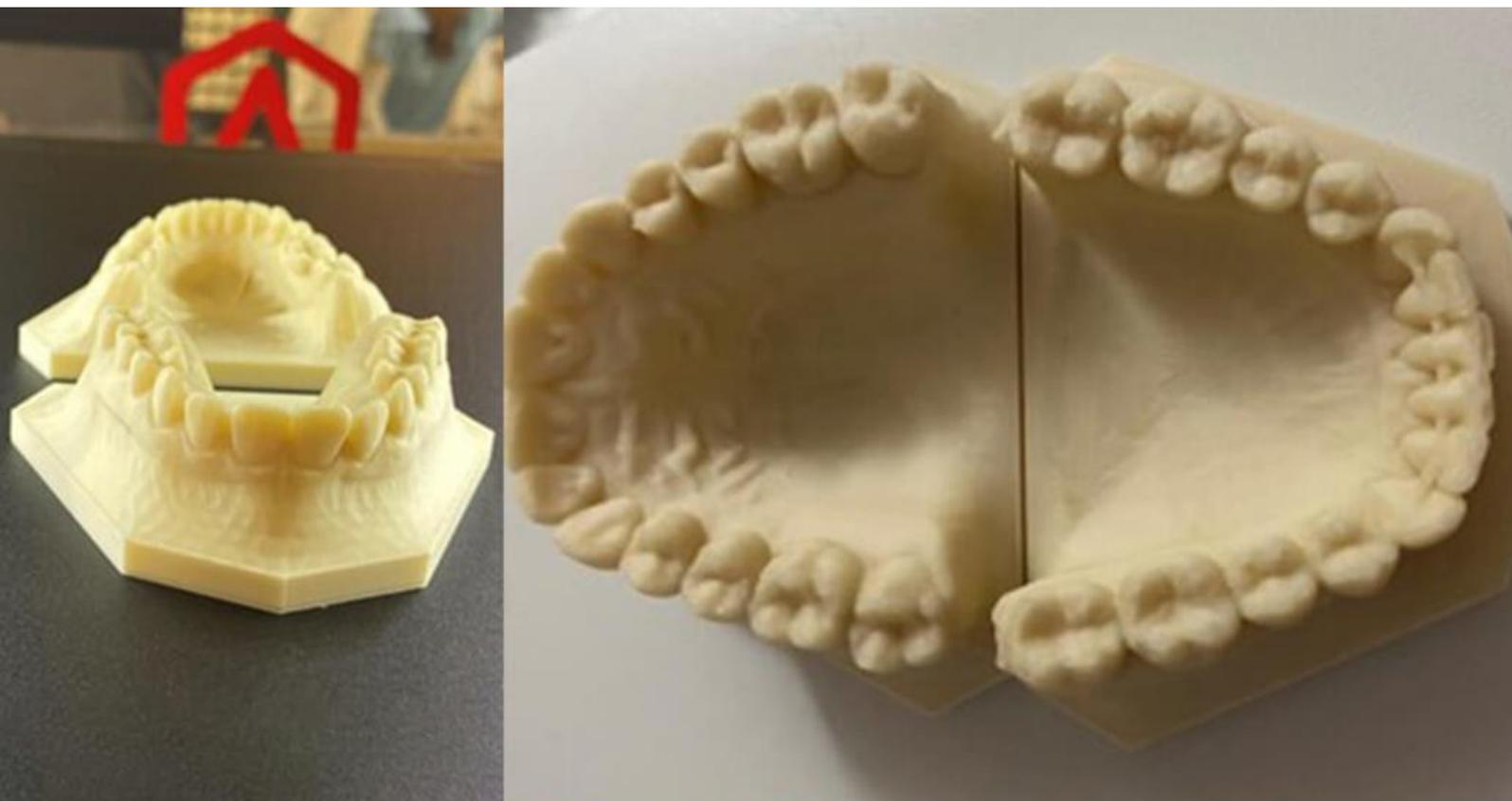


Orthodontic Treatment System Centered Around 3D Printing



Based in Germany, Ortho Penthin GmbH is a distributor of modern orthodontic treatment systems and digital orthodontic solutions. They employ Raise3D printing technology to simplify and accelerate the whole process of creating orthodontic apparatus for patients. They also resell Raise3D printers and train other dental entities how to use them, bringing cutting-edge technology to more areas of modern medicine.

