tool** that contains everything you need to export the perfect print files for (not only) your Prusa CORE One L.

Thanks to the strong community and a dedicated team of developers in Prusa Research, PrusaSlicer is **constantly evolving** with new features and improvements based on community feedback.

From print quality improvements to reducing print time and minimizing filament usage, even small updates can have a significant impact on your 3D printing experience. Best of all, **PrusaSlicer is completely free for everyone** (it even includes profiles for 3rd party printers) and is frequently considered the best slicer on the market by independent reviewers.

PrusaSlicer comes with a G-code Viewer, a lightweight application, which you can use to quickly preview G-codes from all popular slicers. Its behavior is identical to the preview in PrusaSlicer (the same code is used), however, you can load an external G-code file.

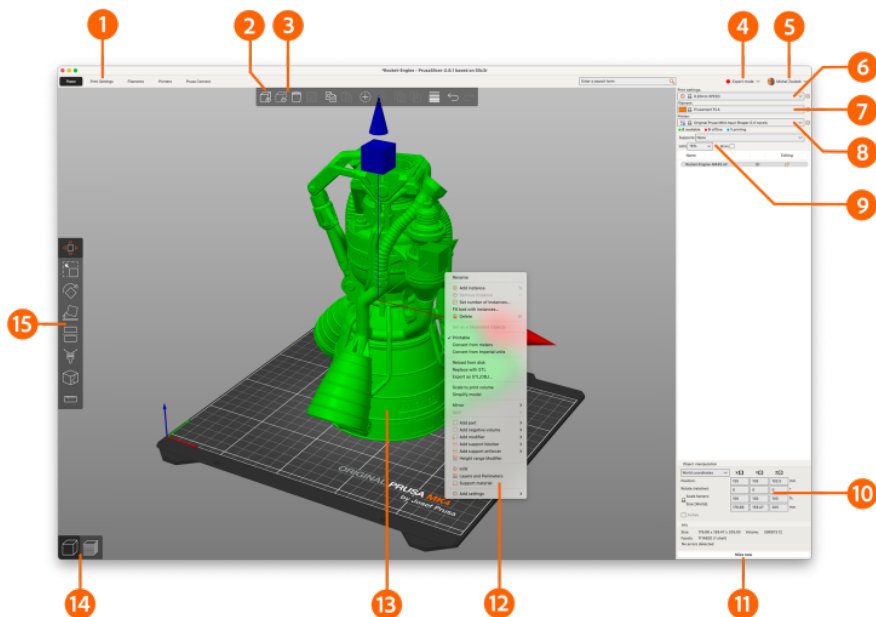
We currently parse, and up to some level interpret, G-code from PrusaSlicer, Slic3r, Slic3r PE, CURA, ideaMaker, Simplify3D, Craftware and KISSlicer.



Download PrusaSlicer now!

The latest stable version is always available at prusaslicer.com. Development alpha/beta versions can be downloaded from github.com/prusa3d/PrusaSlicer - these are unstable builds with the latest features.

9.1. PrusaSlicer Interface Explained



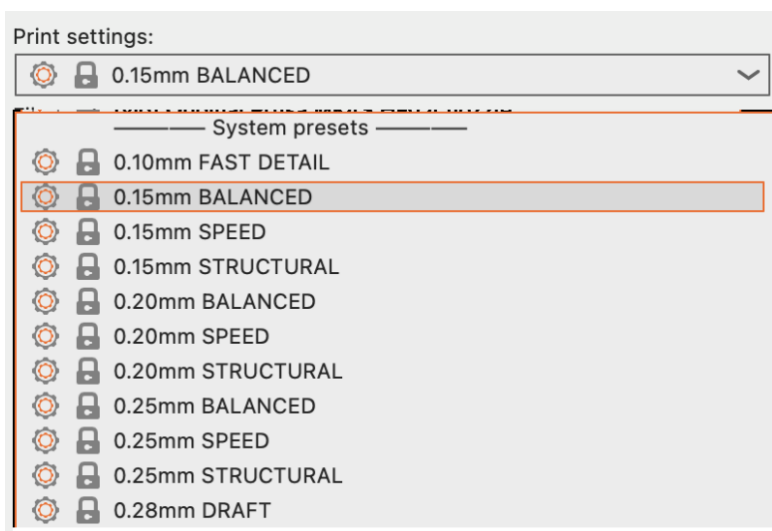
1. Opens detailed Print, Filament and Printer settings
2. The Add button is used to import a 3D model into the scene
3. The Delete and Delete All buttons remove the model(s) from PrusaSlicer
4. Switching between Simple, Advanced and Expert modes
5. Logged-in Prusa Account - you can send sliced models directly to the printer. For more details about Prusa Account, see **chapter 7.2.2**.
6. Settings for printing speed and quality
7. Material selection
8. Printer selection
9. Quick settings for Infill density, Supports and Brim
10. Information about model size/printing time (after slicing)
11. Slice / Export button
12. Right-click the model to open a context menu
13. Model preview in 3D
14. Switch between 3D editor and Preview mode
15. Move, Scale, Rotate, Cut, Paint-on Supports, Seam Painting tools

9.1.1. Initial Setup and General Workflow

Upon launching PrusaSlicer, select Prusa CORE One L from the Printer drop-down menu on the right (No. 6 in the PrusaSlicer overview on the previous page). If you don't see the Prusa CORE One L in the list, **you need to add it either by using Add Printer-Add Presets menu item** (in the same menu), **or by using Configuration - Configuration Wizard** from the top menu bar.

