PRUSA CORE ONE

REVIEW GUIDE

PRUSA CORE ONE

We have prepared this review guide to cover all the new features of the CORE One and its advancements in print quality, speed, and other areas. It contains useful information and links for the purpose of your review. Please, do not share this document itself. You are, of course, free to share the information contained within it.

The Prusa CORE One you just received is the same standard “plug and print” machine that will be sent to customers in January 2025, however, while the hardware is final, the firmware is in the pre-production stage, so small bugs may occur. When in doubt, get in touch with us – contact details are on the next page!

01

INTRODUCTION & GETTING STARTED

The Prusa CORE One is the first model in our brand-new product line with a strong focus on print quality, reliability and expandability. It's an all-around machine capable of printing anything from simple PLA objects to durable PCCF models with a single touch of a button thanks to its enclosed chamber (up to 55 °C). The Prusa CORE One is built with purpose, and its industrial design makes it the perfect companion for your office, yet it will withstand the rigors of a busy workshop or an industrial workspace without breaking a sweat.
On the following pages, we'll cover all aspects of its design and its advantages.

Right now, it's time to unpack the printer.

1. Simply pull the printer from the box, place it on a stable surface, and remove the shipping material and attach the display as depicted in the handbook.

2. Plug it in, turn it on, and go through the quick on-screen Selftest to ensure that your printer was delivered safe and sound, and everything works as expected.

This entire process should take less than 10 minutes.

We have prepared a couple of digital assets for you at prusa.io/review-pco-2025 including a full 3D printing handbook, STL and G-codes for download, and information about the printed objects (profiles, layer heights, materials, and print times).

In case the printer performs or behaves in an unexpected way, or if you have any questions, feel free to reach out to us at **press@prusa3d.com**. Our product specialists, content creators, developers and testers are here to assist you every step of the way.

RUNNING YOUR FIRST PRINT

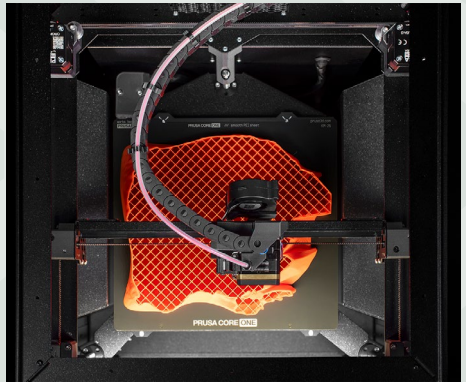
We prepared ready-to-print test objects for your convenience, and you can find them on the USB drive.

We hope this goes without saying: you're more than welcome to print anything you want. Try any kind of benchmark objects, toys, or statues, and test as many filaments as you like!

Before starting your print, ensure the print sheet is properly placed on the heatbed and free of grease, dirt, or any plastic leftovers from previous prints.

Insert the USB drive and the latest print file will open automatically. To choose a different file, press Back and open the Print menu.

Pick an object from the list in the Print menu and start printing. In the meantime, we have a lot of things to share with you!



We have included pre-sliced files for a quick start, so you can instantly see what the printer is capable of. However, we recommend to print as many custom models as you want.

5 BEST THINGS ABOUT THE CORE ONE

1. FULLY ENCLOSED COREXY 3D PRINTER

ACTIVE CHAMBER TEMPERATURE MANAGEMENT

Print PLA and PETG with the door closed – an uncommon feature among enclosed printers! The CORE One is also capable of creating an environment for effortless printing of ABS, ASA, PCCF or Nylon thanks to the enclosed chamber which can reach up to 55 °C!

2. HIGH-SPEED PRINTING

TUNED FOR MAXIMUM QUALITY

Beautiful overhangs thanks to 360° cooling on the Nextruder; highly durable prints without layer separation, beautifully smooth surfaces. Dimensional accuracy, reliability and repeatability, our typical staples, are not missing!

3. LARGER PRINTS THAN THE MK4S

WITH A MUCH SMALLER FOOTPRINT

Print objects up to 220×250×270 mm! The Prusa CORE One takes up 50% less space than the MK4S in the Enclosure, but offers 30% increase in print volume.

4. PLUG AND PRINT MACHINE

FAST & EFFICIENT START WITH 3D PRINTING

You're ready to print 10 minutes after unpacking the printer.
Get 3D models from Printables, slice them in PrusaSlicer, send them to the printer wirelessly through Prusa Connect, and monitor everything remotely with the official app.

5. UPGRADEABLE & MADE TO LAST

THE BEST INVESTMENT IN 3D PRINTING

The CORE One also offers outstanding backward compatibility with the MK4S, allowing you to reuse print sheets, nozzles, and accessories. You can rebuild your MK4S into the CORE One with the Conversion kit!

