

Digital model fabrication with

SIMPLEX



**The entire orthodontic model
fabrication process with the SIMPLEX
3D printer system**

Digitization can be so easy!



WELCOME TO DIGITAL ORTHODONTICS, WELCOME TO SIMPLEX!

Imagine if your dental office could create and print highly accurate orthodontic models directly from the data on your intraoral scanner with just a few clicks of a mouse. How would this change your work? This is now possible with the SIMPLEX 3D filament printer system!

Discover how SIMPLEX is revolutionizing orthodontic model fabrication – making it easier, faster and more efficient than ever before. No complex processes, no complicated steps. Just three steps to a printed model – efficient and intuitive.

We know that your time is precious. That's why we designed the SIMPLEX system to fit seamlessly into your daily practice and laboratory routine: Whether you have experience with digital technology or are just starting out: SIMPLEX is exactly the solution you want. The system has everything you need for orthodontic model printing in a single coordinated package.

Get inspired and discover how SIMPLEX can enrich your everyday life. Because the future is not only digital, but also amazingly simple!

*Print orthodontic models effortlessly
at the touch of a button – with SIMPLEX.
Simple, safe, sustainable and amazingly
intuitive, even with no prior digital knowledge.*

THE DIGITAL WORKFLOW IN 3D PRINTING

Simply explained

→ P. 6

SIMPLEX 3D FILAMENT PRINTER SYSTEM

The simple digital solution to the orthodontic model

→ P. 8

CAD SOFTWARE: SIMPLEX MODEL DESIGNER

The easy way to an orthodontic model:

→ P. 12

SIMPLEX 3D FILAMENT PRINTER

Economical and reliable

→ P. 14

SIMPLEX SLICEWARE

Simple and intuitive

→ P. 16

SIMPLEX FILAMENTS

Environmentally friendly and efficient

→ P. 17

SIMPLEX MODEL ISOLATION

Environmentally friendly and efficient

→ P. 19

SERVICE AND GUARANTEE

Making it easier to work with SIMPLEX
in the long term

→ P. 22

HOW 3D PRINTING SIMPLIFIES EVERYDAY LIFE IN AN ORTHODONTIC OFFICE

Visiting Dr. Oliver Raeth, Orthodontist from Engen (Germany)

Intraoral scanners are becoming the standard in dentistry. An increasing number of orthodontic offices are also making the switch to digital data capture. But what happens after the scan? The physical model is often indispensable. This is where 3D printing fills a critical gap in the digital workflow. Dr. Oliver Raeth has made the switch to digital technology and shares his experience: "Going digital was an important step for us. The intraoral scanner opened many doors for us, but we were still faced with the challenge of how to efficiently convert the data into physical models." Dr. Raeth found the solution in the SIMPLEX 3D filament printing system.



"TODAY, WE ARE PRINTING ALL OF OUR ORTHODONTIC MODELS DIRECTLY FROM THE SCANNED DATA. THIS SAVES US A LOT OF TIME AND ALSO GIVES US FULL CONTROL OVER THE ENTIRE PROCESS."

Dr. Oliver Raeth is fully committed to the digital workflow in orthodontics. The benefits from his perspective are the simplified processes and the time that can be saved. Data capture, diagnostics, treatment planning, fabrication of appliances, data archiving, follow-up checks, etc. – all of this takes place quickly and precisely as part of the digital process chain. He also appreciates the fact that the intraoral scanner allows him to work more sustainably. "We need a lot less alginate and plaster," the orthodontist explains. And there is no need to clean or disinfect the impression or manually fabricate the model. In his dental office, hardly any of the steps are still performed that would normally take a lot of time and involve the possibility of errors.



Easy to get started

Before deciding on a 3D printer, Dr. Raeth compared several printing technologies with the needs of his dental office. The area of application is the printing of orthodontic models. The path from dataset to model should be quick and easy. The choice was made to go with filament printing. Why? First and foremost: Simplicity, no post-processing, healthier. It should be possible to print orthodontic models without lengthy technical training. "Thanks to filament printing, we can now fabricate models easily, cost-effectively and cleanly – fully digitally."

Smooth process flow

What makes the SIMPLEX 3D filament printer system so unique? Dr. Raeth responds with the smooth process. Designed for orthodontics, SIMPLEX offers a seamless workflow that is easy even for beginners. High-quality special filaments are available for every orthodontic application. "The different filaments are processed according to the specific indication with configured printing parameters," explains Dr. Raeth. Application errors are virtually ruled out thanks to the automatic presets.

Intuitive operation

The SIMPLEX 3D filament printer has proven itself well in practice. Among other things, Dr. Raeth appreciates the fact that the printer works quietly and can be set up flexibly in the office thanks to its compact dimensions. The system concept is also impressive. The CAD software for creating the digital model, the slicer software for processing the data, the filaments and the printer – everything is perfectly coordinated and tailored to the needs of orthodontic offices. "This seamless integration of all components permits intuitive handling in everyday practice and an absolutely reliable workflow," emphasizes Dr. Raeth.

Over the next few pages, you will find out everything you need to know to get started with filament printing.