Then select the layer height, infill and the material you intend to use. **If you are not sure about the layer height, stick with 0.15mm profiles as they give generally good results.**

Recommended infill values are between 5-20 % but it heavily depends on the model and how durable it needs to be. More infill means a more durable model, however, it will take longer to print and more material will be consumed. For general use, there is no point in going above 40% infill, unless your project really requires it.



Please note that the default profiles have a tested specific setting for each type of filament. If you choose a different profile, it may affect the print quality negatively.

PrusaSlicer allows you to import objects in STL, OBJ, AMF, STEP and 3MF formats - these are the most common types of 3D files you can find on the internet.

You can either drag them directly into the 3D editor window or use the Add... button from the top bar. **To modify the model, use the tools on the left sidebar, i.e. Move, Scale and Rotate.** If an object is blue, it means it does not fit into the print bed and it needs to be moved or scaled down.

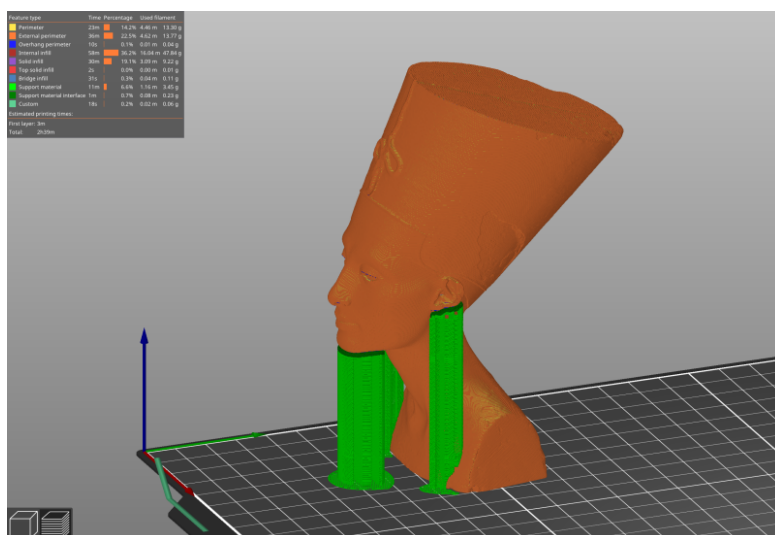
There is no universal way to place the model on the bed, it always depends on the specific shape. However, a general rule is that the bigger the flat surface of the model that touches the bed, the better it will hold - so try to **position the largest flat surface of the model downwards**. You can use the Place on Face (F key) function to do it quickly.

9.1.2. Using Supports



You can find a large number of objects that can be printed without supports - just place them in the right orientation on the bed, slice them and you can print. **Not all objects, however, can be printed without supports.**

If you are printing an object with walls that rise at an angle less than 45°, these overhangs will cause issues with print quality. **Also, keep in mind that the printer cannot start printing mid-air.** In such cases, supports are necessary.



How to tell whether an object needs supports?

The shortest answer is: it comes with experience. With your first prints, stick to the default PrusaSlicer values ("Supports Everywhere"). Once you feel comfortable with printing complex shapes using default support settings, try playing around with the Overhang threshold option in the settings. We have an extensive list of detailed tutorials available at help.prusa3d.com/category/prusaslicer 204 if you need guidance.

You have three options to choose from when selecting support generation:

- **Support on Build Plate Only** - generates supports only in the space between the object and the print bed.
- **For Support Enforcers Only** - generates supports only where enforced by placed modifiers.
- **Everywhere** - generates supports everywhere.

The default support pattern usually works correctly, but **if you need to modify the places where the supports will be generated**, just go to the **Print Settings** tab and select **Support Material**.

- Check the Generate Support Material box.
- The Overhang Threshold allows you to set the minimum angle for printing the support material. Setting the value to zero will enable an automatic calculation. Try generating supports with different angle settings to see which value works best for your object.
- Enforce Supports is an option mainly used for small models or models with a small base to prevent them from being broken or detached from the print bed during the printing process.
- Wherever the supports touch the model, they are usually associated with a lower surface quality. Try to reduce or even avoid the need for supports by rotating or shifting the model accordingly.

9.1.3. Speed vs Print Quality

A small object can be printed in a few minutes but printing bigger models can take a lot of time - sometimes even dozens of hours.

The printing speed is affected by several factors. Primarily, it depends on the layer height. This can be set in PrusaSlicer in the Print Settings drop-down menu in the upper right corner. 0.15mm BALANCED is pre-set, but you can speed up the printing by choosing e.g. 0.20mm SPEED. Models printed like this will have less detail and more visible layers.