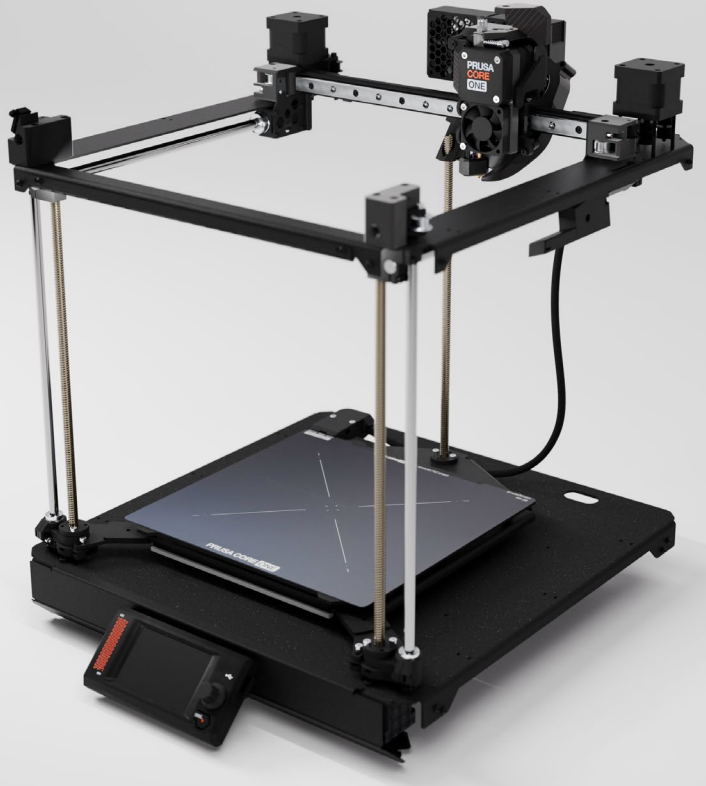
ENCLOSED COREXY WITH A TWIST

With many enclosed 3D printers already on the market, we had to **bring something new to the table**. We poured all our knowledge and experience gained through the development of Original Prusa XL, Prusa Pro AFS and even the HT90 into the design of the CORE One.

The Prusa CORE One's compact **enclosure is designed to heat up to 55 °C** using only the heatbed, no additional heating elements required. This efficient heating design ensures optimal printing conditions, even for challenging materials.

The CORE One allows you to print PLA and PETG filaments with the front door completely closed, all while maintaining perfect print quality. This is less common than you might think: most manufacturers recommend printing these materials with the doors open to avoid quality issues. But leaving the door open defeats the purpose of a compact, enclosed 3D printer. And since around 90% of all prints are made with PLA and PETG, this practical improvement makes everyday printing easier.

And there are many more smart engineering and design choices like this that make the CORE One really stand out.



INSIDE THE EXOSKELETON

Creating a welded cube with a flimsy plastic enclosure around it was out of the question. Our printers are used in industries worldwide and their **reliability, low maintenance, durability and long lifespan** are key areas for anyone whose work directly depends on consistent, high-quality results.

You won't find any welded parts in the CORE One. **Everything can be taken apart with a screwdriver.** This is possible thanks to the smart exoskeleton design. The entire printer is made from **precisely cut heavy-duty steel profiles** and high-performance polymer panels, which render it **borderline indestructible**. It's an incredibly durable, robust and stable design that serves both as an enclosure and the printer's frame. We like to say that the CORE One is built like a tank!

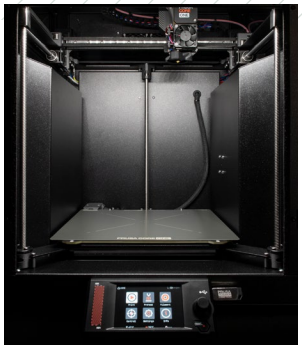
The printer is as compact as possible, with a small footprint and a faster-to-heat-up chamber, while also incorporating **clever design choices**. The filament spool is in an easy-to-reach spot on the right side and sits completely flush with the side panel. On the left side is an empty recess, ready for all kinds of user modifications – such as print sheet holders and more.

Thanks to the clever streamlined designed of the printer, we can still offer it as an immensely popular assembly kit, so you can build the entire printer yourself!

FAST. PRECISE. RELIABLE.

The CORE One is equipped with our Nextruder – and all 3D printers that used it so far received top scores in print quality benchmarks. It features the upgraded 360° cooling from the MK4S for outstanding print quality and great overhang performance – this means you can use fewer supports with your prints (or no supports at all), saving both material and print time.

Plus, the CORE One is a true "start and forget" type of machine. Simply start the print and the printer will do the rest for you, from achieving an always-perfect first layer all the way to sending you a notification on your phone when the print is done. These are the key areas where the CORE One truly shines and we encourage you to test everything as much as you want!



PLA AND PETG WITH CLOSED DOORS

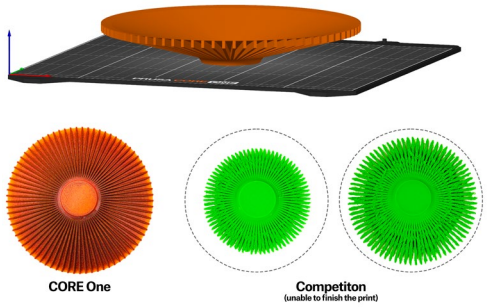
When you print PLA and PETG in an enclosed printer, the quality of the print will likely suffer due to the increased ambient temperatures. However, with the CORE One's active chamber temperature control, you only need to open a small vent on the top side so the ventilation system can draw colder air in – meaning you can print PLA and PETG with the door closed.