Real-life experience

"The SIMPLEX 3D filament printer stands out thanks to its simplicity and intuitive operation. Theoretically, anyone in the team can operate the printer. And there are no cleaning chemicals and no polymerization. This means no isopropanol and no light curing. This allows us to meet our objectives not only in terms of environmental and climate protection but also regarding the health and safety of our dental office team."

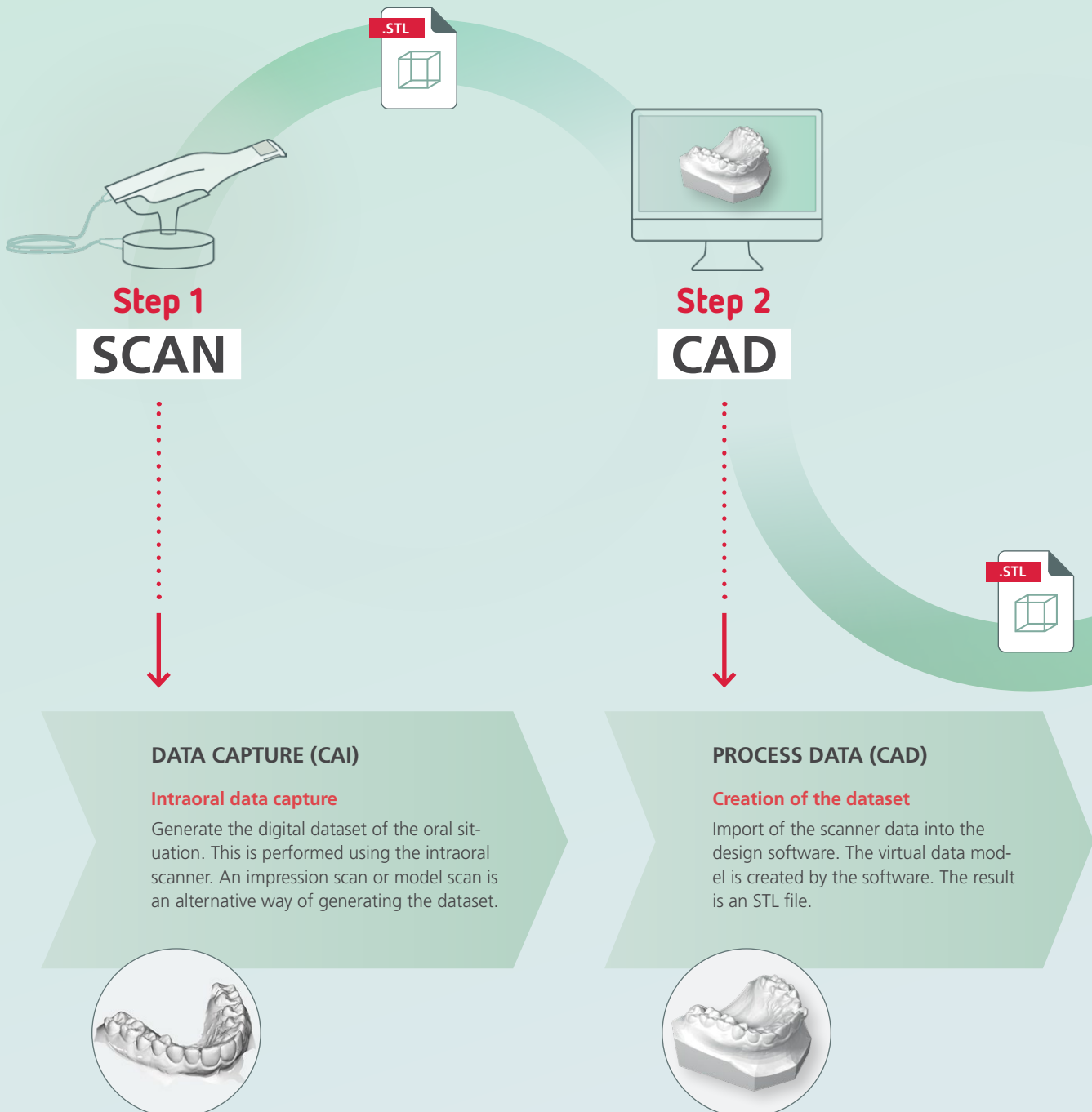
Dr. Oliver Raeth,
Orthodontist, from Engen, Germany