If you care more about quality than speed, choose 0.10mm (FAST DETAIL). The appearance of the models will improve, at the cost of a decreased printing speed.

Some profiles may have multiple variants.

- **Structural** - slower perimeter and infill printing, improves the surface quality and structural integrity
- **Balanced** - a combination of high speed, a great-looking surface finish, and good structural integrity
- **Speed** - faster perimeter and infill printing, without too much impact on the surface quality, top speed while keeping good quality and accuracy

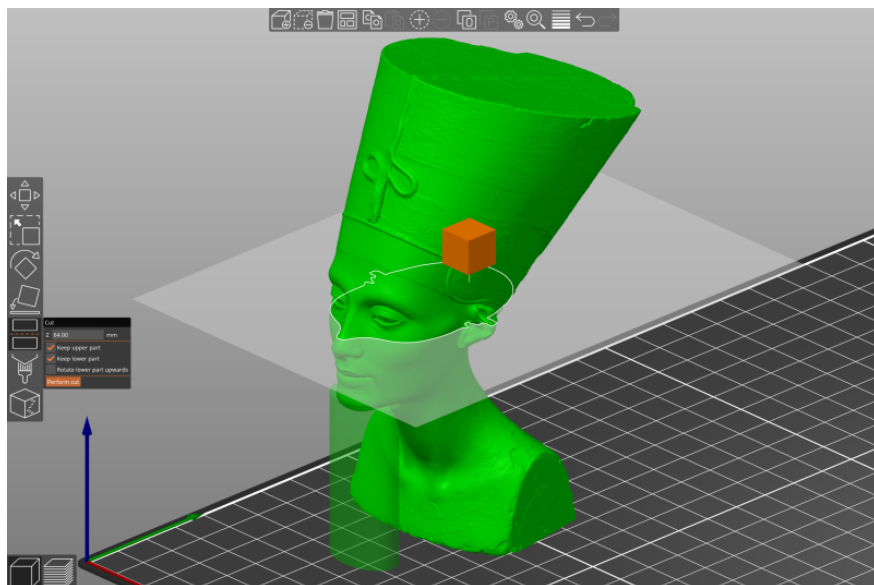
The speed can be adjusted during printing, via the *LCD Menu - Tune - Speed*. Then use the knob to adjust the speed up or down. Observe the effect of the speed change on the print quality and choose the settings that suit you best. Remember that **this setting does not affect the acceleration of the printer**, so the printing time will not be shortened proportionally to the speed setting change.

9.1.6. Printing Objects Larger than the Print Volume

The Prusa CORE One L printer has a print volume of $300 \times 300 \times 330$ mm. If this is not enough for your project, you can use PrusaSlicer's built-in tools to find a solution.

i Don't let the size of the print bed be a limitation – at blog.prusa3d.com you can find tips on how to assemble large models from several smaller parts.

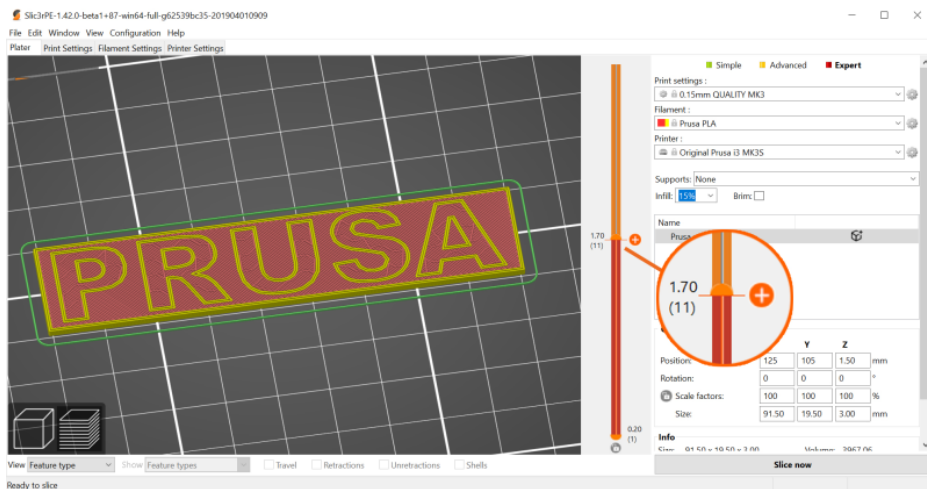
Of course, you can also resize the imported model to fit the bed. The **Scale tool** is there to help you with that. If you want to print an object which is too large in its original size for the print bed, you can **cut it into several smaller parts**. Use the **Cut tool** from the left menu (or press the letter C). Either place the cutting plane manually or set an exact height using the Cut tool dialog. Choose whether you want to keep only the part above the cut, below it, or both.



9.1.7. Printing Multicolored Objects (without MMU3)

If you want to have a print with layers in different colors, it can be easily set up directly in PrusaSlicer - follow the instructions below.