BEST SOLUTION FOR ADVANCED MATERIALS

The chamber is as compact as possible, with a cleverly designed recess on each side to minimize its volume. This allows the chamber to reach higher temperatures (up to 55°C), enabling you to print ASA, ABS, PC, PA (Nylons), and other advanced materials smoothly, without warping.

EXTREME OVERHANGS THANKS TO 360° COOLING

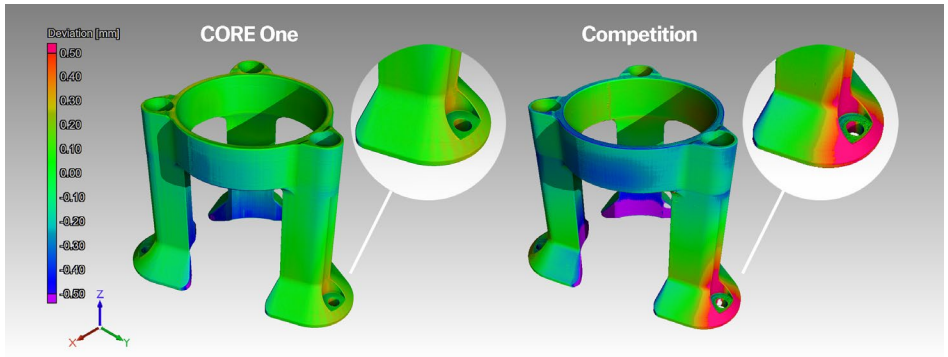
With our quality-focused print profiles, your models will turn out exactly the way they were designed, with perfect dimensional accuracy. CORE One takes advantage of the upgraded Nextruder with 360° cooling that enables flawless printing of 75° overhangs, saving both time and material – you simply need less supports (or no supports at all)!



PERFECT DIMENSIONAL ACCURACY

One of the most important things for any kind of serious project is that the model will turn out just the way it was designed – this is especially true for functional parts, pre-production prototypes, complex 3D-printed toys, spare parts and many more. **The CORE One matches the quality of the Original Prusa MK4S, offering unparalleled accuracy in the desktop 3D printer market.**

NOTE: many popular "3D printer tolerance tests", which use increasingly smaller tolerances on movable parts, don't reflect reality. An inaccurate rendering of a 3D model might still allow for proper movement within a controlled tolerance test. However, real-world applications require parts to fit seamlessly with other components, not just other 3D-printed parts.



ALWAYS SMOOTH FIRST LAYER

The Nextruder is equipped with a precise Loadcell sensor that calculates the nozzle's distance from the print sheet with exceptional accuracy. Unlike optical sensors, it isn't affected by reflective or textured surfaces, and doesn't require recalibration when switching nozzles. This is why the CORE One always delivers a perfect first layer on any kind of surface. In fact, the sensor is so bulletproof that it can work even with a piece of wood.

SOLID, DURABLE OBJECTS AT HIGH SPEED

With the CORE One, you don't have to limit your projects by sticking to a small selection of specialized "high-speed" filaments. Use any PLA, PETG or any of the advanced materials. While the CORE One is our fastest printer yet thanks to its robust CoreXY kinematics, high-flow nozzle, Input Shaper and factory-tuned print profiles for 200+ filaments, it never sacrifices quality for quicker print times.

Thanks to the combination of the CoreXY kinematics, high-flow nozzle, Input Shaper and Pressure Advance, the CORE One is plenty fast. **It is about 15-20% faster than the MK4S**, which could already beat some of the fastest printers on the market.

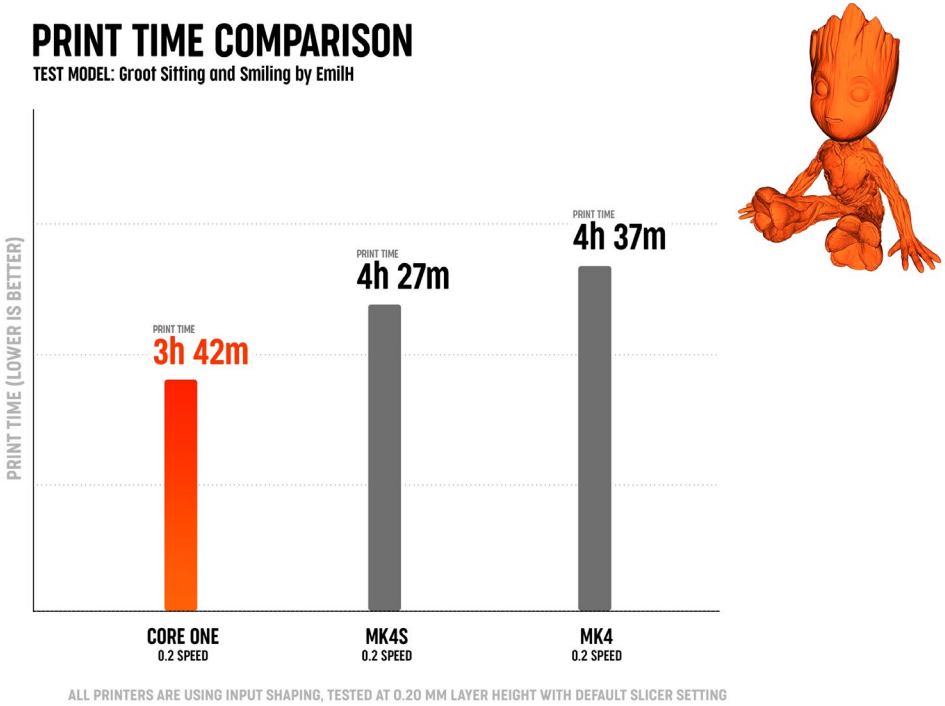
As always, printer speed is affected by many factors and we also wrote an analysis on this topic – available here at our blog. A printer with 20.000 mm/s² acceleration is not five times faster than a printer with 4.000 mm/s², and a printer with 250 mm/s move speed is not two times slower than a printer with 500 mm/s move speed, so this is why we think making a real-life benchmark makes the most sense.