Simply explained

THE DIGITAL WORKFLOW IN 3D PRINTING

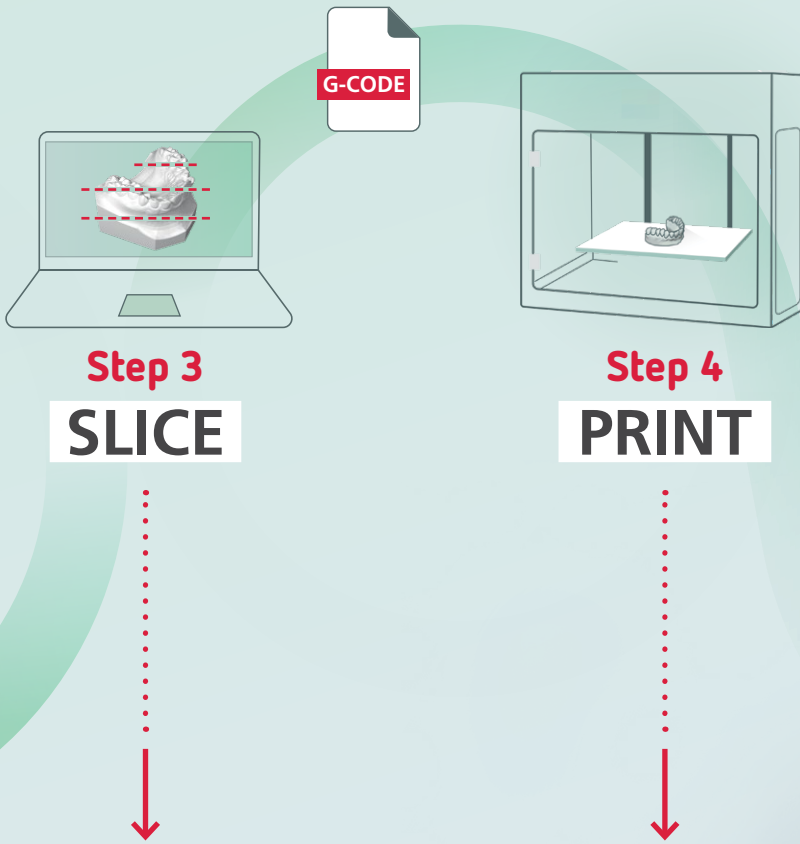
The full digital workflow is comprised of individual steps, from digitally recording the patient situation, through to printing a digital model.



Digital and analog Production time of maxillary/ mandibular diagnostic models in comparison

Analog
workflow 25 – 45 min.

Digital
workflow 10 – 25 min.



Orthodontic use

With filament printing, you can continue working with the model as usual without the need for any post-processing, e. g. fabrication of aligner splints or orthodontic appliances.

Done!

PRINT DATA (CAM)

Processing the STL file in the printer software.

The slicer software splits the dataset (STL file) into individual layers and automatically prepares the print file. This file is transmitted to the 3D printer and the printing process is started – the object is built up layer by layer.



The simple digital solution to the orthodontic model

SIMPLEX 3D FILAMENT PRINTER SYSTEM

The dental-specific SIMPLEX 3D filament printer system is a complete solution that comprises everything you need: smart modeling software (optional), dental-specific slicer software, a modern printer and various special filaments. This allows you to print orthodontic models easily, safely, and in a way that is healthy and environmentally friendly.



! Use your preferred scanner. SIMPLEX allows you to process data sets from all conventional intraoral scanners.

SIMPLEX model designer

CAD software for quick and easy creation of a digital orthodontic model. It takes only a few clicks to create a digital model from the scan data.



Step 3 & 4

SLICE & PRINT

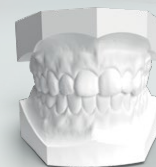


SIMPLEX sliceware and 3D filament printer

The slicer software is a software interface between the CAD program and the printer, and is what makes the 3D printing possible in the first place.

3D printing takes place in the SIMPLEX filament printer. In this process, the filament is heated, melted, and then printed onto the print bed via a nozzle. The model is created layer by layer.

SIMPLEX 2 filaments and their area of application



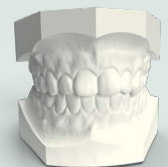
SIMPLEX study model 2
Diagnostic and planning models



SIMPLEX working model 2
Working models



SIMPLEX aligner model 2
Models for the aligner and thermo-forming technique



SIMPLEX multi-use model 2
Diagnostic and planning models

SIMPLEX 3D filament printing system

PERFECTLY COORDINATED COMPONENTS

The name says it all. With the SIMPLEX 3D filament printer system, getting started with 3D printing couldn't be easier. The printer system is configured for the requirements and print volume of an orthodontic office or laboratory. It makes work more convenient for you and your team. You don't need any prior knowledge. Just switch on and print – it's that simple. The system consists of several components that are perfectly tailored to one another.

*quick
easy
intuitive*

Simplicity at every click:

CAD software SIMPLEX model designer

The SIMPLEX model designer is reduced to the essentials and allows to quickly design the orthodontic model. With just a few clicks, a print-ready model is created from the scan data.

- ✓ **Fast: Standardized process**
- ✓ **User-friendly: Easy to use, ideal for beginners**
- ✓ **Cost-effective: Low system requirements with no hidden costs**

Precision with every print:

**SIMPLEX printer and CAM software
SIMPLEX sliceware**

The SIMPLEX 3D printer with SIMPLEX sliceware enables automated processing of the virtual model. Pre-installed print parameters ensure high reliability.

- ✓ **Simple: Intuitive operation thanks to pre-installed parameters**
- ✓ **Convenient: Pleasant to work with thanks to low noise level**
- ✓ **Rational: No post-treatment with chemicals or in the light curing unit**



Material expertise at every layer:

SIMPLEX 2 filaments

SIMPLEX filaments are carefully matched to the SIMPLEX printing system to ensure consistently high print quality. Specially designed filaments are available for each type of orthodontic model.