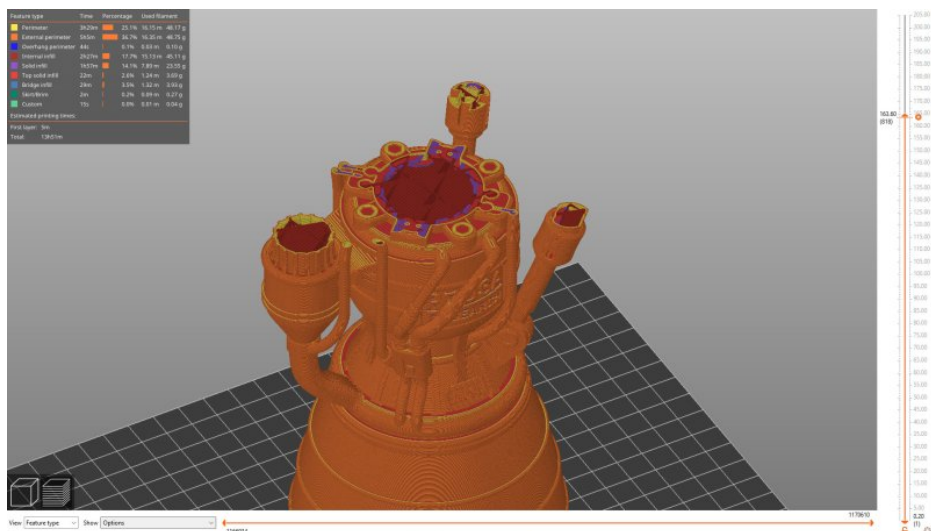
1. Switch to the layer view (Preview) using the button in the left bottom corner.
2. Use the slider on the right to select the layer in which you want to change the color.
3. Click on the orange icon with the plus sign.
4. An immediate preview will appear. You can undo the color change by clicking on the gray cross which will appear instead of the orange plus sign.
5. Export the G-code and you can start printing!



Once the printer reaches the layer, where the color change should happen, **the printer will pause and display a prompt on the screen**. Follow the instructions on the screen to finish the filament change.

9.1.8. Slicing and Exporting

One of the most important phases of the slicing process is the final check of the sliced object in the **Preview**. Using the slider on the right, you can **review all the print layers** of the object one by one. This will help you **identify problematic spots** - for example, if the bottom of the object doesn't stick well to the bed or if some of the parts are missing supports and are "hanging in the air".



Before you export the model as G-code and upload it to the USB drive, always check it in the Preview first. It's the best way to avoid mistakes during printing.

10. Material Guide

A full table of materials is available online! Due to limited space within this guide, we can only provide a brief overview of popular materials here. Visit help.prusa3d.com/materials to find a **full overview of a wide range of printing materials**. The Prusa CORE One L 3D printer is compatible with almost all filaments available. Individual materials may differ not only in color but also in mechanical and optical properties, or even in printing difficulty.

Name	Advantages	Disadvantages	Typical Uses
PLA	Easy to print, Suitable for small detailed models, Wide range of colors	Brittle and inflexible, Low temperature resistance, Difficult post-processing	Prototypes, toys, jewelry, small detailed models
PETG	Easy to print, High temperature resistance, Durable and tough	Not suitable for small detailed models, Problematic bridging and overhangs, Tendency to stringing (small strands of filament on the model)	Mechanical parts, holders, waterproof prints
ASA	High impact and wear resistance, Very good thermal resistance, Suitable for outdoor use (UV stable)	Difficult printing, Tendency to warp (enclosed chamber recommended), Strong odor when printing	Spare parts, covers and protective cases, parts for exterior use
PC / PC Blend	High temperature resistance, High strength and tension resistance, Clear polycarbonate is transparent	High nozzle and bed temperatures, Strong warping (enclosed chamber recommended), Recommended separating layer application	Technical components requiring high wear, tear and temperature resistance
PVB	Transparent, Chemical smoothing with IPA, Similar printing settings to PLA	Lower adhesion between layers, Hygroscopic material, Higher price	Transparent models - jewelry, vases, lamp shades etc.
Flexible materials	Flexibility and elasticity, Excellent adhesion between layers, Great resistance to wear	Requires special procedure for inserting, Requires lower print speed, Poor bridging and overhangs	Housing, covers, RC components
PA / PA11CF	Great temperature resistance (up to 192 °C), Resistance to a range of chemicals, Excellent layer adhesion	Not suitable for small detailed models, PA is prone to warping (enclosed chamber recommended), Difficult to remove supports	Mechanical parts, holders, electrical insulation parts, movable parts



Prusament (prusament.com) is our in-house made line of **high-quality filaments**. We were not satisfied with the quality of filaments on the market, so we decided to make our own! **The whole manufacturing process is closely monitored** and every spool is thoroughly tested for string diameter, color consistency, and mechanical properties.

We are the only manufacturer that gives customers the option to **fully inspect the parameters of every filament spool**. Just scan a QR code on the spool to see all details online. We offer a wide range of various materials at prusa3d.com and it keeps growing every day!