BEAUTIFUL PRINT SURFACE QUALITY

Our in-house-made (and tested) print profiles have always been designed for maximum print quality – even when it meant sacrificing a little bit of speed. Sure, speed matters, but what is the point of saving 15 minutes on an 8-hour print, if the result cannot be presented to your client due to various artifacts and poor dimensional accuracy?

PRINT AMAZING FLEXIBLE OBJECTS

The planetary gearbox and large no-slip drive gear inside the Nextruder provide an optimal level of pressure on all filaments – including flexible materials! This is why the CORE One can easily tackle even flexible filaments. Give it a try!



DETAILS THAT MATTER

We operate a massive print farm with over 600 printers running 24/7, so we collect feedback not only from our customers but also from our farm operators. This is why our machines are built the way they are – because we rely on them in our production every day.

1. The **spool is in an easy-to-reach place** and sits flush with the side panel to keep the footprint of the printer as compact as possible.

2. You can **flip the hinges of the front door** and they stop in two pre-defined positions (90° / 180°).

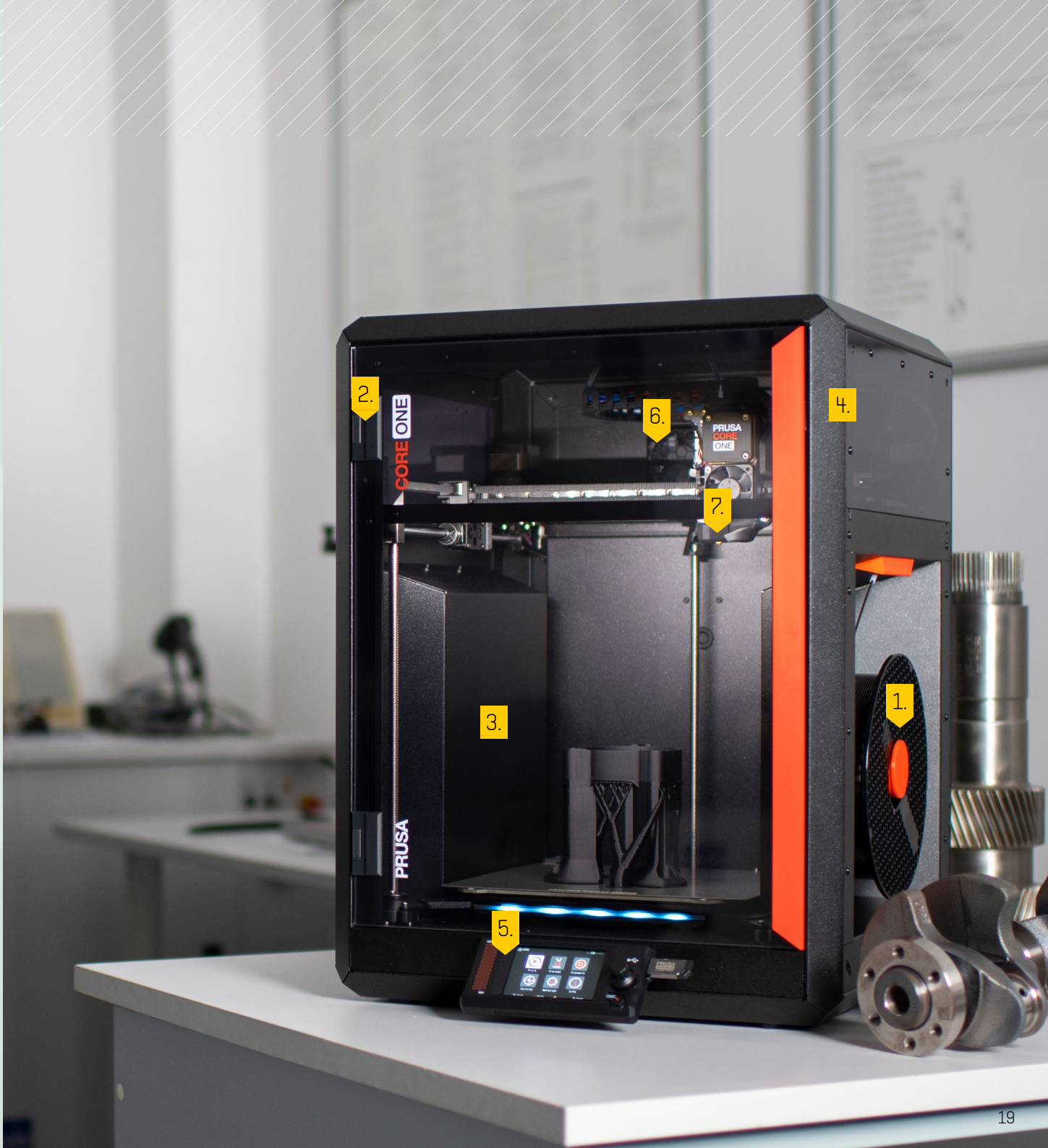
3. The entire design is **modular and expandable**. The solid steel frame gives you plenty of flexibility with modifications, magnetic accessories, and more!