- ✓ **Coordinated:** Tailored to the SIMPLEX printer, sliceware and application
- ✓ **Environmentally friendly:** Made primarily from bioplastics
- ✓ **Detailed:** Excellent surface accuracy and dimensional stability

Clean separation for every model:

SIMPLEX model isolation

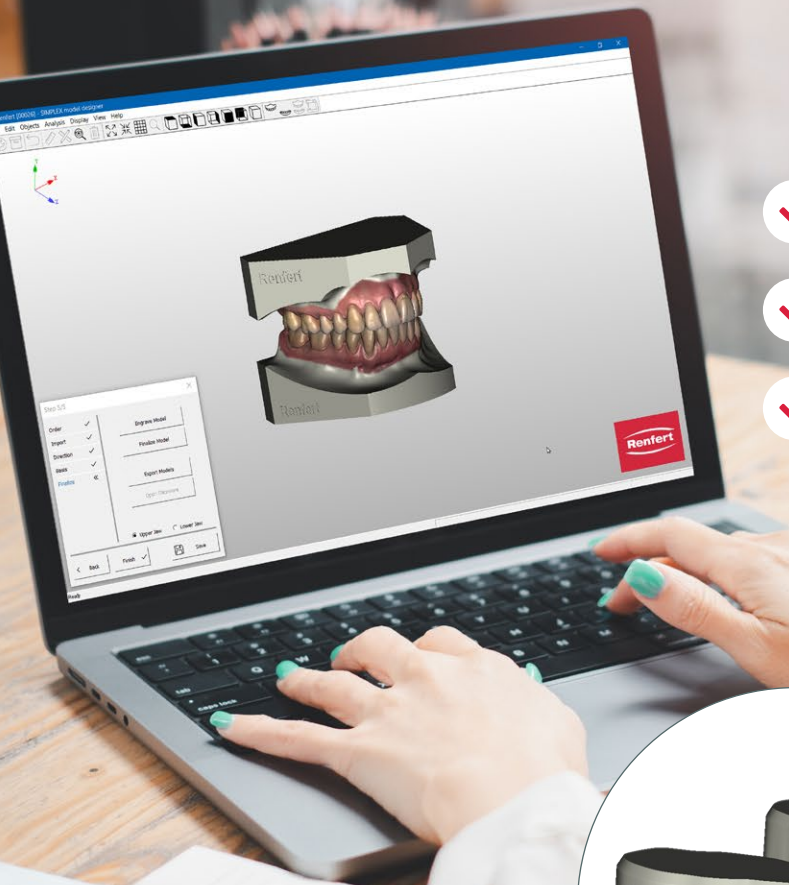
By isolating the printed model with SIMPLEX model isolation, it is easy to continue working on the printed model. A wafer-thin separation layer ensures high precision.

- ✓ **Precise:** Uniform, ultra-thin layer for accurate results
- ✓ **Safe:** Ready-to-use isolation without harmful isopropanol
- ✓ **Handy:** Short drying time and visibly colored isolation layer

The easy way to an orthodontic model:

CAD SOFTWARE: SIMPLEX MODEL DESIGNER

Optional component of the SIMPLEX system:
The SIMPLEX model designer transforms
the dataset from the intraoral scanner into
a print-ready model – almost automatically!
With just a few clicks, the digital model is
ready for printing.



FAST:

Just a few clicks



INTUITIVE:

No lengthy training

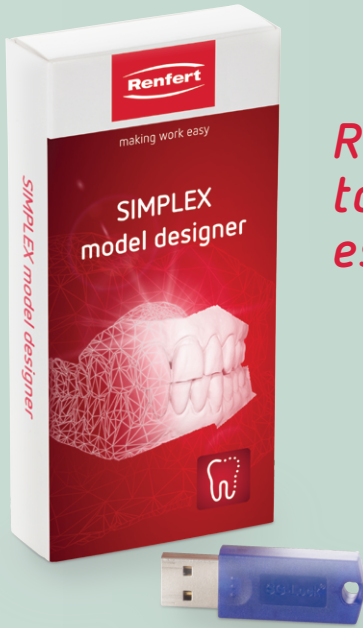


EFFICIENT:

Low system requirements

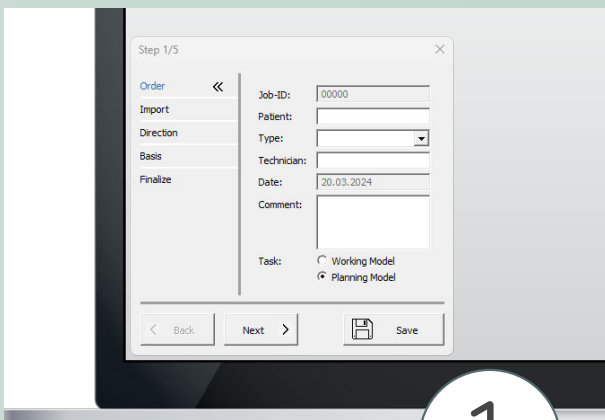


The structured CAD process ensures that nothing is overlooked or done incorrectly during model fabrication. Users can be confident that they can prepare digital models for printing without prior knowledge or lengthy training.