11. Regular Maintenance

The Prusa CORE One L was designed from the beginning as a true print "workhorse". Despite its high reliability, it is still a device with mechanical components that require more or less regular maintenance. Follow the instructions below to keep your printer in perfect condition for as long as possible.

11.1. Flexible Print Sheets

To achieve the best adhesion of the print surface, it needs to be kept clean. Choose the right cleaning agent depending on the type of print sheet (see below). Drop a small amount of the agent onto a clean paper towel and wipe the print surface. Best results will be achieved when the print sheet is cold, otherwise, you may burn yourself on the nozzle or heated bed. Also, the alcohol will evaporate before it has a chance to clean anything. Details can be found in the chapter **Your First Print** in this manual.

The effect of various print sheets on the first layer can be seen below. **From left to right: smooth, satin and textured powder-coated print sheet.**



The print surface does not need to be cleaned before every print, just be aware of not touching it with your fingers.

Recommended cleaning agents differ slightly depending on the type of print sheet. Instructions for the use of specific materials (e.g. the need to use a separation layer to avoid damaging the surface) can also be found in the previous chapter.

	Correct usage:	Risks and dangers:
Print sheet with smooth PEI surface	• Isopropyl alcohol 90%+ (IPA) is the best option for degreasing. Do not use dermatological hand products which may contain isopropyl alcohol - they contain other additives (ointments, hydrating ingredients). • Warm water with a few drops of dish soap (in case IPA does not remove residues like sugar from the bed) • Acetone - occasionally for thorough cleaning of the print sheet • When printing with Flex material you need to apply glue stick (Kores / PVA gluestick)	• Prints from PETG would stick too strongly to the sheet cleaned with isopropyl alcohol (IPA) and removing it could damage the surface. Materials such as PETG, ASA, ABS, PC, CPE, PP and FLEX should only be printed with a separating layer (glue stick).
Print sheet with a textured powder-coated surface	• Isopropyl alcohol 90%+ (IPA) - best for degreasing	• Do not use acetone
Satin print sheet	• Suitable for PLA and PETG • 90% isopropyl alcohol (IPA) is the best degreaser • For printing flexible filaments you need a separating layer of glue (Kores) • Broad spectrum of supported materials; including advanced materials such as PC Blend and others	• Never use acetone! • For printing ASA and PC Blend you need to add a brim, outline or shield around the print • Do not use sharp objects to remove the print from the bed!



Consumable materials such as print sheets are not covered by our warranty unless they arrive damaged or incorrectly manufactured. Print sheets are consumables and the warranty only applies to defects that appear immediately after unpacking.



All original print sheets made in Prusa Research are double-sided.

11.1.1. Double-Sided TEXTURED Print Sheet

- Surface resistant to damage and scratches
- The texture on the surface of the sheet is transferred to the bottom side of the printed object
- Simpler Z-axis calibration
- FLEX does not require glue (Kores / PVA gluestick) application to the print bed
- After the print sheet cools down, the print usually detaches itself
- PLA prints with a small contact area may require a brim
- Large PLA prints may warp
- **Never clean with acetone**

The textured powder-coated surface applied directly to metal allows us to create a print sheet that is highly resistant to damage. If a heated nozzle hits it, the metal is able to quickly dissipate heat.

The textured powder coating also gives the bottom surface of the print a unique, interesting texture. The textured surface is able to mask most scratches and similar types of damage caused by various tools. One can only scratch the highest points of the texture, yet this type of damage will not be visible on the print.



Never clean the textured powder surface with acetone! This will cause micro-cracks in the PEI layer, which will eventually lead to a significant deterioration of the surface quality.

11.1.2. Double-Sided SMOOTH Print Sheet

- Excellent for PLA
- Great adhesion to almost all materials
- Smooth bottom layer of prints
- Even small prints will hold well
- Occasionally clean with acetone

For printing materials such as PETG, ASA, ABS, PC, CPE, PP, Flex and others, it is necessary to apply a glue separation layer. More information can be found in the Materials Guide.



The industrial adhesive used to attach the PEI layer to the print sheet tends to soften at temperatures above 110 °C. The adhesive can then move beneath the surface, creating small bumps.



If you notice small bubbles appearing beneath the PEI layer on the flexible print sheet, just flip it over and print on the other side. After a few days or weeks, the bubbles should disappear. The bubbles have no effect on the print quality.

11.1.3. Double-Sided SATIN Print Sheet

- Suitable for PLA and PETG
- Soft texture on the bottom part of the print
- **Only use quality isopropyl alcohol (90+ %) to clean**
- FLEX requires the use of a glue separation layer (Kores / PVA glue stick) on the print sheet
- Wide range of supported materials, including advanced materials such as PC Blend and more
- Easy maintenance and good adhesion
- **Do not use acetone! Acetone will damage the surface of the print sheet!**
- When printing with ASA and PC Blend, a brim or a raft may be required around the print, depending on the model height
- **Do not use sharp metal objects to remove prints from the sheet (e.g. a metal spatula)**

11.1.4. Improving the Adhesion

In certain special cases, such as printing a very tall object that touches the print sheet with a very small area, it may be necessary to **improve the adhesion**. PEI is fortunately a chemically very resistant polymer, so it is possible to **apply various substances to improve adhesion without risking damage to the surface**. This also applies to various materials whose adhesion to PEI would be very weak under normal circumstances. More information can be found on the website help.prusa3d.com/materials.