We never experienced such high reliability on any other 3D printer. The Pro2 and E2 are real workhorses. This is why our customers are happier than ever and we became pioneering leaders in the German orthodontic market.

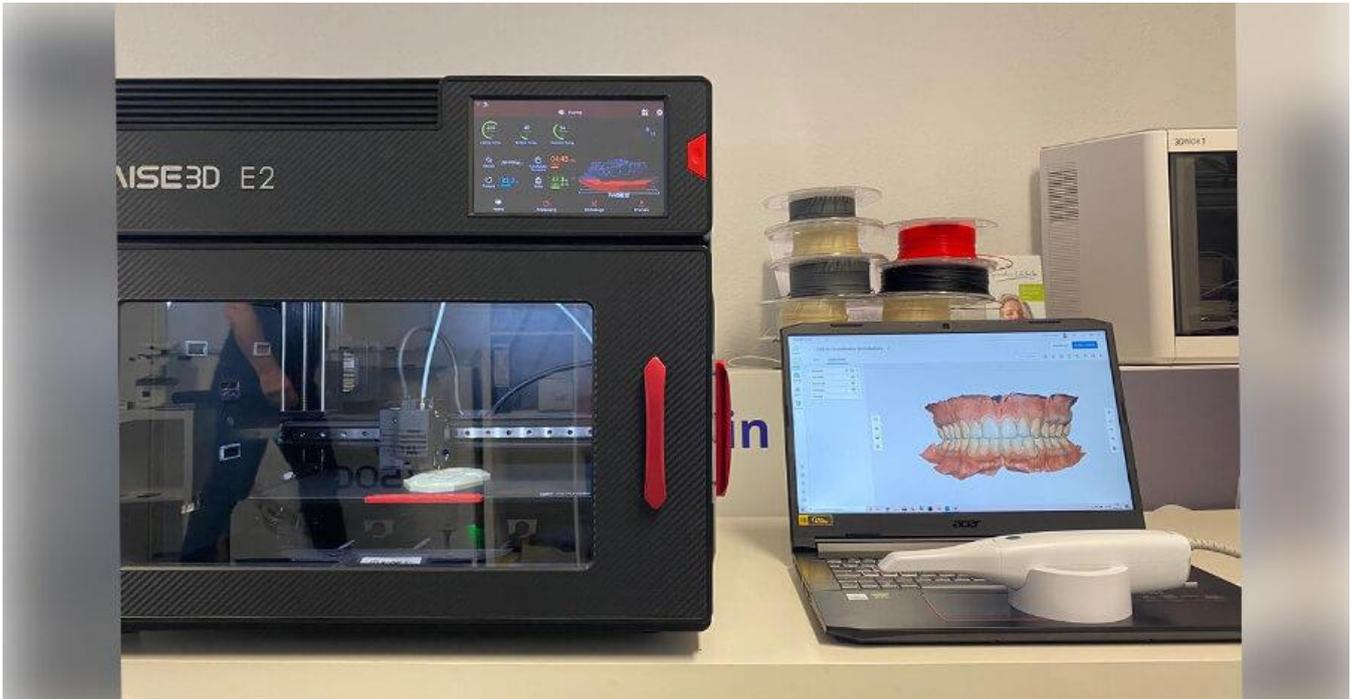
-Ortho Penthin GmbH



Creating a Better Workflow

Ortho Penthin GmbH wanted to establish an in-house workflow without the use of plaster models. Plaster models are necessary for traditional methods of casting teeth. Creating the plaster model can be a time-consuming process that fully occupies the dental technician who is building it. However, by combining an intraoral scan, orthodontic software (called OnyxCeph), and a 3D printer using PLA, Ortho Penthin has a more efficient, environmentally-friendly workflow, resulting in more time for dental technicians to do other work. In this specific case, Ortho Penthin uses a Raise3D printer to print highly accurate horseshoes to create aligners using 3D lab software. They can do this in-house, meaning they do not need to hire third-party companies to do the modeling or manufacturing.

Ortho Penthin found that the Raise3D printer produces accurate 3D printed parts in a relatively short time. The designed attachments on models are also always well printed. An unexpected benefit of using a Raise3D printer is that the size of the build plates on the Raise3D printers is ideal for an orthodontic office.



Overall Benefit from Digital Solution

The benefit of using a complete digital solution is radical. The in-house printing enables the control of treatment planning to be done in-house. Thus, all the added value reverts to the company since the know-how stays within the office.