Reduced to the essentials

SIMPLEX model designer is deliberately kept simple. The software offers a standardized, user-friendly workflow that can be operated without prior knowledge. A structured workflow leads step-by-step to the print-ready model.



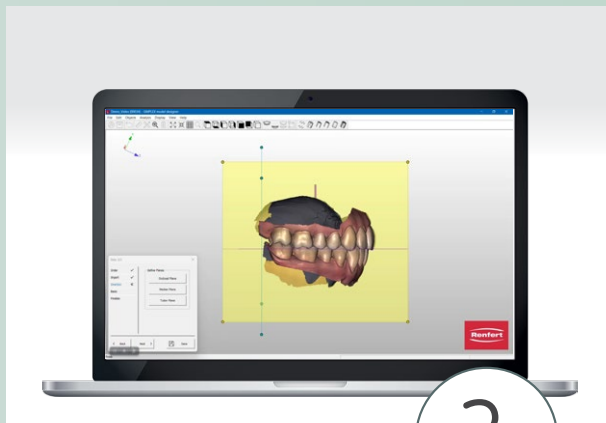
Create patient case

1.



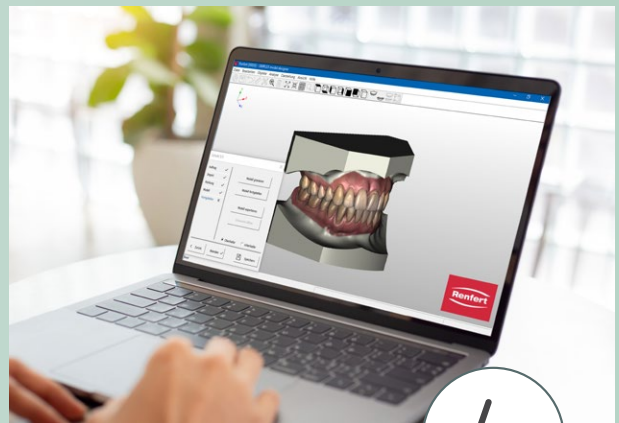
Load open datasets from the intraoral scanner into the software

2.



Finalize the model, form the model base and engrave the model, if necessary

3.



Done!

4.

Economical and reliable

SIMPLEX 3D FILAMENT PRINTER

The compact and intelligent design guarantees maximum utilization during day-to-day dental office and laboratory operations.

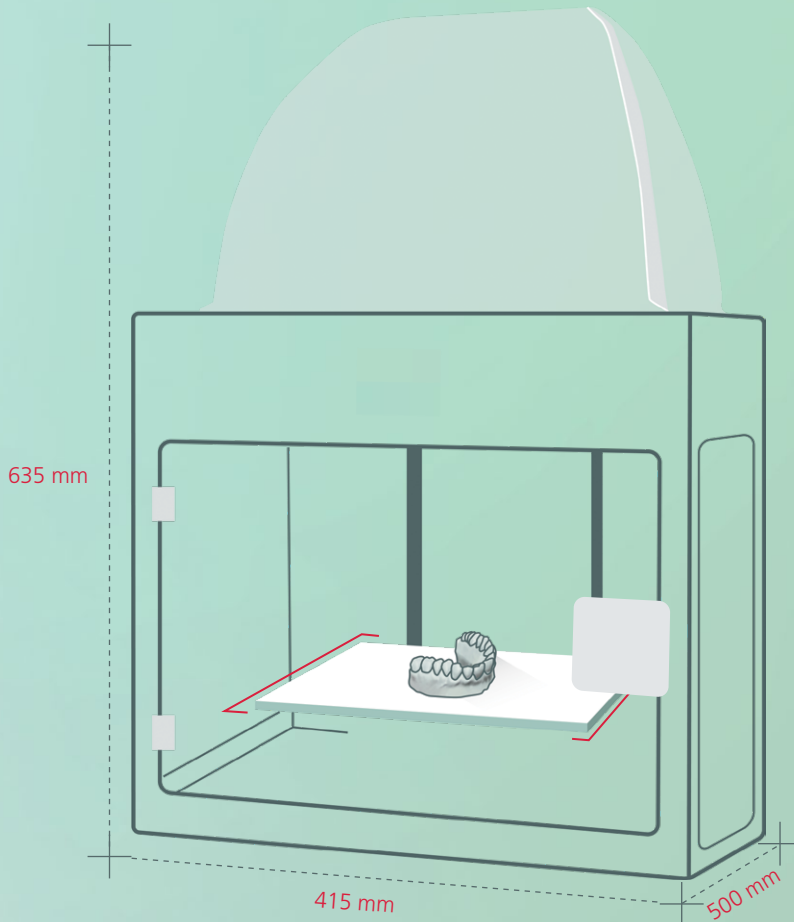
What makes the SIMPLEX 3D filament printer so appealing is its compact design. The printer can be installed with ease even in small spaces. At the same time, the intelligent and compact design and the versatile print bed facilitate maximum utilization.