4. **No welded parts, nothing is glued together**, and **no inaccessible components**. Everything can be replaced on-site.

5. **The LCD panel is mounted on a magnetic hinge**, so when you tilt the printer forward, the LCD bracket won't snap.

6. You can **mount an air extraction system on the rear fans** and we're preparing an optional Advanced Filtration System.

7. With an **LED strip and a redesigned fan shroud**, you can always clearly see the print and the nozzle.



100% PRUSA ECOSYSTEM

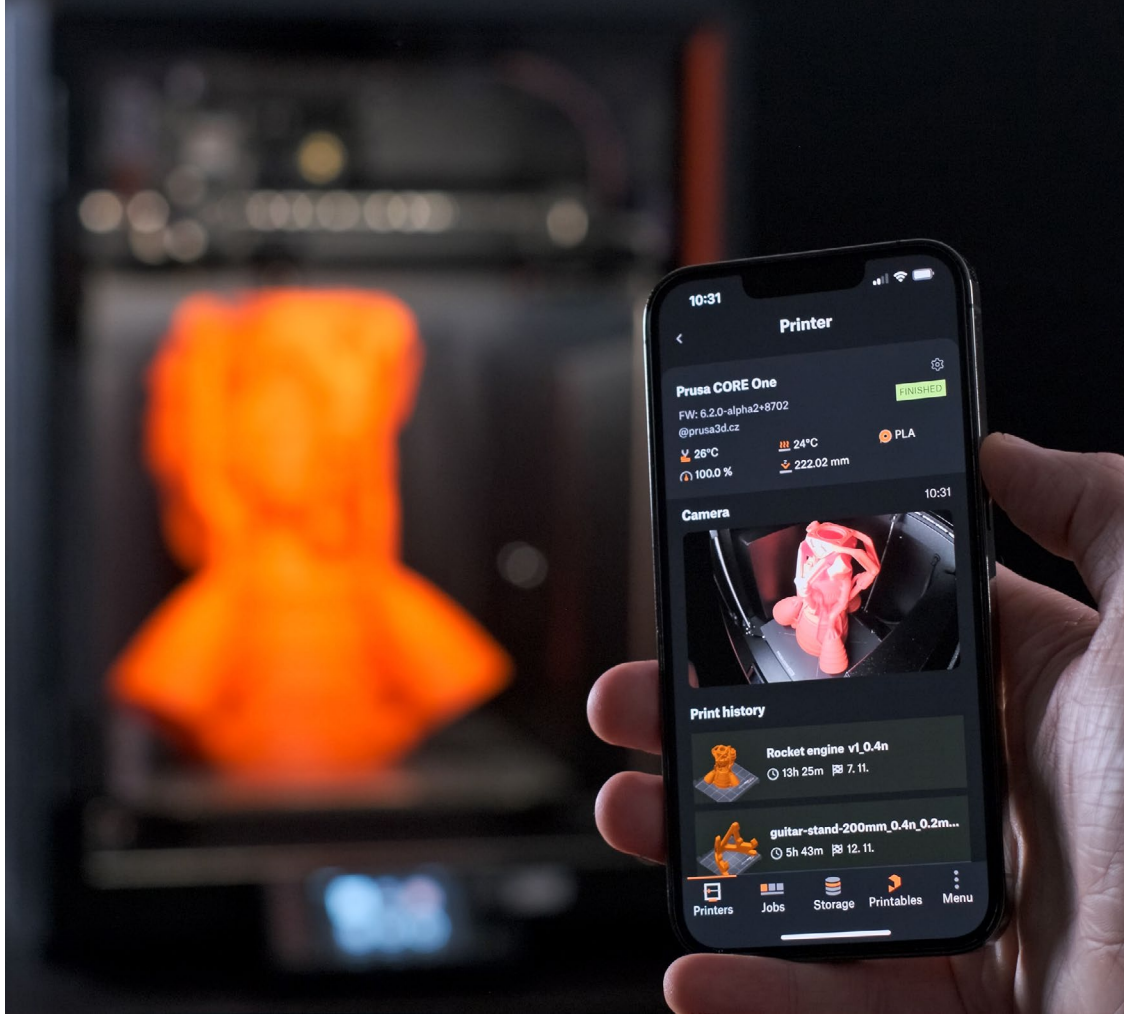
Our printers are not vendor-locked and you can use any filaments or third-party software you wish. However, getting our printer means getting more than just the hardware. You're getting a ticket to the full Prusa workflow. From premium-quality materials, to seamless workflow where you can easily take a model from Printables and have it ready in your printer in a minute.