Also, the extra time spent waiting for aligners from a third-party company to be delivered is eliminated. With in-house printing, users can plan and print aligners on the same day. This gives the company the ability to be independent while giving better patient service. Printing aligners is simple and only requires 2 days of training. By the end of the 2 days, the trainees can scan, design, and 3D print.

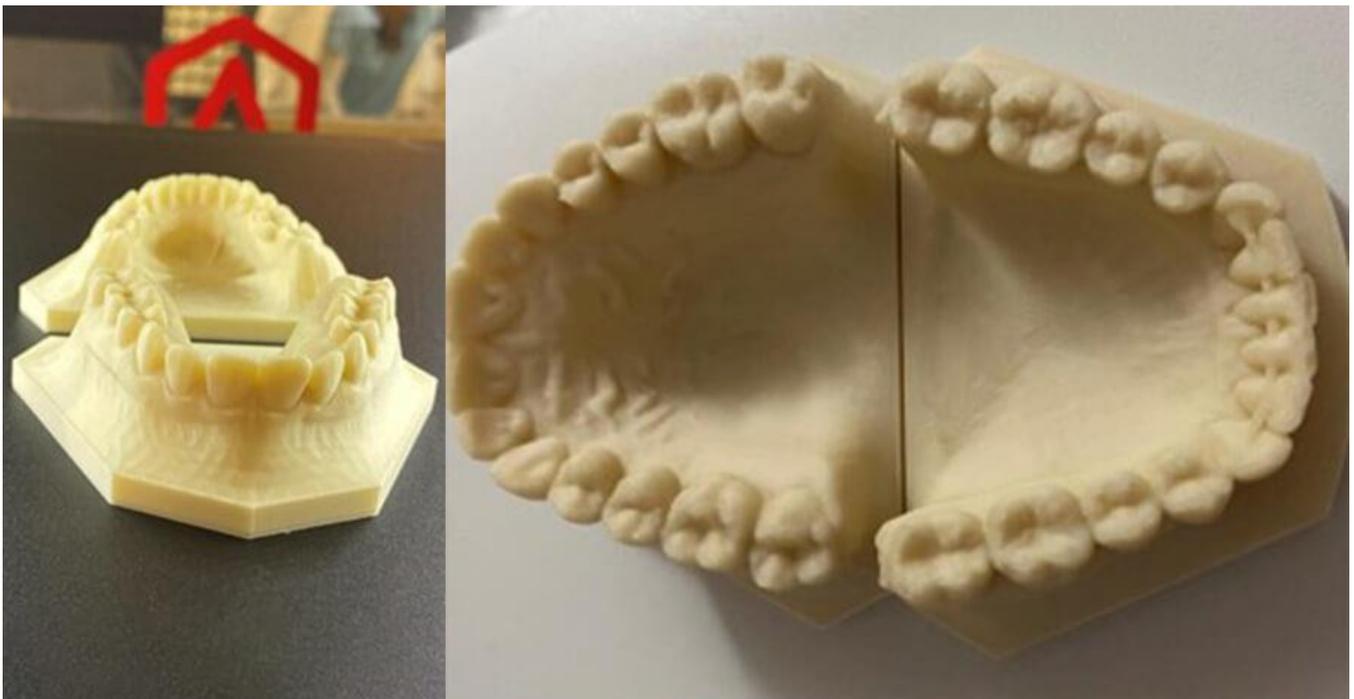


Previous methods were uncomfortable and time-consuming

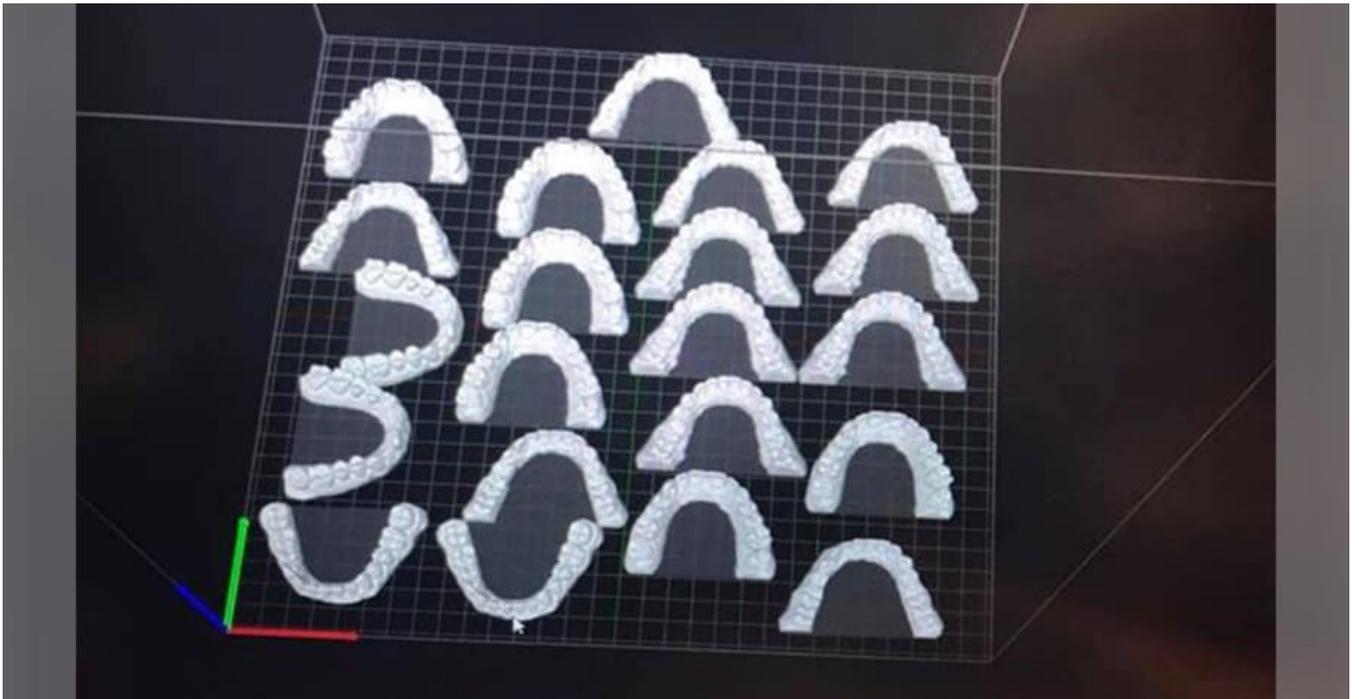
Until now the office would make a mold of the patient's teeth using putty, a process which can be uncomfortable. After being made, the mold then has to be disinfected and brought to the laboratory. From there, the mold is filled with liquid plaster and sits until the plaster solidifies. After that, the plaster cast has to be trimmed, and all of this must be done by a dental technician. With the plaster cast now complete, the doctor now has a model which can be measured for the planning the treatment, or the technician can build a dental device like a brace using the cast as a basis for it. This procedure takes up a lot of time, and can be harmful to the environment because of the plaster, which needs a considerable amount of water. It can also be rather unprecise because the mold can warp or twist with time, especially in the summer when it is hot, and the procedure is uncomfortable for the patient whose teeth are being cast.

Raise3D's ecosystem provides extensive solutions