During development, we placed a lot of emphasis on functionality. This also includes making sure that the printer can be easily integrated into the dental office and laboratory environment while still allowing for a high level of utilization. Compact – with maximum flexibility: That's SIMPLEX!

Joanna Deligianni, Product Manager and Dental Technician at Renfert



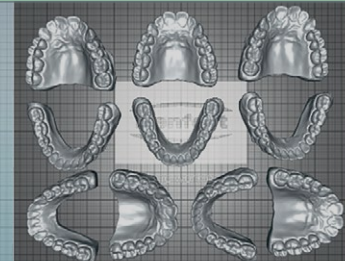
Size of the SIMPLEX 3D filament printer (incl. filament holder and cover)



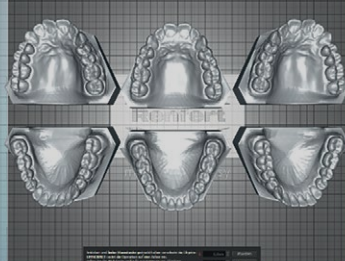
Its compact design means that the SIMPLEX 3D filament printer can be installed in even the smallest of rooms. With its space-saving design as well as the quiet and odourless printing process, the printer ensures that day-to-day dental office and laboratory work can be completed conveniently in almost any location.

Print bed

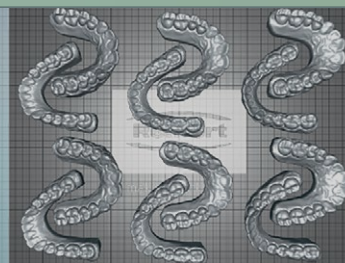
Despite its compact design, the SIMPLEX 3D filament printer offers an optimal and versatile print bed with space for approx. 12 dental arches, approx. 10 working models or approx. 8 planning and diagnostic models.



Working models



Planning models



Aligner models

Simple and intuitive

SIMPLEX SLICEWARE

Software and filament – a perfect balance is what makes SIMPLEX so easy to use.

The quality of a print object depends on a number of different factors. These include the filament as well as the printing parameters, printing temperature, the printing speed, and the layer thickness (resolution) – these parameters are controlled using the printer's software (sliceware). Because the software operates based on pre-configured settings, you only need to select the application and the appropriate material and start printing.



Select the pre-configured setting for the required print model, for example "SIMPLEX aligner model 2".

All model types required for orthodontic purposes are stored in the software with the appropriate printing parameters. This ensures a high level of process reliability and simplicity.



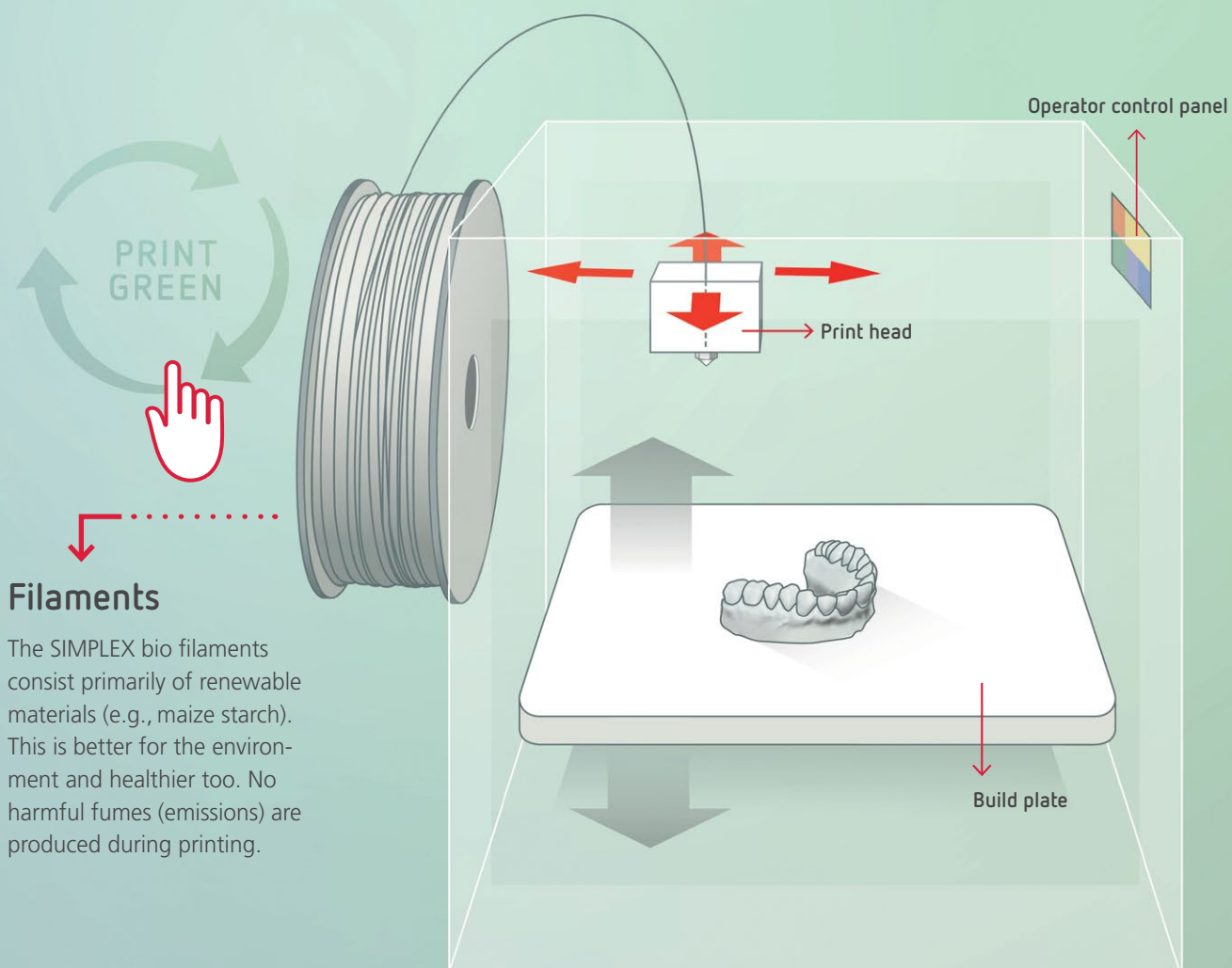
Place the specific filament for the model to be printed, for example "SIMPLEX aligner model 2", into the SIMPLEX 3D filament printer.