PRINTABLES.COM

You don't have to be a designer to use a 3D printer! Our database with nearly 1.000.000 3D models is just a click away. Printables.com is actively developed and ever-growing, so go ahead and get amazing prints by talented creators and even official printable accessories for a variety of popular products thanks to Printables Brands. You can send models from Printables.com to PrusaSlicer in a single click!

PRUSASLICER

The best slicer out there!
An open-source, feature-rich, frequently updated tool that contains everything you need to export the perfect print files for your 3D printer. All official printer and material profiles (over 200 in total) are created and tested in-house to ensure the best possible printing experience! And you don't have to be a pro to use it, the default profiles let you slice most models with one click. PrusaSlicer is based on Slic3r by Alessandro Ranellucci.



PRUSA CONNECT

Our internally-developed highly secure remote print management software is here to make your printing experience a breeze. It's fully integrated with PrusaSlicer and enables you to quickly send your print files to the CORE One, schedule tasks, and monitor your machine remotely. It's an incredibly powerful tool with new features being added all the time.

PRUSA APP

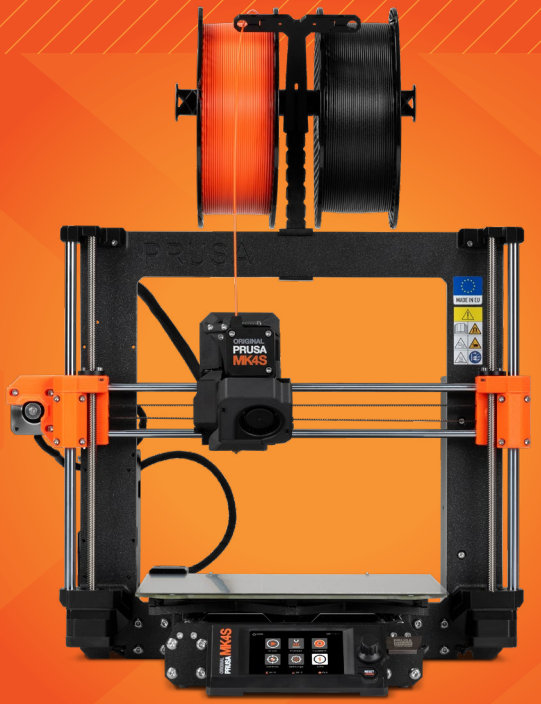
The new streamlined Prusa App gives you a complete overview of your printer no matter where you are. With no ads, points or other bloatware, the app is easy to navigate and use. The app also has full Printables integration, so you can send ready-made G-codes directly into your printer without the need to slice them!

PRUSAMENT

We were not satisfied with the quality of filaments on the market, so we started manufacturing our own! Prusament offers top-class manufacturing precision, perfect color consistency and a wide range of materials from PLA to PCCF. Every Prusament material has an in-house tested profile in PrusaSlicer.

PRUSA ACADEMY

If you want to get to know our printers inside out, you can buy them as assembly kits and build them yourself, but you can also take advantage of detailed Prusa Academy courses which will guide you through the first steps of your 3D printing journey. And then you take the next step and learn everything you need about slicing, design modelling and more!



UNIQUE APPROACH TO UPGRADABILITY AND BACKWARD COMPATIBILITY

Getting a new piece of tech may sometimes be a bit daunting. You can throw away your old power adapters, cables, cases, and accessories because the manufacturer changed pretty much everything. You even have to figure out what to do with the old hardware itself. That's not the case here.

We pride ourselves on the fact that our 3D printers are upgradable. We started this trend in 2012 and continue it to this day. The new CORE One shares about 70% of its parts with the MK4S – all of them proven by years and years of active use.

With the convenient Conversion Kit, you can even transform your Original Prusa MK4S into the new enclosed CoreXY 3D printer. How cool is that?

There are many surprising ways of reusing older components. Smooth rods from the Z-axis are now on the Y-axis, we added one extra Z-axis motor so now there are three (and we gained extra 50 mm on the Z-axis), etc. However, we made no compromise when we picked the parts for the CORE One. Whenever an older component wasn't a good fit, it was replaced.

The Prusa CORE One is built with upgradability and modularity in mind. This is a printer ready for the future, and the best investment in 3D printing.

IN SHORT:

You can **transform your existing MK4S into the CORE One** without spending a fortune.

Sheets, nozzles and many parts **are compatible with the new model**.

