FAQs

What about the „centrifuge"?

The currently sold Centrifuge 415-0102 is a commercial off the shelve product which can also be bought online. It is NOT a medical product and not dedicated for Graphy TC-85 processing, it is rather a mini washing machine for camping which we can use as a centrifuge (without water!). The only purpose it has is to toss away the excessive resin as the material may not get in touch with alcohol/isopropanol. The more professional version from Graphy (415-0003), officially called Tera Harz Spinner, incl. a heating element is announced to be available later – Forestadent will offer it as soon as it is available. Due to a shortage of semiconductors they are currently announced to be available around end of November. The Tera Harz Spinner can be ordered via Forestadent, already now.

How to design the aligners?

Various softwares can be used to design the aligners and create the treatment plans, e.g. OnyxCeph, NemoTec, Deltaface, 3 Shape, etc. The crucial point is that the software must be capable to export the aligner shell instead of the aligner model (as it used to be with traditional thermo-formed aligners). Aligners can have different thicknesses and even pressure points, bite blocks, etc. can be included. I found my first set of Graphy TC-85 aligners in 0,5mm to be thicker than a conventional thermo-formed aligner made with a 1mm foil. The 0,3mm setting was comparable to the conventional aligner, as far as I could feel it with my tongue and without any measurements, but it is already quite thin.

Can I also use Graphy's own software DAD (Direct Aligner Designer)?

Graphy's own software Direct Aligner Designer is free of charge for customers who already purchased the resin and the THC2. Unfortunately, the software has no medical device certification and thus must not be used for aligner treatments in the EU. It has some bugs, but the Graphy team actively works on the software, improves it and adds features and there are interesting features for the way Graphy aligners work. A common approach is e.g. to import aligner models from another software (e.g. 3Shape) and turn them into aligner shells incl. automatic supports using the DAD software. An interesting feature of DAD is that it is capable to plan the aligner treatment on its own – it calculates the number of required aligners, how many for alignment and how many for extrusion/intrusion after the alignment. A Treatment overview can be created, too.

How to support the aligners to print them?

To date, there is no perfectly working software that would align and auto-support your aligners without several manual adjustments. OnyxCeph works on their auto-support feature for their programme to further improve it. Depending on your printer, its dedicated sliceware might also be able to add the supports, but you will most likely have to adjust, rework them and also scan the aligner models accurately for so-called islands – parts of the aligner which are not supported and that will thus destroy the whole print.

Graphy's DAD software also has an automatic support feature and detects islands which are then supported. Therefore DAD can be used to design the supports of an aligner, no matter which programme was used to design the aligner itself. According to my information, the auto-support feature works very well so that islands are detected and prints do not fail. Of course, the exported aligner with supports must still be sliced in the printer's native sliceware.

At this point, Forestadent uses the “Lychee” slicing software as it provides a good auto-support feature which we only had to adjust slightly for good results. We export the supported aligners and slice them in the Uniz sliceware to print the aligners in the NBEE.

Which other products are required/helpful?

Besides the compatible printer, the polymerization unit THC-2, any kind of centrifuge (e.g. mini washing machine without water, Tupperware Salad spinner, original Graphy Tera Harz Spinner), and an ultrasonic hot bath, perhaps also a kettle to boil water, some other items make life easier: TC-85 should not touch blank skin, latex gloves should always be worn when handling the resin/aligners before curing them. Strainers (from DIY market, nylon, 190µ) are helpful to get the resin out of the printer’s tank back into the resin bottle, although it is not really recommended. The normal aligner polishing tools should also be available in case some excesses of the supports were cured at the aligners.

Is the material really safe?

TC-85 is fully approved within the EU and outside of the EU and studies concerning the innocuousness with regards to toxicity were already published. However, it is crucial and mandatory to stick 100% to the latest post-processing protocol. The curing times were prolonged to 20 minutes and an additional step, the ultrasonic hot bath, was introduced to reduce probability of reactions. Some doctors even cure the aligners for 24 minutes, the aligner’s thickness is worth to consider with regards to curing.

How many aligners do I get out of one bottle of TC-85 resin?

Official numbers will be around 100 to 120 aligners, sometimes even 140 since one aligner is about 6,5 gram and one bottle of resin is 1000 gram. However, supports must be considered as well and aligner is then around 12-13 gram, which means the true output of one bottle is rather about 60 aligners.

What is special about the curing and the polymerisation unit THC-2?

THC-2 comes together with a small nitrogen generator on top of the machine. Graphy aligners will only get their impressive shape-memory effect as well as the transparency if they were correctly cured in a 95% nitrogen atmosphere.

In order to create the nitrogen atmosphere, the generator requires an input of at least 7 bar (recommended 8 bar) and at least 100 liter/minute from an oil-free compressor. Most orthodontic practices do not have such a powerful compressor, which is only typical for laboratories. Such a compressor requires an additional considerable investment. They are available e.g. from the Austrian company Metasys or from the German company Dürr Dental.

Between each curing process, the THC-2 should cool down again.

If aligners are not cured properly, they will not have the proper shape memory-effect and they will not be perfectly transparent. In this case, I absolutely recommend not to hand out the aligners to patients to avoid (allergic) reactions.

Are the aligners likely to break?

The aligners are rather rigid at room temperature, but they will turn very soft and flexible when heated up in hot water. Patients should not put them on or off without having them heated up in warm/hot water and I recommend to take a sip of hot water, maximum tea to soften them before

taking them out again. This way, the aligners should not break more often than a conventional aligner. However, if the aligners are not exposed to hot/warm water before placing them or taking them out, they are indeed likely to break.
Lemonade, juice, milk drinks and coffee are as always with aligners to avoid in order to maintain transparency.

How can the aligners be cleaned?

Just like any other conventional aligner, Graphy aligners should be cleaned to keep their transparency and reduce bacteria. Tooth Paste and a Tooth brush or aligner brush will work well. In order to gain the original shape (Memory Shape function), the aligners must be put in hot water which is also recommended before wearing them again.

Drinks containing milk, coffee, lemonades etc. should not be drunk while wearing the aligners. Aligners must be taken out before any food is consumed.

Can I also purchase the other Graphy resins via Forestadent?

The Graphy model resin (S-100M: beige/yellowish 415-0040; grey 415-0042) as well as the Surgical Guide Resin SG-100, Tera Harz Insert Guide) can be purchased via your local Forestadent distributor. Furthermore, we can also supply the Graphy Model resin in grey in a 5l canister.
Unfortunately, we may not import the other Graphy resins for Prosthetics (Denture Base, Crowns and Bridges) as well as Graphy's Retainer Resin RT due to a wrong Medical classification of these products.

Compatibility of Sprintray printers and Graphy

Sprintray asked us to no longer promote Sprintrays in combination with Graphy's TC-85. They are not officially compatible and do not have a cooperation. Furthermore, TC-85 is said to damage the tanks of the current Sprintrays Pro 95 S and Pro 55 S, therefore we strongly suggest not to use these printers in combination with TC-85 resin.

Note: The above FAQs are my personal experience, know-how, and observations collected at lectures, congresses and in discussions with users, partly made also during the production of TC-85 aligners. They are neither official from Forestadent nor approved by Graphy. The workflow, developments and know-how in this field change quickly. It is the user's responsibility to stay informed. Please contact your local Forestadent representative for further information and quotes.

Ø

Pforzheim, 21.10.2023 – V4

Marc Köhler
Territory Manager Forestadent
Westliche Karl-Friedrich-Str. 151
75172 Pforzheim
Germany

FORESTADENT®
GERMAN PRECISION IN ORTHODONTICS