All SIMPLEX 2 filaments are easy to use thanks to the printer's clever design. It takes just a few simple steps. Printing is then started by pressing a button.

Environmentally friendly and efficient

SIMPLEX 2 FILAMENTS

Filament printing (FDM/FFF) uses melting filaments (thermoplastics) which are assembled in wire form on a reel. The material softens under the influence of heat. A nozzle then builds up the 3D print object layer by layer on the print bed. Done! The filaments used in the SIMPLEX 3D filament printer system are mainly bioplastics that can be recycled and industrially composted without the need for any complex processes. This gives the orthodontic office and the laboratory an environmentally friendly and sustainable way of creating a 3D-printed object.



Filaments

The SIMPLEX bio filaments consist primarily of renewable materials (e.g., maize starch). This is better for the environment and healthier too. No harmful fumes (emissions) are produced during printing.

Environmentally friendly and efficient

AN OVERVIEW OF OUR FILAMENTS

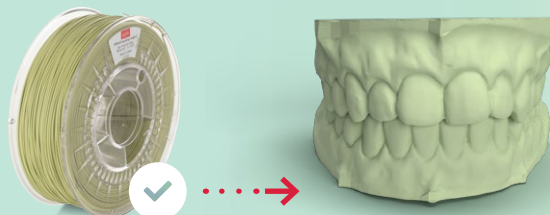


SIMPLEX study model 2

Specially designed for printing planning and diagnostic models

The bio filament SIMPLEX study model 2 for the production of planning and diagnostic models complies with the ISO 5425 norm and features high detail reproduction and sharpness. It is free from irritants, does not produce any unpleasant or harmful vapors during the printing process, and is both recyclable and industrially compostable.

Printing temperature: 190–220 °C
Print bed temperature: 0–60 °C
SIMPLEX Operating temperature: TEMP 1



SIMPLEX working model 2

Specially designed for printing working models

The bio filament SIMPLEX working model 2 is specially designed for the digital 3D printing of working models in the orthodontic field, offers high detail reproduction, and complies with the ISO 5425 norm. It is free from irritants, contributing to a pleasant working environment. No unpleasant or harmful vapors are released during the printing process. The filament is recyclable and industrially biodegradable.

Printing temperature: 190–220 °C
Print bed temperature: 0–60 °C
SIMPLEX Operating temperature: TEMP 1



SIMPLEX aligner model 2

Specially designed for printing models for the thermoforming technique (aligner)

The special SIMPLEX aligner model 2 filament is tailored to aligner fabrication and to applications in the thermoforming technique*. It promotes a pleasant working environment, as it is free from irritants and does not release any unpleasant or harmful vapors during the printing process. No post-processing or curing is required.

Printing temperature: 230–255 °C
Print bed temperature: 60–80 °C
SIMPLEX Operating temperature: TEMP 2

*For thermoforming foils with a foil thickness of ≤ 1.0 mm;
excluded: Zendura Clear Aligner & Retainer Material



SIMPLEX multi-use model 2

Specially designed for printing planning and diagnostic models with high anhydride contents

The bio filament SIMPLEX multi-use model 2 features an innovative formulation with anhydride components, providing better performance compared to plaster-like filaments. The result is precise planning and diagnostic models with silky matt surface and high detail reproduction. It complies with the ISO 5425 norm. The filament is free from irritants, releases no unpleasant or harmful vapors during the printing process, and is both recyclable and industrially compostable. In addition, it can be optimally worked with rotary instruments or scalpels.

Printing temperature: 200–220 °C
Print bed temperature: 55–65 °C
SIMPLEX Operating temperature: TEMP 1

Environmentally friendly and efficient

SIMPLEX MODEL ISOLATION

Proper isolation is half the battle.