Before applying anything to the print sheet, consider using the Brim feature in PrusaSlicer to increase the area of the first layer.

11.2. Keeping the Printer Clean

After several hours of printing, various kinds of debris may start to accumulate around the printer parts or under the heatbed - pieces of filament, dust, scraps, broken supports, etc. Always make sure that the parts of the printer are clean. You can use a brush, a small broom or a vacuum to remove debris.



Warning: Do not clean the transparent panels with alcohol-based cleaning solutions. This can damage the transparent panels, resulting in cracked surfaces.

11.3. Bearings

Every couple hundred hours, the smooth rods should be cleaned with a paper towel. Then look for the white tube in the package and apply a little bit of the included lubricant on the smooth rods and move the axis back and forth a couple of times. This cleans the dirt and increases longevity. For a detailed maintenance guide, please head to help.prusa3d.com

If you feel the axis is not running smoothly anymore, bearings can be taken out and greased on the inside (they need to be removed from the axis because the plastic lip will prevent most of the grease from getting inside). It's a good practice to apply the lubricant onto the linear rail every 3-6 months.

11.4. Fans

The RPM (revolutions per minute) of both fans is constantly measured. This means that the printer will **report an error if the fan suddenly slows down**, for example, due to a piece of filament stuck in it. In such a case, check and remove any dirt from the relevant fan. Do not try to bypass the RPM check - this could damage the printer! Both fans should be checked and cleaned every few hundred hours of printing. Dust can be removed with compressed air in a spray can, small plastic threads can be removed with tweezers. **Do not blow compressed air on the running fan.**

11.5. Extruder Feeding Gear

The feeding gear in the extruder does not need any lubricant. Over time, **a filament powder deposit may form in the grooves**, causing poor extrusion of filament. Remove the debris using compressed air in a spray, small plastic threads can be removed with tweezers. Use the access opening on the side of the extruder. Clean as much as possible, then turn the wheel (LCD Menu - Control - Axis) and continue.



Warning: Never, under any circumstances, open the gearbox cover unless you have the gearbox alignment tool.

11.6. Electronics

It is a good practice to check and optionally reconnect the electrical connectors on the xBuddy board and electronics board in the Nextruder every 600-800 hours of printing.

11.7. Extruder is Clogged or Jammed

Clogged extruders can cause issues when printing or when loading a new filament. On the top of the extruder, there is a pair of screws directly next to the filament insertion point. You can adjust the idler pressure by loosening or tightening these screws. By unlocking the top clip, you can open the idler and check the filament track for any blockages. **When you open the idler, you can easily clean the feed gear of all filament remnants. We recommend regularly cleaning the gear.** You'll get better access to the extruder when you remove the top cover.

11.8. Cleaning the Nozzle



Do not touch the nozzle during this procedure - it is hot and there is a risk of burning yourself! To better access the extruder during cleaning, raise the extruder to the top of the Z-axis in the LCD menu - Control - Movement - Z Axis.

11.8.1. The filament does not come out of the nozzle.

If the filament does not pass through the extruder and no plastic is being extruded, check the following:

- Open the idler on the side of the extruder to see if the filament strand reached the extruder gear and continues down into the nozzle
- See if the temperatures are set correctly (215 °C for PLA, 260 °C for ASA, etc.)
- Check if the fan on the side of the extruder is spinning

If the filament strand is not visible (does not reach the extruder wheel), the problem is likely near the filament entry point or the filament sensor. Inspect the path of the filament and see if the filament sensor isn't stuck.

11.8.2. The filament does not come out of the nozzle or only a small amount comes out

In this case:

1. Heat the nozzle to the appropriate temperature for the filament material you are printing with or slightly above. First, feed the filament, then insert an acupuncture needle (included in the package) or thin wire (0.3-0.35 mm) into the nozzle from the bottom to a depth of about 1-2 cm. Use protective gloves in case material suddenly starts to come out of the nozzle.
2. Select the Load Filament option from the LCD menu and check that the nozzle is actually extruding the filament.
3. Again insert the wire or acupuncture needle into the nozzle and repeat the whole procedure several times. If the filament is being extruded correctly, the nozzle is clean.

If the filament still doesn't come out and the nozzle is clogged, you can perform a cold pull method to clean the insides of the nozzle. You can find the Cold Pull wizard in the printer's LCD Menu.

11.9. Troubleshooting Faulty Sensor Readings and Removing Errors

If you encounter problems with the filament sensor, such as incorrect (or random) readings, make sure that everything in the Nextruder is correctly wired and that there is no debris in the filament path inside the extruder. If this doesn't help, please contact our tech support.