NATIVE PRUSA APP

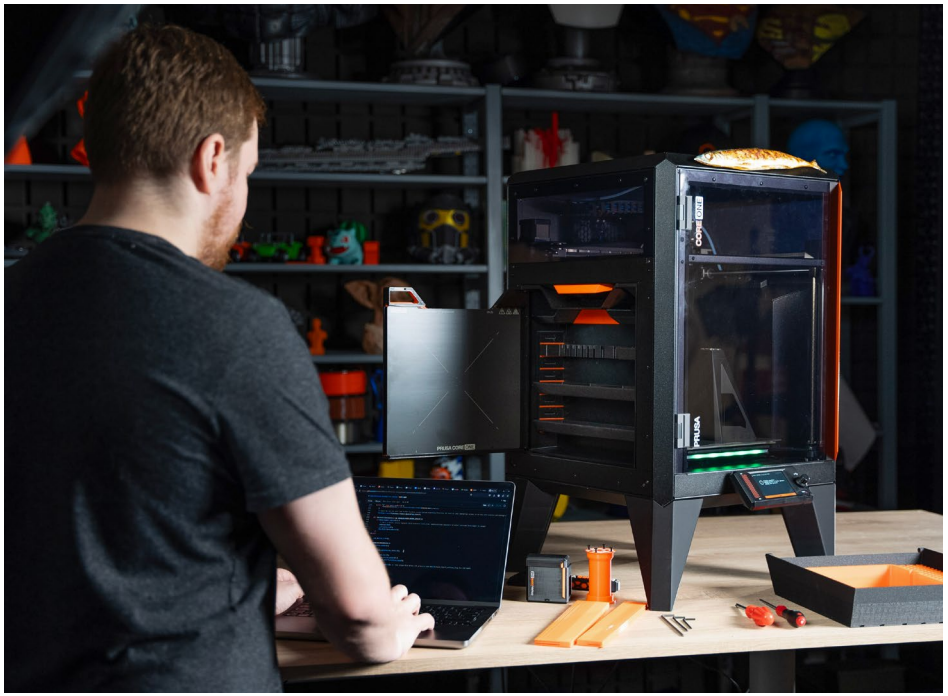
Prusa Connect is a web-based remote print management system, featuring including instant network printing, G-code streaming, scheduled print start, user teams, camera support and much more.
If you want to have a perfect overview of your printers anywhere you go, the native iOS/Android Prusa App is here for you.

MAIN FEATURES

- Seamless integration with Prusa Account / Prusa Connect
- Direct access to Printables.com – send print files from Printables directly to your 3D printer without slicing
- Print, pause and stop print
- Push notifications (print finished, color change...)
- Print jobs overview
- Camera support

Just like with Prusa Connect, we're adding new features regularly.

The Wi-Fi setup is convenient as you would expect from a modern 3D printer. The CORE One can scan for available networks, you can input the password via the touchscreen, or generate a credentials file in PrusaSlicer. You can also use the app and simply tap your phone against the NFC antenna (below the electronics cover on the back of the printer).



COMMUNITY-FOCUSED, MODDING-FRIENDLY

The CORE One continues our tradition of community-friendly 3D printers and this is one of the reasons why we're also releasing it as an assembly kit next to the fully assembled printer. Thanks to our easy-to-navigate guides, you can assemble the entire printer by yourself and learn everything about how a 3D printer works. It's also one of the best STEM projects out there as you can build your printer even with your kids.

There's plenty of opportunities for people who love to tinker with technology. The CORE One features open-source firmware (you can flash a custom firmware without voiding the warranty), and we welcome anyone who decides to be creative and starts to modify the plastic parts, customize the enclosure, print new accessories, etc.

We released the 3D model of the side panels before the printer's launch, so users can already design various holders, brackets, and drawers.

And we're further expanding the modding and hacking options with the GPIO board, enabling users to control external electronics using specific G-code commands – it's perfect for controlling LED lights or remote triggers for DSLR cameras to create beautiful time-lapses.

OFFLINE USE WITHOUT A CATCH, 100% SECURITY

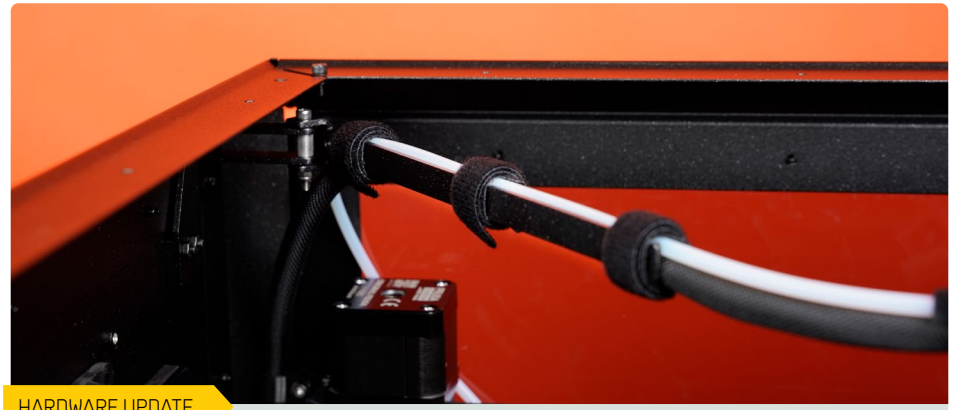
You don't have to connect the CORE One to the network – not even once, and you can still enjoy the full experience without any drawbacks. The printer can be configured and operated offline, including slicing and installation of firmware updates. The Wi-Fi module can be easily unplugged for environments with the highest level of security.

We believe that no matter whether you're developing a new-generation space shuttle, or just printing toys for your kids, no organization should be interested in gathering information about your prints or your printer's surroundings. This is why our printers can be found in top companies, universities and research institutions around the world.

CREATE COLORFUL 3D OBJECTS!

The CORE One is compatible with the MMU3, the add-on for the fastest single-nozzle printing with up to five filaments at the same time. You can create beautiful, colorful objects, and you won't have to throw half of your filaments away or constantly clean the surroundings of your printer. Our solution uses an innovative retraction technique and a compact wipe tower to manage filament changes. This not only reduces the wasted filament but also deposits all the waste to a single, tidy block.