If a resin object is to be fabricated on a model, the model surface must be isolated. And while isolating plaster from resin works well on a plaster model, 3D printed models are a challenge. Precise separation requires a special isolating agent to separate resin from resin – simply put: SIMPLEX model isolation.



SIMPLEX model isolation

SIMPLE SEPARATION WITH PRECISION, WITHOUT INTERRUPTING WORK.



A gentle and effective approach to precise surface reproduction

With SIMPLEX model isolation, objects can be easily fabricated from dental resin on the printed model. An even film of isolating agent is applied on the surface of the model using a brush – ensuring clear separation of the object from the model and a sharply detailed surface.



A simple solution with a big impact

After just one application and drying for a short period, the thin film of isolating agent already ensures perfect separation. As with the entire SIMPLEX 3D filament printer system, considerable attention has also been paid to safe and convenient use of the model isolating agent – it's simple, and it doesn't take a lot of time.



Ultra-fine separating layer

SIMPLEX model isolation is gentle and effective. This ready-to-use isolating agent does not trigger any chemical reactions on contact with resin. As isolation is facilitated by an ultra-thin layer, highly precise fabrication is possible. The isolating agent is fully soluble in water so that it does not need to be removed using steam – this saves time and prevents damage to the material.

Overview of system components

Product	Scope of delivery	Item number
<p>SIMPLEX 3D filament printer</p> 	<p>SIMPLEX 3D-filament-printer incl. SIMPLEX sliceware, SIMPLEX print, filament sensor, building chamber cover with fan, lockable Plexiglas door with lock and key, SIMPLEX study model filament, USB flash drive, filament roll holder, Bowden system (filament guiding tube), service set, mains cable with Schuko plug, travel adapter, USB A-B cable, SIMPLEX level gauge 0.25 mm, operating instructions</p>	<p>SIMPLEX: No. 17351000</p> <p>SIMPLEX with Wifi No. 17350000</p>
<p>SIMPLEX model designer</p> 	<p>Download link, USB dongle for Microsoft Windows 10/11.</p>	<p>No. 17350050</p>
<p>SIMPLEX study model 2</p> 	<p>Bio filament polar white, 1 x 1000 g (35.27 oz.), filament: Ø 1.75 mm, spool: Ø 200 x 67 mm</p>	<p>No. 17350110</p>
<p>SIMPLEX working model 2</p> 	<p>Bio filament viridian green, 1 x 1000 g (35.27 oz.), filament: Ø 1.75 mm, spool: Ø 200 x 67 mm</p>	<p>No. 17350210</p>
<p>SIMPLEX aligner model 2</p> 	<p>Heat-resistant special filament light gray, 1 x 1000 g (35.27 oz.), filament: Ø 1.75 mm, spool: Ø 200 x 67 mm</p>	<p>No. 17350320</p>
<p>SIMPLEX multi-use model 2</p> 	<p>Filament with anhydride components off-white, 1 x 1000 g (35.27 oz.), filament: Ø 1.75 mm, spool: Ø 200 x 67 mm</p>	<p>No. 17350610</p>
<p>SIMPLEX model isolation</p> 	<p>80 g (2.82 oz.)</p>	<p>No. 17350010</p>

Making it easier to work with SIMPLEX in the long term

SERVICE AND GUARANTEE

Day-to-day dental office and laboratory operations can present many challenges. That's why it makes sense to use our convenient SIMPLEX services. We have set up our Customer Success Program so that digital model fabrication in your day-to-day work goes smoothly right from the start. This program provides all the help you could possibly need at any time. SIMPLEX 3D filament printer system – enjoy simplicity with us!

The Customer Success Program includes:



+ 3-year Renfert Workflow guarantee

You can depend on us: 3-year guarantee on Renfert equipment!*

+ 10-year spare parts guarantee

All Renfert products are extremely durable. That's why we also ensure high availability of spare parts. Renfert guarantees that original spare parts will be available for every unit for at least ten years after purchase.

+ The activity guarantee

Renfert service is outstandingly efficient. In cooperation with Renfert dealers and certified service partners worldwide, a strong, competent and passionate team is focused on minimizing any downtime in the laboratory. This ensures economic efficiency.

+ Maintenance service

Optimal product performance significantly increases service life and reduces the likelihood of failures. Ask about our attractive service offerings!

+ Loaner unit service

We're always at your side. Enjoy the benefits of our loaner unit service to minimize downtimes. Just get in touch!

* Wear parts excluded.



We provide the following support at www.renfert.com/simplex/support:

- Self-help videos and support videos
- Repair instructions
- Operating instructions
- Spare parts lists
- Drawings
- FAQs
- Remote desktop help (only available during service hours and following successful software download and installation)
- Contact options
- Helpline and live chat
- RIC (Renfert Chatbot)

"Trust is based on knowing that you always have a contact partner."

Markus Münch, After Sales Service Advisor



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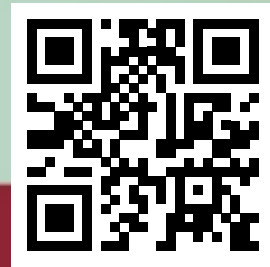


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Detailed information on SIMPLEX
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How our service works:
quickly and easily.



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