11.10. Filament Sensor

The filament sensor can be re-calibrated from the printer's Control menu. If you encounter random readings, unload the filament, turn the printer off and remove debris from the Nextruder - either using tweezers or a can of compressed air.

12. FAQ - Frequently Asked Questions and Basic Troubleshooting

12.1. Error Screens

If the printer encounters a critical error, **an error screen will be displayed with a description of the error**. The information on the screen is intended to facilitate easy identification, diagnosis and resolution of the error. **Pay special attention to the text on the screen**. Most error messages are supplemented with a QR code - scanning it (e.g. using a camera on a mobile phone) will take you to a relevant online article with instructions on how to proceed.



This is a sample QR error code serving as an example of an error message.

If you need to check the connection or disassemble any part of the printer, please follow the link on the error screen or simply visit help.prusa3d.com and look for a relevant help article.

12.2. First Print Troubleshooting

The calibration and pre-print setup of the Prusa CORE One L are fully automated - the filament is automatically inserted, axes checked and the first layer precisely measured. If a printing issue does occur, it usually falls into one of the following scenarios:

12.2.1. LoadCell calibration fails

Solution: This usually happens when you tap the nozzle too briefly or with insufficient force. Repeat the calibration and push the nozzle a bit harder.

12.2.2. First layer peeling off from the bed

Solution: The most common cause is grease on the bed or an unsuitable combination of material and print surface (e.g. PLA and textured sheet).

Make sure that the sheet is sufficiently **degreased using isopropyl alcohol** - more information can be found in the **Regular Maintenance chapter**. In the **Materials chapter**, you can find information on how to properly print specific filament types. Water with a bit of dish soap is also an option if you don't have access to IPA - **make sure to clean and dry the sheet thoroughly to prevent rusting**.

12.2.3. Nozzle moves too high/low, or extrudes plastic outside the print area

Solution: Make sure that the print sheet is properly installed and that nothing is blocking the X/Y/Z axes.

If the print sheet is not installed properly (e.g., it's not aligned with the heatbed), it may cause various printing issues. **Make sure that nothing is obstructing the movement of the axes** and that all packaging material and transport fixations have been removed from the printer. Run the Auto Home calibration from the menu to test all three axes.

Another possibility is that the LoadCell sensor is not performing as expected. Make sure the LoadCell sensor cable is properly connected and repeat the LoadCell Test from the Control menu.

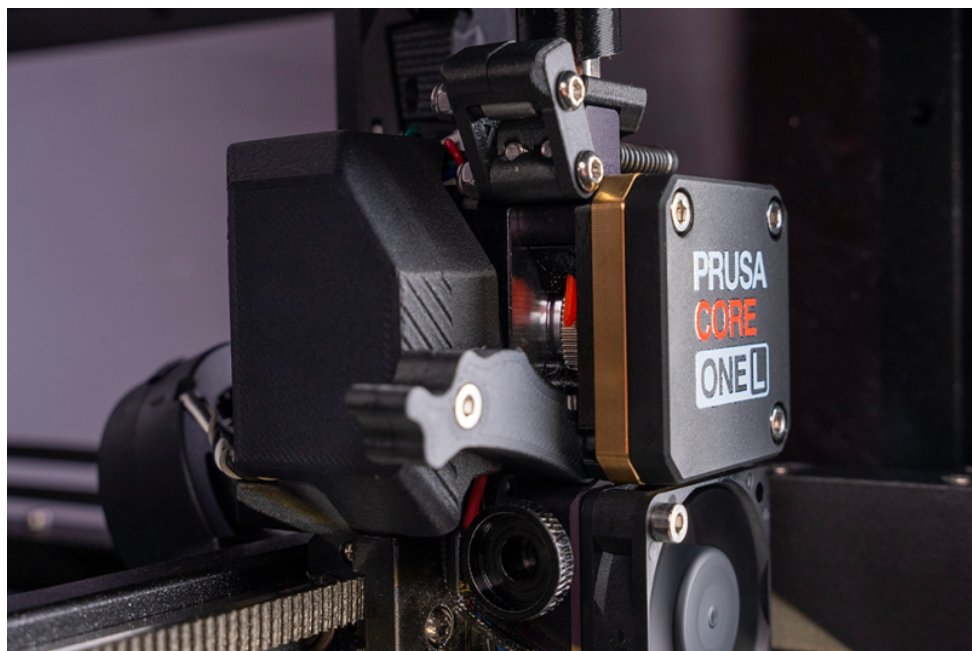
12.2.4. After a few hours of printing, the nozzle stops extruding filament

Solution: First, check if the filament isn't tangled. If it's not the case, unload it, wait for the printer to cool down and then remove the hotend from the extruder (see help.prusa3d.com for exact instructions) and check if the steel filament guide isn't deformed. This might happen when you overtighten the thumbscrews. Another possibility is that the nozzle is clogged or blocked. Check the Troubleshooting section of this handbook or look for detailed instructions at help.prusa3d.com.

12.2.5. The nozzle does not start extruding, even after multiple attempts

Solution: Make sure that the filament can reach the extruder gear inside the Nextruder and that the nozzle is not clogged.