The MMU3 compatibility kit will be available at a later date. Please get in touch with us and let us know if you would like to test drive it in the future.



HARDWARE UPDATE

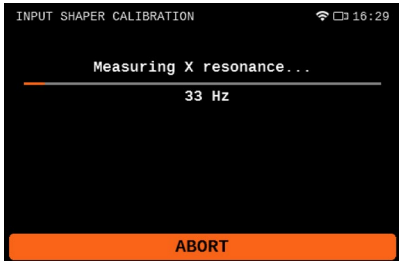
THE SWINGARM

The **SwingArm** is the most noticeable update to the production version of the CORE One compared to the prototype shown at Formnext. This simple yet ingenious solution replaces the traditional energy chain with a hinged metal arm that guides a textile-sleeved cable bundle, offering a smart answer to the cable guiding problem. The arm's length and movement are carefully optimized to minimize strain on the cables, enhancing durability and simplifying maintenance. This lighter, more practical design ensures exceptional cable lifespan and easy upkeep.

UPCOMING ADD-ONS

We're planning to expand the Prusa CORE One with several official add-ons. Plus, we already made available some of CORE One's 3D model files online and users already started designing modifications even before the printer became physically available.

AVAILABLE ADD-ONS:



ACCELEROMETER
For printer modders who use customized print heads with different weight and center of gravity. With the accelerometer, you can recalibrate the Input Shaper values for improved print quality. All our printers come with standardized optimal values for the stock extruder.

GPIO HACKERBOARD
An additional programmable electronics board that can be controlled via G-Code commands. Aimed at advanced users, this add-on gives you the option to control external devices, such as LED lights or camera triggers. Soldering experience necessary.

UPCOMING ADD-ONS (SHORTLY AFTER LAUNCH):

- Chamber camera
- Advanced Filtration System
- MMU3
- Drybox

PRINTING YOUR OWN MODELS

You're free to print any objects you want, from any filament you choose. We're excited to see your prints!

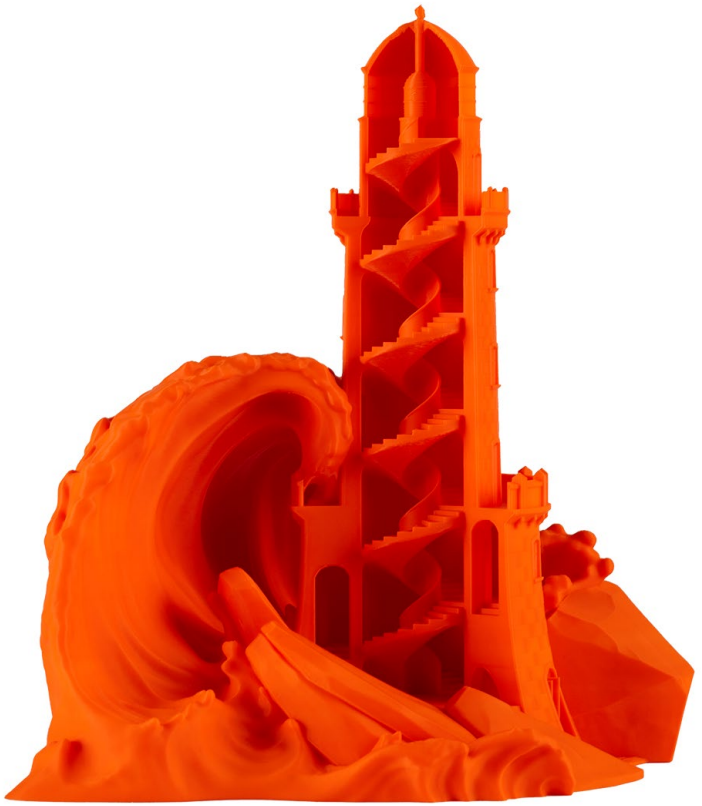
If you want to slice your own objects, please download a special PrusaSlicer release from prusa.io/review-pco-2025. The downloaded files include a PDF file that explains how to obtain profiles for the CORE One. The process is slightly different compared to other printers because the CORE One is not released yet and you will need to log in with your Prusa Account. Please see the PDF file for step-by-step instructions.

WHAT WE RECOMMEND:

- Print PLA and PETG with the enclosure door closed and vent open.
- Print with advanced filaments, such as ASA and PCCF or Nylon and test the durability and layer adhesion.
- Print with flexible filaments – the CORE One tackles them with ease and because the 360° cooling delivers exceptional overhang performance, you don't need to use as many supports as usual (or no supports at all) – supports are usually very hard to remove from flexible objects.

If you decide to print stress tests (demanding objects with complex geometry, print speed benchmarks), we recommend picking larger objects where the differences between printers are more visible. With small models, nearly all 3D printers can achieve large overhangs, some details may blend together, steep supports are easier to print, etc.

Use any kind of advanced filaments, try the recommended combinations of materials and steel sheets,... and have fun!



Just in case you missed it, the sample models and relevant information are preloaded on the USB drive you received. For your convenience, everything is also located at **prusa.io/review-pco-2025**.

PRUSA
RESEARCH
by JOSEF PRUSA

PRUSA3D.COM