products. In the ecosystem, the Open Filament Program allows Ortho Penthin to use special heat-resistant PLA, which is quite effective for Ortho Penthin's needs. In this instance, PLA is a better choice than ABS because it is recyclable and biocompatible. PLA is also easy for the staff to handle and as cheap as plaster.



ideaMaker, the slicing software in Raise3D's ecosystem, not only provides precise control of the printing process but also useful functions for production scenarios, such as automatic arranging all models and sequential printing. Automatic Arranging helps users quickly arrange all models within the printable space as efficiently as possible. Sequential printing orders the printer to finish these prints one by one, rather than finishing them all together which will have a much longer wait time.



Conclusion

3D printing makes digital solutions more valuable and changes the nature of orthodontic treatment systems. The advancement of 3D printing-led digital solutions has just begun. Raise3D's ecosystem gives its users a greater range of possibilities to capitalize on in the next era of manufacturing.

This case is shared by OKM3D (<https://okm3d.de/produkt-kategorie/raise3d/>), which is Raise3D's distributor in Germany.

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Do you have a great 3D printing success story and think it would be cool to be featured on www.raise3d.com, we would love to learn more! Write to us at inquiry@raise3d.com

For more information about Raise3D printers and services, browse [our website](#), or [schedule a demo](#) with one of our 3D printing experts.