First of all, **load the filament exactly as described in the Loading the Filament chapter**. Once the loading procedure is completed, unlock the idler door on the extruder by lifting the small clamp, then flip the door open and see if the filament strand reached the large extruder gear. If it didn't, it means that something is blocking the movement of the filament. If the filament appears completely loaded (it goes across the extruder gear towards the nozzle), it means the nozzle might be blocked. This won't happen with a new printer, but if you have been using it for a while, it might be a possibility. If you hear the extruder gear clicking during Purging, it may be a sign the nozzle is blocked. Head to the Troubleshooting chapters of this handbook or look for a detailed solution at help.prusa3d.com.



12.3. Mesh Bed Leveling Fails

In case the automatic first layer calibration (Mesh Bed Leveling) fails, the cause is likely to be either the Load cell sensor or a misaligned X/Z axis. Run the Auto Home and Z-axis calibration from the Control menu and see if the issue goes away. Make sure the print sheet is correctly placed and re-run the Load cell calibration again. Then start the print again.

12.4. Printer Does Not Recognize the Inserted USB Drive

If the printer does not recognize the USB drive, try restarting the printer first. In case the error “Error mounting USB drive” appears, the most probable cause is an incompatible file system (e.g. exFAT). Use a smaller USB drive (4-16GB) formatted with the FAT32 file system. More information on formatting and using USB drives can be found on our Knowledge base at help.prusa3d.com. Once the USB drive is inserted, one of two situations may occur:

Cannot access the Print menu after inserting the USB drive

1. Restart the printer first
2. Use a USB drive formatted to FAT32 with a single partition
3. Try using a different USB drive

If you have tried multiple USB drives and none of them can be read, there may be a problem with the mainboard. Contact our technical support.

USB drive is recognized but no files are visible in the file browser:

1. Make sure you are using compatible G-code
2. Make sure the file is correctly written to the drive (in Windows use the “Safely remove” function before ejecting the drive)
3. Try a different USB drive and a different G-code file
4. Try renaming the file to something simpler, e.g. model.gcode

12.5. Loose Belts

Check both belts to make sure they are properly tensioned. Loose belts can cause printing errors or prevent the printer from starting up. The easiest way to check the belt tension is to print a circular object. If the result is not perfectly round, you need to adjust the belt tension. Instructions can be found at help.prusa3d.com. You can also fine-tune the optimal tension of the belts on your Prusa CORE One L using the Manual Belt Tuning feature.

12.6. Homing Failed

This issue is usually caused by a blockage in one or more axes. Perform the Auto Home calibration from the LCD Menu and observe the movements of the printer.

12.7. Heating Error

If the printer stops and the screen is red with a heating-related error, please check the connections of the heating element and thermistors. Detailed descriptions can be found at help.prusa3d.com.

12.8. Fan Error

If your printer stops and displays a fan-related error message, check both fans on the print head. It is possible that they are not spinning because they got clogged up. If the problem is elsewhere (e.g. cable connection) visit help.prusa3d.com for more information.

12.9. Reverting to an Older Firmware

Sometimes it is necessary to reinstall an older version of firmware. Upload a file containing the older firmware onto a USB drive formatted with the FAT32 system. Insert the drive into the printer, press the restart button and once the Prusa CORE One L logo appears on the screen, press and hold the knob. This will activate the firmware update screen. Select "Flash" to reinstall the current firmware with the version from the USB drive.

12.10. Nozzle Hitting the Sheet / Other Z-axis Issues

If you are having issues with first-layer calibration or Mesh Bed Leveling procedure, first make sure everything is properly wired - check the connectors on the electronics board in the Nextruder. Next, perform Auto Home calibration on all axes to ensure everything is properly aligned, such as the correct placement of the print sheet. Then, rerun the Load Cell sensor calibration.

13. Advanced Hardware Troubleshooting

Due to the length of the articles, it is not possible to include detailed troubleshooting guides in this handbook. However, the Prusa CORE One L will display an error screen with a short recommendation on how to proceed further if it runs into a problem. This screen will also contain a link to a detailed article in our Knowledge Base at help.prusa3d.com. Additionally, there is a **QR code that you can scan with your mobile phone** for quicker access to the link. Troubleshooting guides for component replacements and advanced hardware issues can be found online at help.prusa3d.com.

14. Troubleshooting Print Quality Issues

If prints are not quite up to your expectations or even have major flaws (shifted layers, ghosting, under-extrusion), it is necessary to find the cause of the issue and address it. On our website help.prusa3d.com you will find troubleshooting guides for 3D printing quality issues, including pictures and specific advice for different types of printers (some of which may still be in English only).



Printables

by JOSEF PRUSA

**PRINT AND SHARE!
JOIN OUR COMMUNITY!**

**Download 3D models for free
at [printables.com](https://www.printables.com) and participate
in design contests!**

**Follow us for tips, guides,
inspiring videos and amazing 3D prints!**

Share your prints with

#printedbyprusa

